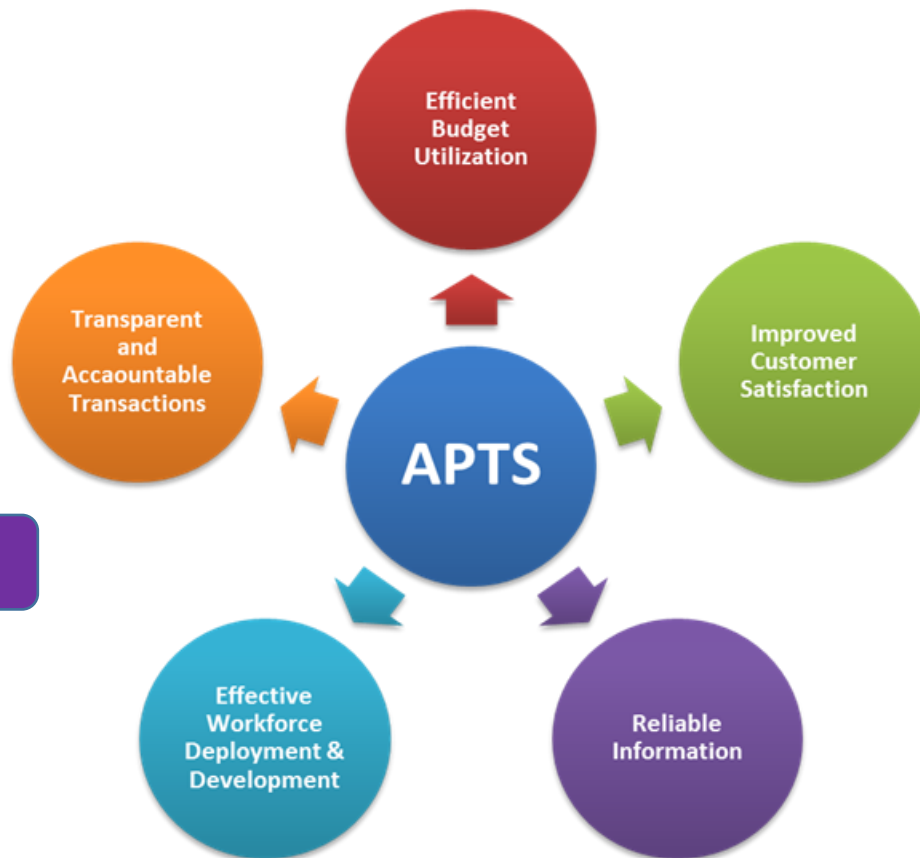# FEDERAL MINISTRY OF HEALTH

Auditable Pharmaceutical Transactions and Services (APTS) Training Course
Participant's Manual

2018 Version

Approval Statement of the Ministry

The Federal Ministry of health of Ethiopia has been working towards standardization and institutionalization of In-service Trainings (ISTs) at national level. As part of this initiative the ministry developed a national in-service training directive and implementation guide to implement trainings in a well standardized manner. The directive requires all in-service training materials fulfill the standards set in the implementation guide to ensure the quality of in-service training materials.

Accordingly, the ministry reviews and approves existing training materials based on the IST standardization checklist annexed on the implementation guide.

As per the national IST quality control process, this national Auditable pharmaceutical transaction and service training courses for pharmacists training package has been reviewed using standardization review checklist and approved by the ministry in November, 2018.

Dr Getachew Tollera
Human Resource Development Directorate Director
Federal Ministry of Health

Foreword

The Federal Ministry of Health (FMOH) has been leading a sector-wide reform aimed at significantly improving the quality and accessibility of services at all levels of the country's decentralized health system. As part of this reform, health facilities throughout the country have been streamlining their operational processes and building their capacities with a view to make their services more effective and efficient. Specifically, implementation of the EHSTG/EHCRIG, Pharmacy Chapter has played significant role, in improving the overall pharmacy practices in the country at the public health facilities.

To realize the implementation of the reforms on the ground, Auditable Pharmaceuticals Transactions and Services (APTS) was one of the strategic initiatives designed to improve pharmacy practice. APTS was implemented first at Amhara Region. During advancement of APTS, other regions like Tigray, Dire-Dawa, Oromia and SNNP contributed a lot.

From the lessons learned, APTS has been found to be a very instrumental package of interventions that help improving transparency, efficiency, accountability of pharmacy services and transactions in the country by increasing care time, reducing waiting time of customers, reducing wastage and improving efficiency and contributes to better health outcomes.

Recognizing its benefits, Federal Ministry of Health, all regional states and City Administrations of Ethiopia enacted legal framework for APTS implementation. APTS is one of the strategic initiatives in the health sector transformation plan (HSTP) for 2015 to 2020 targeting scale-upping APTS in all health facilities by 2020. In addition, APTS is one of the standards of 2016 Ethiopian Hospitals Service Transformation Guide (EHSTG). Therefore, implementation of APTS is in hurry in the country.

To this end, to institutionalize the implementation of APTS across the country, standardization of the APTS training materials becomes important. Therefore, using the recent FMOH standards, this training material is revised. I would like to acknowledge the pull of experts who developed and revised material that shall be used for federal and regions.

Finally, it gives me a great pleasure to launch the 2017 version III, National APTS Training Manual

Regasa Bayisa, B. Pharm, MSc.

Director, Pharmaceuticals and Medical Equipment Management Directorate

Acknowledgment

The Federal Ministry of Health would like to acknowledge all persons and organizations who contributed to the preparation of this manual. The shared technical knowledge, experiences and perspectives have produced a training manual that will have a positive impact on the attitude and capability of professionals implementing APTS.

The Ministry of Health express its deepest gratitude to the United States Agency for International Development (USAID) Global Health Supply Chain Program - Procurement and Supply Management (GHSC-PSM) project in Ethiopia for the dedicated and full support for the adaption and development of the 2018 version of APTS.

The ministry special acknowledgement also goes to concept contributors listed under annex 4 and authors and editors as follow

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Abbreviations and Acronyms

ABC: ABC value analysis (categorizing pharmaceuticals by their value into class A, B and C)

APTS: Auditable Pharmacy Transactions and Services

DTC: Drug and Therapeutics Committee

DUE: Drug Use Evaluation

EHSTG   Ethiopian Hospital Services Transformation Guideline

FMOH: Federal Ministry of Health

GHSC PSM Global Health Supply Chain-Procurement Program and Supply Management;

MSH: Management Science for Health

RHB: Regional Health Bureau

STG: Standard Treatment Guideline

SSA: Stock Status Analysis

STA: Stock Turnover Analysis

CSR: Consumption to stock Ratio

SIAPS: Systems for Improved Access to Pharmaceuticals and Services

USAID: United States Agency for International Development

VEN: Vital, Essential and Nonessential/less essential

WHO: World Health Organizations

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Introduction to the manual

The government of Ethiopia planned to implement Auditable Pharmaceuticals Transactions and Services (APTS) in all health facilities by 2020 by taking as one of the strategic interventions of the Health Sector Transformation Plan (HSTP), in line with our country's second Growth and Transformation Plan (GTPII). Moreover, the Federal Ministry of Health revised the Ethiopian Hospitals Services Transformation Guideline (EHSTG) and APTS is one of operational standards in the pharmacy chapter of EHSTG. All regional states and the Federal government enacted regulation to implement APTS to improve efficiency, Transparency/Accountability, Human resource deployment, Reliable information and finally to satisfy patients.

In pre-existing of APTS, reports from regions showed that pharmaceutical transactions and services at health facilities in the country hadn't been supported by systems and tools that ensure transparency and accountability. The pre-existing system didn't generate adequate, reliable and consistent information that is necessary for effective auditing of pharmaceutical transactions and services. Wastage of pharmaceuticals was high, there was no transparency, human resource deployment was inappropriate, and infrastructure and workflow were chaotic. As a result, patient satisfaction and patient knowledge on correct dosage was lower than expected.

To curb these problems, a pharmaceutical transaction system was designed. This system is called Auditable Pharmaceutical Transactions and Services (APTS), the pharmacy operation in Ethiopian context. APTS creates a system that makes transactions transparent, measurable and accountable. The system helps to manage pharmaceutical budget rationally and envisages implementations of health care financing by enabling recording of detailed descriptions of pharmaceuticals consumed and by helping preparations of monthly summary of claims for insurances/sponsors. Hence the system helps to attain continuous supply of pharmaceuticals to the community at an affordable price. The system also results in optimal treatment outcomes and better professional satisfaction as well as satisfies customers by improving pharmacy services.

However, APTS is the new era for the health sector and health professionals, accountants and auditors since it was not included in the pre-service curriculum.

Therefore, training of pharmacy professionals, accountants, cashiers, auditors and other health care providers on APTS has become mandatory.

That was the main reason why this training manual is developed to be used as tool for the transfer of knowledge and skills that are essential for the effective implementation of APTS. The manual critically assesses current practices and trends in the management of pharmaceutical services and transactions, identifies their gaps and outlines a set of interventions that will improve existing gaps. The training manual has fifteen sessions starting from pre-existing pharmacy operations, limitation, gaps, over view, detail on essential elements and finalize with monitoring and evaluations.

Core competency

Knowledge

At the end of the course, training will acquire the following knowledge: -

- Describe limitations, causes and consequences of preexisting pharmacy services and transactions, the essential elements of APTS, the legal frameworks enacted for the system, pharmacy organization, monitoring and evaluations of the pharmacy practices.

Skills

At the end of the course, trainees will apply the following skills; -

- Perform pharmaceuticals transactions
- Perform physical inventory
- Perform pharmaceutical coding
- Perform sales management
- Perform daily and monthly report
- Perform pharmaceuticals stock and consumption analysis
- pharmaceuticals auditing and monitoring and evaluation.

Attitudes

At the end of the course, trainees will develop the following attitude: -

- Believe in the need to change the preexisting practices
- Ggenerate reliable data for decision making
- wwork in convenient premise to provide qualified pharmaceutical services
- Be compassionate, respectful and caring towards the patients

- Be transparent, accountable, and loyal for the national and regional enacted regulations on APTS

- Minimize wastage of pharmaceutical products, make essential and vital medicines available and appreciate the need for auditing of pharmaceutical transactions to assure efficient budget utilization.

Course Syllabus

Course Description

This six day training is designed to enable participants to implement APTS by addressing the APTS essential elements (efficiency, accountability and transparency, human power deployment and development, reliable information for decision making on product, finance and services and patient satisfaction) and it describes the implementation strategies of all the essential elements by improving the premises and using legal framework; auditing, monitoring and evaluation tools.

Course Goals

To equip participants with knowledge, skills, and attitude on APTS (pharmacy operations) to improve overall pharmaceutical transactions system and quality of pharmacy services. The course enables participants to establish transparent and accountable pharmaceutical transactions and service delivery systems at all public health facilities in the country to enable them to achieve continuous supply of essential medicines, optimal budget utilization and appropriate use of medicines, improve transparency, accountability, and health outcomes.

Learning objectives

After completing this course, participants will be able to: -

1. Explore the preexisting pharmacy practice, limitation, cause, and interventions in Ethiopia
2. Analyze the evolutions of APTS, achievements, challenges, essential elements, lessons learnt and benefits
3. Recognize legal framework, scope of application, duties and powers of stakeholders and apply rules of ethical conduct of pharmaceutical services delivery.

4. Apply the principles of pharmacy service and organization for the quality of pharmacy practice and operations.

5. Apply the national pharmaceutical coding system.

6. Apply principles of APTS to conduct physical inventory of pharmaceuticals

7. Utilize receiving and issuing vouchers by conducting various activities of product transactions from store to service delivery units

8. Implement the principles of sales management of product from store to dispensaries and end users

9. Practice daily summary and monthly reports on finance and product transacted and service rendered.

10. Provide rational medicine dispensing and counselling services to patients using good dispensing practice in APTS workflow.

11. Practice pharmaceutical stock and consumption analysis for informed decisions making.

12. Prioritize and select medicines that address predominant health problems of the population based on ABC and VEN Analysis.

13. Describe the steps and apply financial, product, and service auditing at respective health facilities.

14. Perform the monitoring and evaluation for APTS implementation

15. Analyze the existing-implementation status of APTS by onsite visit

Training Methods and Materials

Training/learning methods

- Interactive lecture/presentation
- Individual study and reflection
- Brainstorming
- Question and answers
- Group reading
- Group exercises
- Group discussions
- Role plays
- Case studies
- Demonstrations
- Onsite visit
- Group mentoring
- Guided practice

Training Materials

- APTS Participant Manual
- APTS facilitators' s Guide

- APTS slide presentations

Recourse Materials

- Banner
- LCD projector
- Flip charts
- Markers
- White paper Plaster
- Pen
- Notepad

Participant Selection Criteria

Participants of this training are the following professionals from health facilities, RHBs, ZHDs, WoHOs, FMOH, PFSA, health Insurance, relevant supporting organizations and others who are involved in the implementation of APTS at respective levels.

- Pharmacy personnel; all of those who works in the health facility
- Pharmacy accountant; all of those who are going to work as a pharmacy accountant and finance head
- Auditor: a minimum of one in primary and secondary hospitals, health centres and 2 auditors in referral hospitals
- Cashier; All cashiers that are going to work in pharmacy as a cashier supposed to take the training
- For TOT, participants should be those who took the basic training

Trainer Selection Criteria:

Trainers of basic training should be:

- TOT certified on APTS and professional experience on implementation of APTS
- Pharmacist, Auditors, Accountants and other relevant professionals
- Five trainers: (four pharmacists and one finance professional) trainers should be assigned for one training event per room for theoretical training days.
- When parallel session is conducted in nearby halls, the number of trainers can be 8

- Only for TOT training, five trainers-for the practical training days from the selected Health facility; including, two pharmacists from dispensing outlets, one store manager, two finances (accountant/auditor) should be available
- For scaleup/basic training; three trainers per health facility (one finance and two pharmacists) are needed to conduct the onsite training until inauguration

Certification Criteria

Certification for basic training participants will be based on the following criteria:

- Knowledge assessment using post-test, 40%
- Skill assessment using forms for post-test 30%
- Individual and group activity, 30%
- Overall score of the course should be above 80% (post-test plus individual and group activity) and 85% for TOT trainees
- Full attendance mandatory (for confirmed emergencies, such as medical problems, the participants may be allowed to miss a maximum of half a day)
- Those participants who do not pass the score can take exam again.

Methods of Course Evaluation: -

Course Evaluation:

Formative

The participants will be evaluated by:

- Pre-test
- Evaluation by the trainer on the participant's activity on individual and group activities
- Evaluation of individuals and groups on daily basis

Summative

- Post test
- Teach back session for TOT training
- Daily evaluation

Course

- Daily participant feedback/reaction about the implementation of the course
- Overall evaluation of the course at the end of the course (filled by the participants)
- Post training evaluation based on structured checklist (Overall APTS implementation)
- End course evaluation

Course Duration:

A) Basic/scale up training

The duration of basic training the APTS course is a **Six-day.**

The training days will be divided in to theoretical, practical and mentoring sessions.

- Theoretical session will be given for four days for basic training at least in two rounds for a single health facility so that the regular service of facility will not be disrupted. All trainees combined will attend the practical training at their health facility for two days on weekends.

B) Training of Trainers training(TOT)

The duration for TOT training will be **eight-days.** The training days will be divided in to theoretical , practical session and teach back sessions. Theoretical session will be given for four days and practical session will be conducted at the nearby public health facility for one day and facilitation skill training will be given for three days, one day for theoretical session and two days for teach back session .

Suggested Class Size:

The maximum class size for this course shall not exceed 30 participants

Training Venue:

Accredited in service training centers and health facilities

Course Schedule

Table 1: Course schedule for basic training

Basic/Scale up Training Course on Auditable Pharmaceutical Transactions and Services (APTS)			
Organized by _____ in Collaboration with _____ Dates: _____; Venue:			
Time schedule	**Activity**	**Participants**	**Duration (minutes)**
8:30 – 8:40 AM	Registration	All participants	10
8:40-8:50 A. M	Welcoming, Opening speech and participant's self-introduction	All participants	10
8:50-9:00 A M	Expectations, and introduction to the course, group norm setting	All participants	10
9:00-9:05 A M	Describing administrative issues	All participants	5
9:05-9:20 A M (Concurrent Session)	Pre-test	Pharmacy professionals	15
	Pre-test	Finance professionals	
9:20-9:50	Introduction to CRC and Healthcare Ethics	All participants	30
9:50-10:15	Healthcare Ethics and Compassionate care	All participants	25
10:15-10:30	Respectful care and Compassionate leader	All participants	**15**
10:30 – 10:40 AM	**Tea Break**		15
10:40 – 11: 25AM	Preexisting pharmacy practice	All participants	45
11:25-12:25 PM	Overview: Evolution and essential elements	All participants	60
12:25 – 1:45 PM	**Lunch**		80
1:45– 2:50 PM	Overview: legal framework	All participants	65
2:50-3:15 PM	Pharmacy Service Operations	All participants	25
3:15-3:30 PM	**Tea Break**		15
3:30– 5:00 PM	Pharmacy Service Operations continued	All participants	90
5:00-5:15 PM	Pharmaceutical Coding	All participants	15
5:15 PM-5:30 PM	Daily course evaluation	All participants	15
End of day One			
8:30 – 8:45 A.M.	Recap of day 1	All participants	15
8:45 –10:20 AM	Pharmaceutical coding continued	All participants	95
10:20-10:30 AM	Pharmaceutical Physical Inventory	All participants	10
10:30 – 10:45 AM	**Tea Break**		15
10:45 – 12:30 PM	Pharmaceutical Physical Inventory continued.	All participants	105
12:30 – 2:00 PM	**Lunch**		90
2:00 – 3:30 PM	Managing Pharmaceutical Transactions (Receiving, requesting, and issuing)	All participants	90

Day one applies to the rows from Registration through Daily course evaluation. *Day Two* applies to the rows from Recap of day 1 through Managing Pharmaceutical Transactions.

	3:30-3:45 PM	**Tea Break**		15
	3:45-4:15 PM	Managing Pharmaceutical Transactions (Receiving, requesting, and issuing)	All participants	30
	4:15-5:15	Managing Pharmaceutical Transactions (Sales management of pharmaceuticals)	All participants	60
	5:15 PM-5:30 PM	Daily course evaluation	All participants	15
End of day Two				
	8:30 – 8:45 A.M.	Recap to Day 2	All participants	15
	8:45-9:00 AM	Managing Pharmaceutical Transactions (Sales management of pharmaceuticals)	All participants	15
	9:00- 9:40 PM	Basic principles of daily summary and monthly reports	All participants	40
	Regroup the trainee by profession			
	9:40- 10:15 AM (Concurrent Session)	Good Dispensing practice	Pharmacy professionals	35
		Daily Summary and Monthly reports practice	Finance professionals	
	10:15 – 10:30 AM	**Tea Break**		15
	10:30-12:30P.M (Concurrent Session)	Good Dispensing practice	Pharmacy professionals	120
		Daily Summary and Monthly reports	Finance professionals	
	12:30 – 2:00 PM	**Lunch**		90
	2:00-2:40PM (Concurrent Session)	Good Dispensing practice	Pharmacy professionals	40
		Daily Summary and Monthly reports	Finance professionals	
	Merge the two groups			
Day Three	2:40-3:15 PM	Analysis, interpretations & summary of monthly reports	All participants	35
	3:15-3:30 PM	**Tea Break**		15
	3:30-5:15 PM	Pharmaceutical Stock and Consumption Analysis Methods	All participants	45
	5:15 – 5:30 PM	Daily course evaluation	All participants	15
End of day Three				
	8:30 – 8:45 A.M.	Recap to Day 3	All participants	15
	8:45- 9:20 AM	VEN analysis	All participants	35
	9:20-10:20 AM	ABC analysis Presentation	All participants	60
	10:20 – 10:35 AM	**Tea Break**		15
	10:35-11:35 AM	Auditing for Pharmaceutical Transactions & Services	All participants	60
	Regroup the trainee by profession			
	11:35-12:30 PM (Concurrent Session)	ABC analysis practical exercise	Pharmacy professionals	55
		Auditing practical exercise	Finance professionals	
	12:30 – 2:00 PM	**Lunch**		90
Day Four	2:00-3:05 PM (Concurrent Session)	ABC analysis practical exercise cont.	Pharmacy professionals	65
		Auditing practical exercise continued	Finance professionals	
	3:05 -3:30 PM	ABC/VEN reconciliation analysis	Pharmacy professionals	25
	3:30-3:45 PM	**Tea Break**		15
	Merge the two groups			

	3:45 -4:10 PM	Monitoring and Evaluation	All participants	25
	4:10-5:15PM (Concurrent Session)	Posttest, course evaluation and orientation for onsite visit	Pharmacy professionals	65
		Posttest, course evaluation and orientation for onsite visit	Finance professionals	
	5:15 – 5:30 PM	Course evaluation	All participants	15
End of day Four (End of theoretical training)				
Day 5 & 6 (basic only)	8:30 – 10:30 A.M.	Practical Training by Onsite Visit	All participants	120
	10:30 – 10:45 AM	**Tea Break**		15
	10:45 – 12:30 AM	Practical Training by Onsite Visit cont.	All participants	105
	12:30 – 1:30 PM	**Lunch**		120
	1:30 – 3:30 PM	Practical Training by Onsite Visit	All participants	120
	3:30-3:45 PM	**Tea Break**		15
	3:45 – 4:30 PM	Practical Training by Onsite Visit	All participants	45
End of program				

Table 2: Course schedule for TOT training

TOT Training Course on Auditable Pharmaceutical Transactions and Services (APTS) Organized by _____ in Collaboration with _____ Dates: _____; Venue:			
Time schedule	**Activity**	**Participants**	**Duration (minutes)**
8:30 – 8:40 A.M.	Registration	All participants	10
8:40-8:50 A. M	Welcoming, Opening speech and participant's self-introduction	All participants	10
8:50-9:00 A M	Expectations, and introduction to the course, group norm setting	All participants	10
9:00-9:05 A M	Describing administrative issues	All participants	5
9:05-9:20 A M (Concurrent Session)	Pre-test	Pharmacy professionals	15
	Pre-test	Finance professionals	
9:20-9:50	Introduction to CRC and Healthcare Ethics	All participants	30
9:50-10:15	Healthcare Ethics and Compassionate care	All participants	25
10:15-10:30	Respectful care and Compassionate leader	All participants	**15**
10:30 – 10:40 AM	Tea Break		15
10:40 – 11: 25AM	Preexisting pharmacy practice	All participants	45
11:25-12:25 PM	Overview: Evolution and essential elements	All participants	60
12:25 – 1:45 PM	Lunch		80
1:45– 2:50 PM	Overview: legal framework	All participants	65
2:50-3:15 PM	Pharmacy Service Operations	All participants	25
3:15-3:30 PM	Tea Break		15
3:30– 5:00 PM	Pharmacy Service Operations continued	All participants	90
5:00-5:15 PM	Pharmaceutical Coding	All participants	15
5:15 PM-5:30 PM	Daily course evaluation	All participants	15
End of day One			
8:30 – 8:45 A.M.	Recap of day 1	All participants	15
8:45 –10:20 AM	Pharmaceutical coding continued	All participants	95
10:20-10:30 AM	Pharmaceutical Physical Inventory	All participants	10
10:30 – 10:45 AM	Tea Break		15
10:45 – 12:30 PM	Pharmaceutical Physical Inventory continued.	All participants	105
12:30 – 2:00 PM	Lunch		90
2:00 – 3:30 PM	Managing Pharmaceutical Transactions (Receiving, requesting, and issuing)	All participants	90
3:30-3:45 PM	Tea Break		15
3:45-4:15 PM	Managing Pharmaceutical Transactions	All participants	30

The left margin labels: "Day one" spans the Day one rows; "Day Two" spans the Day Two rows.

		(Receiving, requesting, and issuing)		
	4:15-5:15	Managing Pharmaceutical Transactions (Sales management of pharmaceuticals)	All participants	60
	5:15 PM-5:30 PM	Daily course evaluation	All participants	15
End of day Two				
	8:30 – 8:45 A.M.	Recap to Day 2	All participants	15
	8:45-9:00 AM	Managing Pharmaceutical Transactions (Sales management of pharmaceuticals)	All participants	15
	9:00- 9:40 PM	Basic principles of daily summary and monthly reports	All participants	40
	Regroup the trainee by profession			
	9:40- 10:15 AM (Concurrent Session)	Good Dispensing practice	Pharmacy professionals	35
		Daily Summary and Monthly reports practice	Finance professionals	
	10:15 – 10:30 AM	Tea Break		15
	10:30-12:30P.M (Concurrent Session)	Good Dispensing practice	Pharmacy professionals	120
		Daily Summary and Monthly reports	Finance professionals	
	12:30 – 2:00 PM	Lunch		90
	2:00-2:40PM (Concurrent Session)	Good Dispensing practice	Pharmacy professionals	40
		Daily Summary and Monthly reports	Finance professionals	
	Merge the two groups			
Day Three	2:40-3:15 PM	Analysis, interpretations & summary of monthly reports	All participants	35
	3:15-3:30 PM	Tea Break		15
	3:30-5:15 PM	Pharmaceutical Stock and Consumption Analysis Methods	All participants	45
	5:15 – 5:30 PM	Daily course evaluation	All participants	15
End of day Three				
	8:30 – 8:45 A.M.	Recap to Day 3	All participants	15
	8:45- 9:20 AM	VEN analysis	All participants	35
	9:20-10:20 AM	ABC analysis Presentation	All participants	60
	10:20 – 10:35 AM	Tea Break		15
	10:35-11:35 AM	Auditing for Pharmaceutical Transactions & Services	All participants	60
	Regroup the trainee by profession			
	11:35-12:30 PM (Concurrent Session)	ABC analysis practical exercise	Pharmacy professionals	55
		Auditing practical exercise	Finance professionals	
Day Four	12:30 – 2:00 PM	Lunch		90
	2:00-3:05 PM (Concurrent Session)	ABC analysis practical exercise cont.	Pharmacy professionals	65
		Auditing practical exercise continued	Finance professionals	
	3:05 -3:30 PM	ABC/VEN reconciliation analysis	Pharmacy professionals	25

3:30-3:45 PM	**Tea Break**		15
Merge the two groups			
3:45 -4:10 PM	Monitoring and Evaluation	All participants	25
4:10-5:15PM (Concurrent Session)	Posttest, course evaluation and orientation for onsite visit	Pharmacy professionals	65
	Posttest, course evaluation and orientation for onsite visit	Finance professionals	
5:15 – 5:30 PM	Course evaluation	All participants	15
End of day Four (End of theoretical training)			
Merge the two groups			
Day Five	8:30 – 10:30 A.M.	Preparation for site visit	All participants	120
	10:30 – 10:45 AM	**Tea Break**		15
	10:45 – 12:30 AM	Site Visit	All participants	105
	12:30 – 1:30 PM	**Lunch**		90
	1:30 – 3:30 PM	Site Visit Report Presentation (large group)	All participants	120
	3:30-3:45 PM	**Tea Break**		15
	3:45 – 4:30 PM	Site Visit Report Presentation (large group) cont.	All participants	45
	4:30-5:15 PM (Concurrent Session)	Site Visit Report Presentation (large group) cont.	All participants	45
		Site Visit Report Presentation (large group)	All participants	
End of day six			
Day Six	**Regroup in three groups (Note: it isn't based on profession)**			
	8:30 – 9:30 A.M.	Approaches to effective training	All participants	60
	9:30-10:30 AM	Effective Facilitation skills	All participants	60
	10:30 – 10:45 AM	**Tea Break**		15
	10:45-5:45AM	Effective Facilitation skills cont.	All participants	60
	5:45-12:30AM	Effective Facilitation skills cont.	All participants	45
	12:30-1:30 PM	**Lunch**		60
	1:30-3:30PM	Managing training	All participants	120
	3:30-3:45 PM	**Tea Break**		15
	3:45 – 4:15 PM	Managing training	All participants	30
	4:15 – 5:30 PM	Teach back session	All participants	75
End of Program			
Day Seven	**Regroup in three groups (Note: it isn't based on profession)**			
	8:30 – 10:30 A.M.	Teach back session.	Each group	120
	10:30 – 10:45 AM	**Tea Break**		15
	10:45 – 12:30 AM	Teach back session.	Each group	105
	12:30 – 1:30 PM	**Lunch**		120
	1:30 – 3:30 PM	Teach back session.	Each group	120
	3:30-3:45 PM	**Tea Break**		15

	3:45 – 4:30 PM	Teach back session.	Each group	45
	4:30 – 11:30 PM	Closing session	All participants	120

End of Program

	Regroup in three groups (Note: it isn't based on profession)			
	8:30 – 10:30 A.M.	Teach back session.	Each group	120
	10:30 – 10:45 AM	**Tea Break**		15
	10:45 – 12:30 AM	Teach back session.	Each group	105
	12:30 – 1:30 PM	**Lunch**		120
	1:30 – 3:30 PM	Teach back session.	Each group	120
Day eight	3:30-3:45 PM	**Tea Break**		15
	3:45 – 4:30 PM	Teach back session.	Each group	45
	4:30 – 11:30 PM	Closing session	All participants	120

End of Program

Chapter 1: Caring, Respectful and Companionate Healthcare Service

Chapter Description: This chapter is designed to equip healthcare professionals and senior management in health facilities to increase core competencies of compassionate, respectful, holistic, scientifically and culturally acceptable care for patients and their families.

Chapter Objective: By the end of this chapter the participants will be able to:

- Describe Compassionate, respectful and Caring(CRC) healthcare service delivery

Enabling Objectives: By the end of this chapter participants will be able to:

- Describe Compassionate, respectful and caring (CRC)

- List principles of health care Ethics

- Discuss components of compassionate care

- Explain principles of respectful care

- Discuss characteristics of Compassionate leader

Chapter Outline:

This chapter has the following outlines:

- Introduction to CRC
- Healthcare Ethics
- Compassionate care
- Respectful care
- Compassionate leader

1.1. Introduction to Compassionate, Respectful and Caring (CRC)

Individual reflection

What is Compassionate, Respect and Caring (CRC)?

Time Allowed 15 minutes

1.1.1. Definition of CRC

Compassion (□□□□)

Is a feeling of deep sympathy and sorrow for the suffering of others accompanied by a strong desire to alleviate the suffering? Therefore, we can say it is being sensitive to the pain or suffering of others and a deep desire to alleviate the suffering.

Respectful (□□□□□□□□□□□□)

Is the kind of care, in any setting, which supports and promotes, and does not undermine a person's self-respect, regardless of any differences?

Caring (□□□□□□)

Caring is an intensification of the affective dimension of empathy in the context of significant suffering. It is coupled with effective interventions to alleviate that suffering.

Compassionate, respectful and caring (CRC) - means serving patients, being ethical, living the professional oath, and being a model for young professionals and students. It's a movement that requires champions who identify with their profession and take pride by helping people.

Think Pair Share	• Why CRC a transformational agenda? Time Allowed 10 minutes

1.1.2. Why CRC a Transformation agenda?

Helping health professionals' to become compassionate and respectful practitioners remains a major challenge for the healthcare. Compassionate and respectful care is not only morally and financially essential, but it is required in many countries through national legislation and/or national health policy.

The notion that healthcare services must be expanded beyond the prevention of morbidity or mortality is only one aspect of the agenda. It must encompass respect for patients' basic human rights, including respect for patients' autonomy, dignity, feelings, choices, and preferences. It must include choice of companionship wherever possible.

Taken from the United Nations human rights declaration, 'All human beings are born free and equal in dignity and rights.' The Ethiopian constitution of human rights article 25 and 26 states that the rights to equality and privacy.

In the Ethiopian health system, there are many health professionals who have dedicated their entire career to public service and are respected by the public they serve. However, a significant proportion of health professionals see patients as just 'cases' and do not show compassion. Lack of respect to patients and their families is also a common complaint.

A three-year report of the Ethics Committee and relevant documents in Addis Ababa showed that 39 complaints were related to death of the patient and 15 complaints were about disability. The committee verified that 14 of the 60 claims had an ethical breach and/or negligence and other study also indicated that forwarding bad words, shouting on patients, mistreatment, insulting and hitting of clients are some of unethical practices showed by the health professionals.

Studies showed the need for CRC

- Lack of role models in many health facilities.
- Measuring the worth of a profession by how much it pays.
- Senior physicians cancel their outpatient clinics without informing their patients.
- Elective surgeries get cancelled.
- Admitted patients are by default getting the care they need from relatives.
- Nurses, for various reasons, have limited their role to providing injections and securing IV lines.
- Proper counseling during dispensing of drugs is also becoming a rarity.
- The quality of lab tests and the quality assurance process that lab professionals have to take before issuing results is not practiced as expected.
- Lack of compassion, respect and care is the common source of grievances in health facilities.

1.1.3. The Benefits of CRC

Table 1.The benefits and beneficiaries of Compassionate and Respectful Care

Beneficiaries	Who	How
First	Patients	• When health professionals are compassionate, patients are less anxious • Adherence to medical advice and treatment plans • Compassionate care correlates positively with both prevention and disease management. Diabetic patients, for example, demonstrate higher self-management skills when they self-report positive relationships with their providers • Hostile emotional states in patients delay the healing processes • Quality of health professionals –patient communication with increased physical functioning, emotional health and decreased physical symptoms of pain in patients
Second	Health Professionals	• Health care Professionals satisfaction with their relationships with patients can protect against professional stress, burnout, substance abuse and even suicide attempts • Burnout is strongly associated with poorer quality of care, patient dissatisfaction, increased medical errors, lawsuits and decreased expressions of compassion • Participation in a mindful communication associated with short-term and sustained improvement in well-being and attitudes associated with patient care • A major predictor of patient loyalty • When health professionals are compassionate, they achieve earlier and more accurate diagnoses because the patient is better able to reveal information when he or she feels emotionally relaxed and safe • Respect from the client/patients • Health professionals will find their work more meaningful and gratifying
Third	Students	• Good role modeling is essential for students • Increased motivation to be CRC health professionals
Fourth	Health care facilities	• Patient satisfaction will rise • Quality of health care will be improved • Lower malpractice suits • Staff will be more loyal to their hospital or health care system • Patient adherence to treatment will rise • Resources can be conserved • Greater employee satisfaction and reduced employee turnover.

1.1.4. National Strategy and Approach of CRC

The development of caring, respectful and compassionate health workers requires a multi-pronged approach in order to make CRC as a culture, self-driven inner motive and a legacy that the current generation of practitioners leaves to their successors.

NATIONAL STRATEGY AND APPROACHES FOR CRC

- *Reforming the recruitment of students for health science and medicine programs.*
- *Improving the curriculum of the various disciplines.*
- *Ownership and engagement of the leadership at all levels of the system.*
- *Inspirational leadership that aims to create an enabling environment.*
- *National, regional and facility level ambassadors.*
- *An advocacy campaign through mass media will also be launched to project positive images of health professionals.*
- *Patients and the general public will also be engaged in this movement.*
- *An annual health professional recognition event will be organized*
- *Putting in place a favorable legislative framework to reinforce CRC which would include regulation on patients' rights and responsibilities (PRR)*
- *Measurement of health care providers on CRC*
- *Comprehensive projects will be designed.*
- *Conducting national assessment related to CRC.*
- *Provision of continuous CRC trainings.*
- *Engagement and ownership of professional associations.*
- *Experience sharing from national and international best practices.*

1.2. Healthcare Ethics

1.2.1. Principles of health care ethics

Individual reflection

☐☐What is ethics?

☐☐What is health care ethics?

Time: 5 Minutes

Ethics:

Ethics is derived from the Greek word *ethos*, meaning custom or character. Ethics is the study of morality, which carefully and systematically analyze and reflect moral decisions and behaviors, whether past, present or future. It is a branch of philosophy dealing with standards of conduct and moral judgment.

Health care ethics:

It is a set of moral principles, beliefs and values that guide us to make choices about healthcare. The field of health and healthcare raises numerous ethical concerns, including issues of health care delivery, professional integrity, data handling, use of human subjects in research and the application of new techniques.

Ethical principles are the foundations of ethical analysis because they are the viewpoints that guide a decision. There are four fundamental principles of healthcare ethics.

1. Autonomy

2. Beneficence

3. Non-maleficence

4. Justice

1. Autonomy

Autonomy is the promotion of independent choice, self-determination and freedom of action. Autonomy implies independence and ability to be self-directed in one's healthcare. It is the basis of self-determination and entitles the patient to make decisions about what will happen to his or her body.

Case one:

A 49-year-old client with diabetic finding came with right foot second finger gangrene to a hospital. The surgeon decided that the finger should be removed immediately. But the patient refused the procedure.

Question: How should the surgeon handle this case?

Time: 5 Minutes

2. Beneficence

Beneficence is the ethical principle which morally obliges health workers to do positive and rightful things. It is "doing what is best to the patient". In the context of professional-patient relationship the professionals are obliged to always and without exception, favor the wellbeing and interest of their patients.

> **Case two:**
>
> Ms. X was admitted to adult surgical ward with severe excruciating right flank pain with presumptive diagnosis of renal colic. Nurse Y was the duty nurse working that day. The physician who saw her at OPD did not write any order to alleviate the pain.
>
> **Question**: What should the attending nurse do for Ms. X?
>
> **Time: 5 Minutes**

3. Non-maleficence

The principle refers to "avoid doing harm". Patient can be harmed through omitting or committing interventions. When working with clients, healthcare workers must not cause injury or distress to clients. This principle of non-maleficence encourages the avoidance of causing deliberate harm, risk of harm and harm that occurs during the performance of beneficial acts. Non-maleficence also means avoiding harm as consequence of good.

> **Case Three:**
>
> Mr "X" is admitted to internal medicine ward with cardiac failure. The physician admitted Mr "X" and prescribed some medication which should be given regularly by the ward nurse. A nurse in charge of the ward does not give a patient medication timely and appropriately.
>
> **Question**: What should the ward nurse do for Mr "X"
>
> **Time: 5 Minutes**

4. Justice

Justice is fair, equitable and appropriate treatment. Justice refers to fair handling and similar standard of care for similar cases; and fair and equitable resource distribution among citizens. It is the basis for treating all clients in an equal and fair way. A just decision is based on client need

and fair distribution of resources. It would be unjust to make such decision based on how much he or she likes each client.

Example:

- Resource scarcity is the common issue in healthcare settings. For example, there may be only one or two neurosurgeons and many patients on the waitlist who need the expertise of these neurosurgeons. In this case we need to serve patients while promoting the principle of justice in transparent way. Example, the rule of first come first serve could be an appropriate rule.

- Justice requires the treatment of all patients equally, irrespective of their sex, education, income or other personal backgrounds.

1.2.2. Confidentiality and informed consent.

Confidentiality

Confidentiality in healthcare ethics underlines the importance of respecting the privacy of information revealed by a patient to his or her health care provider, as well the limitation of healthcare providers to disclose information to a third party. The healthcare provider must obtain permission from the patient to make such a disclosure.

The information given confidentially, if disclosed to the third party without the consent of the patient, may harm the patient, violating the principle of non-maleficence. Keeping confidentiality promotes autonomy and benefit of the patient.

The high value that is placed on confidentiality has three sources:

- *Autonomy:* personal information should be confidential, and be revealed after getting a consent from the person

- *Respect for others:* human beings deserve respect; one important way of showing respect is by preserving their privacy.

- *Trust:* confidentiality promotes trust between patients and health workers.

The right of patient to confidentiality

- All identifiable information about a patient's health status, medical condition, diagnosis, prognosis and treatment and all other information of a personal kind, must be kept confidential, even after death. Exceptionally, family may have a right of access to information that would inform them of their health risks.

- Confidential information can only be disclosed if the patient gives explicit consent or if expressly provided for in the law. Information can be disclosed to other healthcare providers only on a strictly "need to know" basis unless the patient has given explicit consent.

- All identifiable patient data must be protected. The protection of the data must be appropriate to the manner of its storage. Human substances from which identifiable data can be derived must also be protected.

Exceptions to the requirement to maintain confidentiality

- Routine breaches of confidentiality occur frequently in many healthcare institutions. Many individuals (physicians, health officers, nurses, laboratory technicians, students, etc) require access to a patient's health records in order to provide adequate care to that person and, for students, to learn how to practice care provision.

- Care providers routinely inform the family members of a deceased person about the cause of death. These breaches of confidentiality are usually justified, but they should be kept to a minimum and those who gain access to confidential information should be made aware of the need not to spread it any further than is necessary for descendants benefit. Where possible, patients should be informed ahead that such a breach might occur.

- Many countries have laws for the mandatory reporting of patients who suffer from designated diseases, those deemed not fit to drive and those suspected of child abuse. Care providers should be aware of the legal requirements to be able to disclose patient information. However, legal requirements can conflict with the respect for human rights that underlies healthcare ethics. Therefore, care providers should look carefully at the legal requirement to allow such an infringement on a patient's confidentiality and assure that it is justified.

Case four:
An HIV-positive individual is going to continue to have unprotected sexual intercourse with his spouse or other partners.
Question:
1. How do you manage such an individual?
2. Discuss situations that breach confidentiality.
Time: 5 Minutes

Ethiopia Council of ministers' regulation 299/2013, Article 77 Professional Confidentiality

Informed Consent

Informed consent is legal document whereby a patient signs written information with a complete information about the purpose, benefits, risks and other alternatives before he/she receives the care intended. It is a body of shared decision making process, not just an agreement. Patient must obtain and being empowered with adequate information and ensure that he/she participated in their care process.

For consent to be valid, it must be voluntary and informed, and the person consenting must have the capacity to make the decision. These terms are explained below:

A. *Voluntary*: the decision to either consent or not to consent to treatment must be made by the person him or herself, and must not be influenced by pressure from medical staff, friends or family. This is to promote the autonomy of the patient.

B. *Informed*: the person must be given all of the information in terms of what the treatment involves, including the benefits and risks, whether there are reasonable alternative treatments and the consequences of not doing the treatment. This will help to avoid harm—patients may harm themselves if they decide based on unwarranted and incorrect information.

C. *Capacity*: the person must be capable of giving consent, which means they understand the information given to them, and they can use it to make an informed decision.

General principle of Informed consent

Should be given by a patient before any medical treatment is carried out. The ethical and legal rationale behind this is to respect the patient's autonomy and their right to control his or her life. The basic idea of personal autonomy is that everyone's actions and decisions are his or her own. The principles include:

1. Information for patients
2. Timing of consent process
3. Health Professionals responsibility for seeking consent
4. Decision making for incompetent patients
5. Refusal of treatment

Ethiopia Council of minister's regulation 299/2013, Article 52. Patient's informed consent

1.2.3. Preventive ethics in the aspect of CRC

What is preventive ethics?

Preventive Ethics is a systematic application of ethical principles and values to identify and handle ethical quality gaps, dilemmas, challenges and errors to appropriately and fairly. It could be carried out by an individual or groups in the health care organization to identify prioritize and systematic address quality gaps at the system level.

Why is preventive ethics important for CRC healthcare workers?

First and foremost, the CRC health workforce, patients, families and the community at large should have a common understanding that the experience of illness and the practice of medicine lead to situations where important values and principles come to conflict and ethical dilemmas and challenges arise everywhere. Moreover, the CRC health worker should always understand the context in which She/he operates (like the services, the clients, the providers, values, norms, principles, culture, religions, socio-economic-geographic…) as the way in which ethical dilemmas are handled vary from case to case and place to place.

Preventive ethics helps the CRC health workforce to predict, identify, analyze, synthesize and manage ethical dilemmas, challenges and errors to make the appropriate and fair decisions. Hence, preventive ethics enhances honesty and transparency between healthcare workers, patients, families and relevant others to make a deliberated joint decision. Moreover, it inspires mutual understanding and trust amongst the healthcare provider, recipient and the community at large.

Preventive ethics brings all efforts together productively and leads to the satisfaction of clients, providers and the community even if when the decisions are sometimes painful and outcomes are negative.

1.2.4. Ethics and law as enablers of CRC

The Relation between Ethics and Law

> **Individual reflection**
> ☐☐ What is the relationship between ethics and law?
> **Time:** 5 Minutes

Ethics as discussed in the previous sessions, is considered as a standard of behavior and a concept of right and wrong beyond what the legal consideration is in any given situation.

Law is defined as a rule of conduct or action prescribed or formally recognized as binding or enforced by a controlling authority. Law is composed of a system of rules that govern a society with the intention of maintaining social order, upholding justice and preventing harm to individuals and property. Law systems are often based on ethical principles and are enforced by the police and Criminal justice systems, such as the court system.

Ethics and law support one another to guide individual actions; how to interact with clients and colleagues to work in harmony for optimum outcome; provision of competent and dignified care or benefits of clients/ patients. Ethics serves as fundamental source of law in any legal system; and Healthcare ethics is closely related to law. Though ethics and law are similar, they are not identical.

Often, ethics prescribes higher standards of behavior than prescribed by law; and sometimes what is legal may not be ethical and health professionals will be hard pressed to choose between the two. Moreover, laws differ significantly from one country to another while ethics is applicable across national boundaries.

The responsibilities of healthcare professionals and the rights and responsibilities of the patient is stipulated in legal documents of EFMHACA like regulation 299/2013, directives and health facility standards.

1.3. Principles and Standards of Compassionate Care

1.3.1. Qualities of compassionate care

Compassion can be defined as: "sensitivity to the suffering of self and others with a deep wish and commitment to relieve the suffering".

Developing more compassion can be a way to balance emotions to increase the well-being of patients, healthcare professionals and facilitation of healthcare delivery. For patients, compassion can help prevent health problems and speed-up recovery. Compassion can improve staff efficiency by enhancing cooperation between individuals and teams and between patient and healthcare professionals.

	Individual reflection
	□□**Can compassion be trained and learned?**
	Time Allowed: 5 Minutes

Qualities of Compassionate Care
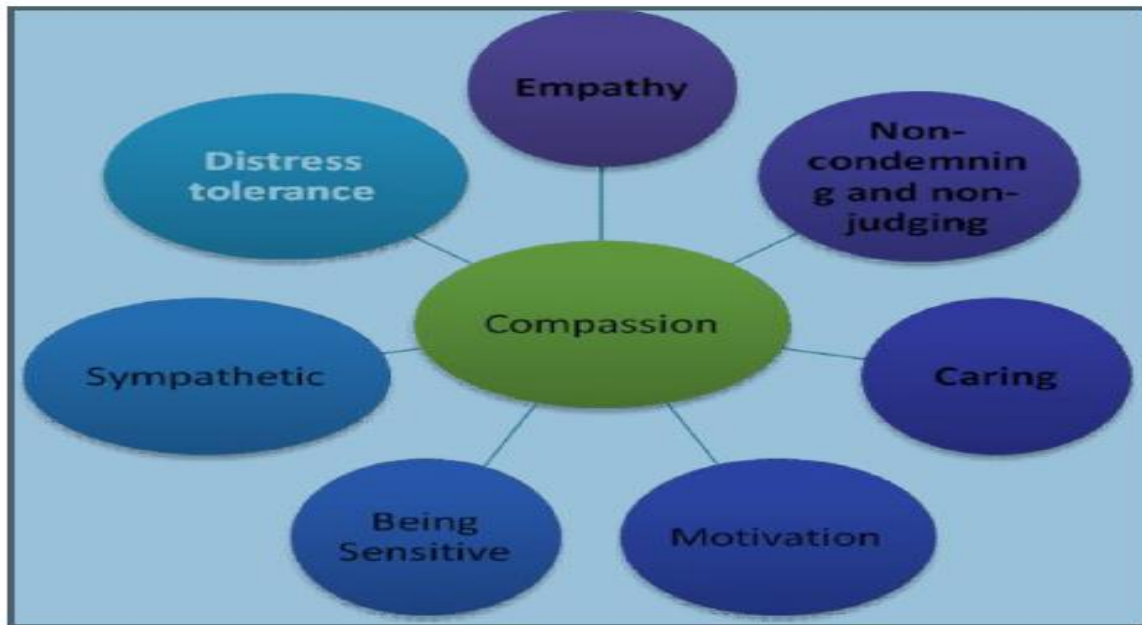
Figure 1: Qualities of compassion

Role play on qualities of compassionate care:
Instructions:
One participant will take the role of a healthcare provider and another participant will take the role of a mother [with limited mobility] of a sick child with a feeding problem. Other participants should observe and note the discussion.

Roles

Healthcare provider

A mother (with limited mobility) of a sick child:

Situation:
A mother with limited mobility brings her 3-month-old baby girl with cough and fever to the outpatient clinic. The healthcare provider seemed tired. By the time the mother enters the examination room, he was talking with his subordinate about last night's football game. He had already noticed her but did not let her to sit. Her child was crying and she was trying to quiet her. All of a sudden the healthcare provider shouted loudly at the mother to quiet her child or they would have to leave.

While waiting and calming her child, the mother told the healthcare provider that her child is very sick and needs an urgent care. While facing to his friend, the healthcare provider told the mother that he would see her child in five minutes.

After waiting for 10 minutes, the healthcare provider started to examine the child and felt sad

about the condition of the child; apologized to her for having let her wait so long. The healthcare provider evaluated the child gently, gave the child a proper treatment, reassured the mother, and the child went home better.

Discussion Questions

Did the health provider demonstrate the characteristics of compassion?

If not, what are the areas /conversation that show poor characteristics of compassion?

If yes, what are the areas /conversation that show good characteristics of compassion?

Time allowed: 30 minutes

1.3.2. Elements of compassionate care

According to researches the key elements of compassionate care has categories, each contains theme and subthemes.

1. **Virtue:** It is described as ''good or noble qualities embodied in the character of the health care provider

2. **Relational space:** is defined as the context and content of a compassionate encounter where the person suffering is aware of and is engaged by, the virtues of the health care provider.

The category of relational space comprised two themes.

- Patient awareness which describes the extent to which patients intuitively knew or initially sensed health care provider capacity for compassion.

- Engaged care giving which refers to tangible indicators of health care provider compassion in the clinical encounter that established and continued to define the health care provider-patient relationship over time.

3. **Virtuous Response:** It is the "Enactment of a virtue toward a person in suffering,'' and it is both an individual category and an overarching principle of care that functions as a catalyst to the three core categories of compassionate care giving: ''**seeking to understand, relational communicating, and attending to needs**'' The category of virtuous response contain three broad themes within it:

- **Knowing the person** refers to the extent to which healthcare providers approached their patients as persons and view their health issues and suffering from this point of view.

- **Seeing the person as priority** involves healthcare providers' ability to priorities patient needs, setting aside their own assumptions and healthcare system priorities in the process.

- **Beneficence** refers to healthcare providers wanting the best for the patient, informing the three more targeted core categories of compassionate care giving.

4. **Seeking to Understand:** refers to healthcare providers trying to know the patient as a person and his or her unique needs.

The need to understand a person's desires and tailor his or her care is identified by most patients as a fundamental feature of compassion.

- Seeking to Understand the Person.
- Seeking to Understand the needs of the Person

5. **Relational Communication:** isan important element of compassion identified by patients consisting of verbal and nonverbal displays conveyed by the healthcare provider's engagement with the person suffering.

There are four specific themes and associated subthemes that convey compassion within clinical communication:

- **Demeanor** (''being'')
- **Affect** (''feeling for'')
- **Behaviors** (''doing for'')
- **Engagement** (''being with'')

Attending to Needs

It refers to ''a timely and receptive desire to actively engage in and address a person's multi-factorial suffering''. Attending to patients' needs has three interrelated themes:

- **Compassion-Related Needs:** refers to the dimensions of suffering that patient feel compassion: physical, emotional, spiritual, familial and financial.
- **Timely** refers to addressing suffering in a ''timely'' manner.
- **Action** refers to the initiation and engagement of a dynamic and tangible process aimed at alleviating suffering. Compassion is more action.

1.3.3. Principles of compassionate care

Individual reflection

What are the principles of compassionate care?

Time Allowed: 5 Minutes

The universal principles of compassion will help us know one another in a more meaningful way where we discover one another respectfully. They create the conditions that allow a person who is suffering to experience the healing power of compassion.

1. **Attention:** is the focus of healthcare provider. Being aware will allow the healthcare provider to focus on what is wrong with a patient; or what matters most to the patient.

2. **Acknowledgement:** is the principle of what the healthcare professional says. The report of the examination or reflection on the patient's message. Positive messages of acknowledgment are buoyant; they let someone know that you appreciate them as a unique individual.

3. **Affection:** is how healthcare providers affect or touch people. Human contact has the ability to touch someone's life. It is the quality of your connection, mainly through warmth, comfort, kindness and humor. Affection brings joy and healing.

4. **Acceptance**: is the principle of being with mystery – how you stand at the edge of your understanding or at the beginning of a new experience, and regard what is beyond with equanimity. It is the quality of your presence in the face of the unknown, in the silence. Like the sun in the north at midnight, acceptance welcomes the mysteries of life and is at peace with whom we are and where we are, right now. It is the spirit of Shalom.

- The principle of acceptance is: being at peace with the way things are allows them to change.

1.3.4. Threats to compassionate care

There are factors preventing compassion and compassionate behavior for individual members of staff, teams and units and health facility. Most research discusses compassion at the individual level. In general, the most common threats for compassionate care are:

- **Compassionate fatigue:** Physical, emotional and spiritual fatigue or exhaustion resulting from care giving that causes and a decline in the caregivers' ability to experience joy or feel and care for others.
  - ➢ A form of burnout, a kind of "secondary victimization" what is transmitted by clients or patients to care givers through empathetic listening.
- **Unbalanced focus between biomedical model (clinical training) and person:** Effective clinical care is clearly fundamentally important, but human aspects of medicine and care must also be valued in training and in terms of how to be a good healthcare professional.

- **Stress, depression and burnout:**
  - **Self-reported stress** of health service staff is reported greater than that of the general working population.
  - **Burnout** (or **occupation burnout)** is a psychological term referring to general exhaustion and lack of interest or motivation to work.
- **Overall health facility context:** Attention by senior managers and health facility boards to achieve financial balance that affects priorities and behaviors of staff in health facility.

Addressing Threats of compassion
- Overcoming compassion fatigue
- Developing an inner compassionate self
- Compassion to yourself
- Teaching compassion to professionals through, training and education
- Dealing with staff stress and burnout
- Dealing with wider health facility context

1.4. Respectful care

1.4.1. Definition of Concepts of Respectful and Dignified Care

Think Pair Share	1. Can you share us your experience with regard to respect and dignity in the health care setting?
	2. What does respectful care mean to you?
	Time Allowed: 10 minutes

Definition of Dignity (□□□□)

The word dignity originates from two Latin words: 'dignitus' which means merit and 'dignus' meaning worth. It is defined from two perspectives:

- Dignity is a quality of the way we treat others.
- Dignity is a quality of a person's inner self.

Types of Dignity

There are four types of dignity: dignity of human being, personal identity, merit and moral status.

1. Dignity of human being

This type of dignity is based on the principle of humanity and the universal worth of human beings their inalienable rights-which can never be taken away.

2. Dignity of personal identity

This form of dignity is related to personal feelings of self-respect and personal identity, which also provides the basis for relationships with other people.

3. Dignity of merit

This is related to a person's status in a society.

4. Dignity of moral status

This is a variation of dignity of merit, where some people have a personal status because of the way they perceived and respected by others. (**N.B.** Refer to Hand-out 3.1 for details)

Attributes of Dignity

There are four attributes of dignity:

1. **Respect:** self-respect, respect for others, respect for people, confidentiality, self-belief and believe in others

2. **Autonomy:** having choice, giving choice, making decisions, competence, rights, needs, and independence

3. **Empowerment**: Feeling of being important and valuable, self-esteem, self-worth, modesty and pride

4. **Communication (may be verbal or non-verbal):** explaining and understanding information, feeling comfort, and giving time to the patients / families

Definition of Respect (□□□□□)

- It is a term which is intimately related to dignity
- It is probably the most important action verb used to describe how dignity works in practice.

> The action meanings of the word respect are:
> - Pay attention to
> - Honoring
> - Avoiding damage e.g. insulting, injuring
> - Not interfering with or interrupting
> - Treating with consideration
> - Not offending

People can vary by their skills, educational background, gender, age, ethnicity, and experiences. But, as human being, all are entitled to get dignified and respectful care. Every human being must respect others and get respect from others. Therefore, dignity is brought to life by respecting people:

- Rights and freedoms
- Capabilities and limits
- Personal space
- Privacy and modesty
- Culture
- Individuals believes of self-worth
- Personal merits
- Reputation
- Habits and values

Dignity and respect in the health care setting

Treating clients with dignity implies treating them with courtesy and kindness, but it also means:

- Respecting their rights
- Giving them freedom of choice
- Listening and taking into consideration what they say and
- Respecting their wishes and decisions, even if one disagrees.

Treating clients with dignity implies being sensitive to clients' needs and doing one's best for them, but it also means:

- Involving them in decision making
- Respecting their individuality
- Allowing them to do what they can for themselves and
- Giving them privacy and their own personal space

1.4.2. Principles of Respectful Care

Individual reflection

Think of a person who gave you the most respectful care/service.

- Describe the situation?
- What are the qualities of that person?
- What did you value most?

Time: 5 Minutes

The principles of respectful care guide actions and responsibility of care providers in ensuring dignified care for their service users. Dignified care has seven core principles.

- Recognize diversity and uniqueness of individuals
- Uphold responsibility to shape care
- Meaningful conversation
- Recognize the care environment
- Recognize factors affecting dignity
- Value workplace culture
- Challenge dignity barriers

1.4.3. Characteristics of Disrespectful Care

The situation where you received disrespectful care?

1. Describe the incident?
2. What was your reaction?

Time: 5 Minutes

The Seven categories of Disrespect and abuse

Category	example
Physical Abuse	Slapping, pinching, kicking, slapping, pushing, beating,
Non-consented care	Absence of informed consent or patient communication, forced procedures
Non-confidential care	Lack of privacy (e.g. Laboring in public or disclosure of patient information
Non-dignified care	Intentional humiliation, rough treatment shouting, blaming, treating to withhold services laughed at patients, provider did not

	introduce themselves, patients not called by their names throughout the interaction.
Discrimination based on specific patient attributes	Discrimination based on ethnicity, age, language, economic status, education level, etc.
Abandonment of care	Women left alone during labor and birth Failure of providers to monitor patients and intervene when needed
Detention in facilities	Detention of patients/family in facility after delivery, usually due to failure to pay

1.4.4. Factors affecting Respectful Care Provision

Individual reflection

1. What do you think hinders you from providing respectful care in your health facility?
2. What are the factors that facilitate provision of respectful care in your health facilities?

Time: 5 Minutes

Different Factors have a significant impact on hindering or facilitating the provision of respectful care service. These factors can be broadly classified in to three major groups; Health care environment, staff attitude & behavior and patient factors

Positive attributes of the physical environment which helped health professional to provide dignified care are related to aspects maintaining physical and informational privacy and dignity, aesthetically pleasing surroundings and single sex accommodation, toilet and washing facilities. Aspect of the environment that maintain physical and informational privacy are listed below

- **Environmental privacy** (for example curtains, doors, screens and adequate separate rooms for intimate procedures or confidential discussions (auditory privacy).
- **Privacy of the body**: covering body, minimizing time exposed, privacy during undressing and clothing are some of the enabling factors to ensure bodily privacy done by health professionals.
- **Aesthetic aspects** of the physical environment (for example space, color, furnishing, décor, managing smells); and the provision of accommodation, toilet and washing facilities

- **Managing peoples in the environment:** such as other patients, family and ward visitors/public contribute positively to maintain dignity in the health

- **Adequate mix and proficient Staffing**: adequately staffed with appropriate number and skill mix, as high workload affects staff interactions, and have strong leaders who are committed to patient dignity.

Physical environment which hinders health professional form providing respectful care are related to the overall health care system, lack of privacy, restricted access to facility /service and lack of resources. Aspect of the environment that hinders the provision of respectful care are listed below,

- **The healthcare System:** Shortage of staff, unrealistic expectations, poorly educated staff, 'quick fix' attitude, low wage, pay 'lip service' to dignity, low motivation, lack of respect among professionals, normalization/tolerance of disrespectful care, lack of role model, management bureaucracy and unbalanced staff patient ratio and skill mix.

- **Lack of privacy:** Lack of available single rooms, bath rooms and toilets without nonfunctional locks, use of single rooms only for infectious cases and lack of curtains or screens

- **Restricted access to facility/service:** Badly designed rooms, inadequate facilities (e.g. toilets, bath rooms), Cupboards with drawers that does not open, toilet and bath rooms shared between male and females.

- **Lack of resource:** Run out of hospital, gowns and pyjamas, Lack of medical equipment and supplies

The A, B, C, of respectful health care, is a tool designed to consider the attitudes and behaviors of health care providers

A –Attitude

Ask yourself:

- How would I be feeling if I was this person?
- Why do I think and feel this way?
- Are my attitudes affecting the care I provide and, if so, how?
- Are my personal beliefs, values, and life experiences influencing my attitude?

Action to be taken

- Reflect on these questions as part of your everyday practice.
- Discuss provider attitudes and assumptions and how they can influence the care of patients with the care team.
- Challenge and question your attitudes and assumptions as they might affect patient care
- Help to create a culture that questions if and

B- Behavior

- Introduce yourself. Take time to put the patient at ease and appreciate their circumstances.
- Be completely present. Always include respect and kindness.
- Use language the patient/family can understand

C-Communication

- Communication revolving around the patient's needs.
- Patient centered communication with defined boundaries
- Objectivity is an important attribute when assessing the clients' needs

Ten Mechanisms to mitigate threats to respectful care -

1. Support clients with same respect you would want for yourself or a member of your family
2. Have a zero tolerance of all forms of disrespect
3. Respect clients' right to privacy
4. Maintain the maximum possible level of independence, choice, and control
5. Treat each client as an individual by offering personalized care
6. Assist clients to maintain confidence and a positive self esteem
7. Act to alleviate clients' loneliness and isolation
8. Listen and support clients to express their needs and wants
9. Ensure client feel able to complain without fear of retribution
10. Engage with family members and care givers as care partners?

1.5. Compassionate leader

1.5.1. Quality of Compassionate Leadership

Group exercise
Discuss in a group of 4-5 and share your experience to the larger group.

- What does it mean for you to lead, and manage?

- Can you give an example of a leader whom you know in your professional or personal life? What makes him or her good leader for you?

- Do you know of any individuals in high positions or authority who demonstrate compassionate, respectful and caring practices when they deal with their staff and clients?

Duration: 20 minutes

Brief description of leadership theories

Introduces transactional, transformational, and servant leadership theories. It will also provide a better understanding of qualities of CRC leaders, which will enable participants to provide better service and increase awareness of CRC leadership.

- **Transformational leaders**: lead employees by aligning employee goals with their goals. Thus, employees working for transformational leaders start focusing on the company's well-being rather than on what is best for them as individual employees.

- **Transactional leaders**: ensure that employees demonstrate the right behaviors because the leader provides resources in exchange.

- **Servant Leadership**: defines the leader's role as serving the needs of others. According to this approach, the primary mission of the leader is to develop employees and help them reach their goals. Servant leaders put their employees first, understand their personal needs and desires empower them and help them develop their careers.

Characteristics of compassionate leaders

- **'In-tune' feeling**: Their actions abide by their words – and they always have the time to engage with others.

- **Manage their moods**: They know feelings affect others and they use positive emotions to inspire, not infect others with negative feelings.

- **Put people before procedures**: They are willing to set aside or change rules and regulations for the greater good.

- **Show sincere, heartfelt consideration**: They genuinely care for the well-being of others and have a humane side that puts other people's needs before theirs.

- **Are mindful**: They are aware of their own feelings and their impact on others. They are also attentive and sympathetic to the needs of others.

- **Are hopeful**: They move others passionately and purposefully with a shared vision that focuses on positive feeling of hope.

- **Courage to say what they feel**: They communicate their feelings, fears, even doubts which builds trust with their employees.

- **Engage others in frank, open dialogue**: They speak honestly with humility, respect and conviction, and make it safe for others to do the same.

- **Connective and receptive**: They seem to know what other people are thinking and feeling.

- **Take positive and affirming action**: They carry out compassion. They do not just talk about it; they make a promise, act on it and keep it.

What does compassionate leadership do for the organization?

- Positively affects sufferers, clients, employees
- Increases people's capacity for empathy and compassion
- Promotes positive relationships
- Decreases the prevalence of toxic viral negative emotions and behavior
- Increases optimism and hope
- Builds resilience and energy levels
- Counteracts the negative effects of judgment and bias

Self-evaluation of compassionate behavior

Good leaders can evaluate their own behavior using different methodologies. The self-assessment of compassionate leaders should be conducted every six months to enhance self-compassion through mindfulness.

Mindfulness begins with self-awareness: knowing yourself enables you to make choices how you respond to people and situations. Deeper knowledge about yourself enables you to be consistent, to present yourself authentically. You will learn and practice different ways to develop mindfulness and explore how it can contribute to developing compassionate leadership practices through:

- Enhancing attention and concentration
- Increasing creativity and flexibility
- Working efficiently in complex systems and uncertain environments
- Creating meaning and purpose
- Making effective and balanced decisions
- Responding effectively to difference and conflict

- Acting with compassion and kindness
- Enhancing relationships and partnerships
- Enabling genuine and courageous action
- Working ethically and wisely
- Developing cultural intelligence

1.5.2. Systems Thinking for CRC

	Group activity in healthcare system thinking
	Discuss in a group of 4-5 and share your experience to the larger group.
	• Discuss concepts of Health System and how it relates with your Health Facility /Hospital and Health Center/ functions.
	• Take your Health Facility/Hospital and Health Center/ and list the various department/core processes/support processes. Using a systems thinking approach, discuss how they interact with each other?
	• Take in to account the CRC concepts and identify gaps you may have experienced in your facilities?
	Duration: 20 minutes

System: A system is a set of interacting or interdependent components forming an integrated whole.

Health System: A health system consists of all the organizations, institutions, resources and people whose primary purpose is to improve health.

Fully functional health system: A point which various management systems and subsystems are connected and integrated to provide the best possible health services to all the intended beneficiaries of those services.

Management systems: The various components of the overall health system that managers use to plan organize and keep track of resources. Management systems are run by people living in different contexts.

Integrate CRC into Existing System

Integration of new initiatives into existing system has paramount importance in expediting the process of implementation and ensuring sustainability of CRC in a health system. Integration can be done using "AIDED" model.

*Assess:*Understand the capacity of the unit structure, especially in regards to the availability of resources, as well as human resource; also to assess the level of human capability when integrating and sustaining the CRC by determining the level of support the unit requires before or after carrying out CRC.

Innovate: Design and package the CRC to fit with the existing quality of unit structure and their environmental context to spread the CRC throughout the hospital departments.

Develop: Build upon existing knowledge of main stakeholders and opinion leaders by encouraging hospital policies, organizational culture, and infrastructure to support the implementation of principles of CRC.

Engage: Use existing roles and resources within the hospital units to introduce, translate, and integrate CRC principles into each employee's routine practices.

Devolve: Capitalize on existing organizational network of index user groups to release and spread the innovation to new user groups.

1.5.3. Organizational culture

Organizational culture consists of the values and assumptions shared within an organization. Organizational culture directs everyone in the organization toward the "right way" to do things. It frames and shapes the decisions and actions of managers and other employees. As this definition points out, organizational culture consists of two main components: shared values and assumptions.

1. ***Shared Values:*** are conscious perceptions about what is good or bad, right or wrong. Values tell us what we "ought" to do. They serve as a moral guidance that directs our motivation and potentially our decisions and actions.

2. ***Assumptions:*** are unconscious perceptions or beliefs that have worked so well in the past that they are considered the correct way to think and act toward problems and opportunities.

Five key systems influence the hospital's effective performance with respect to improving the safety and quality of patient care, as well as sustaining these improvements. The systems are:

1. Using data
2. Planning
3. Communicating
4. Changing performance
5. Staffing

Leaders create and maintain a culture of safety and quality throughout the hospital. Rationale

- CRC thrives in an environment that supports teamwork and respect for other people, regardless of their position in the organization.

- Leaders demonstrate their commitment to CRC and set expectations for those who work in the organization. Leaders evaluate the culture on a regular basis.

- Leaders encourage teamwork and create structures, processes, and programs that allow this positive culture to flourish. Disruptive behavior that intimidates others and affects morale or staff turnover can be harmful to patient care.

- Leaders must address disruptive behavior of individuals working at all levels of the organization, including management, clinical and administrative staff, licensed independent practitioners, and governing body members.

Creating an Organizational culture of empowering employees for CRC

Having empowered employees is the aim of many leaders. Literature has reported that creating an organizational culture will empower employees to increase customer satisfaction levels, as well as to improve employee morale and productivity.

Employee empowerment encourages communication, participation in shared decision-making and enabling physicians and staff to reach their full potential by creating and optimal healing environment.

There are many different ways to build employee empowerment and engagement, but all share six fundamental actions to promote CRC on the part of leadership:

Share information and communication: Sharing information with employees is important because it not only helps to build trust; it gives employees important information to allow them to make the best possible decisions in critical situations when providing CRC services.

Create clear goals and objectives: Inspire employees to embrace the mission or changes of the organization by appealing to their innate desire to help patients and provide an efficient CRC service. Great leaders share important information in a structured and consistent manner.

Teach, accept and encourage: If you empower employees to make decisions that will help keep customers happy, then you have to be willing to allow them to make mistakes and learn from those mistakes.

Reward Self-Improvement: Create an environment that celebrates both successes and failures. A good leader celebrates successes; and employees who take risks for the benefits of patients/client; also, a good leader will assist employees to develop a plan for growth and reward them as they advance.

Support a learning environment: Listen to the voice of physicians, nurses and other staff to understand key barriers, issues, and opportunities to allow them to have a voice in crafting solutions for CRC challenges.

Create a clear role of autonomy: Enable frontline workers to execute change by supplying resources (education, funding, access to other skill sets within the health facility, etc.) and removing obstacles themselves.

1.5.4. Leading CRC Health Teams

	Group activity Discuss in a group of 4-5 and share your experience to the larger group. • What principles do you think of when implementing CRC? • Do you think there are differences between your current "leading" style and leading based on CRC? If yes, list the differences. **Duration: 10 minutes**

Health facility leaders have intersecting roles as public servants, providers of health care, and managers of both healthcare professionals and other staff.

* **As public servants**, health facility leaders are specifically responsible for maintaining the public trust, placing duty above self-interest and managing resources responsibly
* **As healthcare providers**, health facility leaders have a fiduciary obligation to meet the healthcare needs of individual patients in the context of an equitable, safe, effective, accessible and compassionate health care delivery system.
* **As managers**, leaders are responsible for creating a workplace culture based on integrity, accountability, fairness and respect.

Ethical healthcare leaders apply at least the following six specific behavioral traits:
1. **Ethically conscious:** Have an appreciation for the ethical dimensions and implications of one's daily actions and decisions or, as described by author John Worthily, the "ethics of the ordinary" (reference?).
2. **Ethically committed:** Be completely devoted to doing the right thing.
3. **Ethically competent:** Demonstrate what Rush worth M. Kidder, president and founder of the Institute for Global Ethics, calls "ethical fitness," or having the knowledge and understanding required to make ethically sound decisions (reference).
4. **Ethically courageous:** Act upon these competencies even when the action may not be accepted with enthusiasm or endorsement.

5. **Ethically consistent:** Establish and maintain a high ethical standard without making or rationalizing inconvenient exceptions. This means being able to resist pressures to accommodate and justify change inaction or a decision that is ethically flawed.

6. **Ethically candid:** Be open and forthright about the complexity of reconciling conflicting values; be willing to ask uncomfortable questions and be an active, not a passive, advocate of ethical analysis and ethical conduct.

Problem-solving in healthcare

Steps of Scientific Problem Solving Skills

1. Define the problem
2. Set the overall objective
3. Conduct a root cause analysis
4. Generate alternative interventions
5. Perform comparative analysis of alternatives
6. Select the best intervention
7. Develop implementation plan and implement plan
8. Develop evaluation plan and evaluate

Best Practice Identification

Criteria to select best practices

- **New/Novel idea-** not much practiced in other hospitals in Ethiopia
- **Effectiveness:** has brought empirical change to the implementation of CRC specifically to patient satisfaction and quality of service provision. The practice must work and achieve results that are measurable.
- **Relevant/impact:** improved CRC and quality of patient experience (Explain the relevance of the innovation using a clear baseline and current performance of CRC)
- **Diffusible:** implemented at low cost in other facilities or implemented innovation in other hospitals.
- **Sustainable:** Innovation is easy to understand, easy to communicate and works for long time.
- **Political commitment:** The proposed practice must have support from the relevant national or local authorities.

- **Ethical soundness:** The practice must respect the current rules of ethics for dealing with human populations.

By definition, "Best Practices" should be "new/novel", "effectiveness" and "relevance".

Monitoring and Evaluation of CRC Health Team

Potential focus areas where leaders focus to evaluate their CRC staff

- **Quality of work**: Provide accuracy and thorough CRC service

- **Communication and interpersonal skills**: listening, persuasion and empathy to clients/patients and teamwork and cooperation in implementing CRC

- **Planning, administration and organization**: setting objectives, and prioritizing CRC practice

- **CRC knowledge**: knowledge-based training, mentoring, modeling and coaching

- **Attitude**: dedication, loyalty, reliability, flexibility, initiative, and energy towards implementing CRC

- **Ethics**: diversity, sustainability, honesty, integrity, fairness and professionalism

- **Creative thinking**: innovation, receptiveness, problem solving and originality

- **Self-development and growth**: learning, education, advancement, skill-building and career planning

Summary

- *Dignity of human being is the basis for healthcare delivery*
- *Clients should be treated as human being not as cases*
- *Disrespect and abuse is a problem in Ethiopia.*
- *Zero Tolerance to Disrespectful care shall be a motto for all health workers in the health facilities.*
- *Improving the knowledge of ethics is important to boost the ethical behavior in practice*

Chapter 2: Pre-existing pharmacy practice1 and their gaps

Chapter Description

In this chapter, pharmacy services- and transactions of products from suppliers to health facilities and within the health facilities that had been implemented for long decades in Ethiopia is described. The chapter covers limitations of such practices related to pharmacy service organization and work flow, pharmaceutical transactions, dispensing and counseling, planning, budgeting, workforce development and deployment, and auditing products, services, and transactions. It also discusses the impacts of such practices on product availability, quality of the pharmacy services, product expiry and patient satisfaction. The chapter will also describe the root causes of the problems.

Primary Objectives

- At the end of this chapter trainees will be able to explore the preexisting pharmacy practice limitation, cause and interventions in Ethiopia

Enabling Objectives

By the end of this chapter, participants will be able to: -
- Identify limitations, causes, and consequences of preexisting practice
- List potential interventions for the gaps.

Chapter Outline

This chapter has the following sessions:

- Introduction
- Preexisting pharmacy practices
- Limitations
- Causes and consequences of the preexisting practices
- Potential Intervention
- Summary

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[1]*The preexisting pharmacy practice is to mean the pharmacy practice including, the supply, storage of pharmaceuticals and pharmacy services that had been implemented in Ethiopia for hundreds of years before APTS (the overall pharmacy operation) principles.*

2.1. The preexisting pharmacy practice

Health facilities receive medicines/health products from PFSA, private suppliers, RHB, and other sources. The received medicines are stored at facility warehouses and issued to different service delivery units within the health facility. The issuing of medicines to dispensing units is based on approved request from each unit. Nevertheless, in the preexisting practice, once medicines are issued from the main store, there is no means to effectively track their destination. Thus, there was lack of transparency and accountability in the system

In addition, quality of service delivery was very poor. Measurement of workload and deployment of workforce was not performed based on actual needs. Infrastructure, equipment, and other facilities were not up to the level required for service provision. There was little or no documentation practice to avail information for decision making. Consequently, patient satisfaction was below expectation (74.5%); patient knowledge on correct dosage was low (68% and were even declining to 50.5% within few years); availability of medicines was low (65%); and there was very high wastage rate (8.24%)[2].

Before their eventual use by patients, medicines and supplies pass through various service delivery units (pharmacy, wards, laboratory, clinics, etc.). For example, medicines are issued to various dispensaries; supplies like surgical gloves and gauzes are issued to operation room; and laboratory reagents ended up at the laboratory unit. However, there was no mechanism used to track whether these pharmaceuticals are used for the intended purposes or not. Generally, there was no transparency and accountability in the pharmaceutical practice at health facilities.

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[2] *APTS baseline assessment, Federal Ministry of Health], [HSDP IV] medicines diversion from east to west Africa [World bank 2012 report*

2.1.1. Limitations of preexisting pharmaceutical transactions and services

Group reading and discussion (for 15 minute)
- ➢ What are the preexicting pharmacy practice?
- ➢ What are the limitations on the preexisting pharmacy practice?
- ➢ Mention the potential solutions

Note: group in to 4 teams and give 15 minutes for reading and discussion. Give chance to each group to answer for the questions in two minutes each

The next table shows detail Preexisting practices and their limitations. Detailed description of the Preexisting practice (transactions and services) and its limitations are presented below.

Table 3: Preexisting Practice Work Flow and its limitations

SN	Operations/Activities	Identified Gaps/ Limitations
1	**Receiving Pharmaceutical Products in the store**	
	▪ Pharmaceuticals are received at the store of the health facilities ▪ Receiving takes place using Model 19 (serially numbered goods receiving voucher) ▪ The store manager crosschecks quantity of products with the delivery invoice, identify discrepancies if any, ▪ The store manager transcribes into Model 19 in 3 copies (one original and 2 carbon copies), gives the original to payers (finance), the second copy to deliverer and third copy is kept with the pad. ▪ Updates the bin card ▪ There are pharmaceuticals received without record of cost ▪ A product may be received with various names	▪ Model 19 lacks essential information (e.g. unit, batch number and expiry date) that are critical in tracing pharmaceutical products after any transaction ▪ The store manager and other relevant professionals do not cross check physical inspection as intended (batch by batch) ▪ There is no extra copy of Model 19 to be given to the stock card clerk /accountant/ to update the stock status and summarize monthly ▪ Updating bin cards is not performed on a routine basis ▪ There is no mechanism to estimate cost for items that do not carry cost ▪ There was no system that help to track medicines uniquely
2	**Storage and Handling of Products**	
	▪ The store manager with support of porters' (only in few health facilities) medicines on shelves or pallets or floor ▪ Checks stock status by looking at the bin cards/electronic tools, physical count (except in some health facilities) ▪ Monitors expiry dates of products and report	▪ Absence of appropriate storage places and facilities like shelves, pallets, cold room/ refrigerator, ventilators/air conditioner, fire extinguishers, trolleys, ladder and assigned /porters (laborer) ▪ Bin cards are neither recorded nor updated (except in rare situation)

SN	Operations/Activities	Identified Gaps/ Limitations
	those with expiry date of less than 6 months • Segregate expired medicines from usable stock and stock it in a separate place • Corrosive and flammable products are stored pharmaceuticals together with other products • Regular cleaning is mandatory	• Absence of systematized storage arrangements • Over and understocks are calculated only based on 6-month expiry and four-month stock (without considering various stock analysis tools) • There is a possibility to encountering damage and loss due to storing corrosives and flammables with other products due to lack of spaces and mechanisms • Possibility of contamination and spoilage of products due to lack of cleaners assigned
3	**Physical Inventory**	
	• Physical inventory is carried out annually only in few facilities • To resupply/request items, ending balance from bin card is taken as a reference but not physical inventory • The purpose of the physical count is either to meet reporting requirements (in rare cases) or to handing over of responsibilities among staff • The occasional physical count is conducted without considering the full description of the product and cost of medicines • Physical count is carried by a few committee members • The physical count is neither reported nor reconciled with beginning/ending balance and consumption	• There was no system to carry out physical inventory effectively and efficiently • Since there is no regular physical count, wastage, theft, pilferages, etc.… cannot be identified • It is difficult to identify or trace specific products (with specific batch, brand, expiry date and cost) • Physical count is time taking, tedious and not participatory • Existing workforce were not used efficiently • The results of the physical count don't indicate the actual status (chance of expiry before utilization, monetary value, discrepancies, etc.…) of the product and cannot used for decision making
4	**Issuing to Dispensing Outlets**	
	• The store manager checks for availability of requested products in the stated quantities • The store manager transcribes the requested items into Model 22 (issuing voucher) in 3 copies (one original and 2 carbon copies), gives the original to finance, the second copy to receiver and third copy is kept with the pad. • Updates the bin card • Only one dispenser will receive issued medicines from store	• Irrational requests (wrong products or right products in wrong quantities) from different units may be approved and issued • Model 22 lacks essential information (e.g. unit, batch number, retail price and expiry date) or codes that represent each category, that are critical in tracing pharmaceutical products and financial information after any transaction • There is no extra copy of Model 22 to be given to the stock card clerk / pharmacy accountant/ to

SN	Operations/Activities	Identified Gaps/ Limitations
		update the stock status ▪ No additional witness signed on issue voucher for a person who received products from store,
5	**Storage and Handling of Medicines at Dispensing Outlets**	
	▪ Products are not shelved immediately after they are received from the store and not in a systematized way of arrangement (pharmacological, alphabetical, dosage form etc.…) ▪ Physical inventory is not conducted since it takes long process and compromise patient services ▪ There is no system to control loss and pilferage	▪ Loss due to expiry of medicines at dispensaries ▪ Retail prices are not clearly understood by all dispensers since there is no price control sheet or code labeling ▪ Average monthly consumption of a specific product is difficult to calculate ▪ Pilferages are not easily identified ▪ The system is liable to overage and shortage of sales
6	**Dispensing to Patients at Pharmacies (Outpatient, Inpatient and emergency)**	
	▪ Medicines are also prescribed to clients by unauthorized prescribers ▪ Prescriptions are filed without registering what has been dispensed to clients ▪ The billing of medicines is carried out by the cashiers located away from the dispensing pharmacy ▪ Medicines are dispensed to patients without having adequate labeling and counseling ▪ Dispensers provide counseling services under inappropriate environment (space, dispensing counter, privacy, etc.…) ▪ Patients were seen in long queue waiting for services ▪ Dispensers manage medicine transactions in the absence of appropriate tools/resources (e.g. sales ticket pad register, standard sales ticket, dispensing register, etc.…) ▪ Medicines dispensed to free or insured patients are not recorded and the value of such medications cannot be traced ▪ In-service training of pharmacy professionals on service delivery, code of ethics and professionalism is limited	▪ There is no evidence that shows legality of the prescription and whether wrong medication is dispensed or not ▪ Premises of dispensaries are not appropriate both for staffs and patients ▪ Very long queue, long waiting time and very low care time of patients at pharmacy services ▪ The information entered by the cashiers in the receipt is not descriptive of what is dispensed (it says for medicines) but doesn't indicate what medicines are dispensed ▪ The system is exposed to high level of pilferage, especially of medicines given free of charge ▪ Patients return to home without having adequate knowledge of medications dispensed to them ▪ The health facility does not have a system to collect account receivables from sponsors of free and insured patients. ▪ The system is not favorable to implement revenue retention & income generation activities ▪ For inpatients, lack of price and consumption records makes it difficult to summarize total expense at the time of discharge ▪ Lack of commitment, responsibility and professionalism

SN	Operations/Activities	Identified Gaps/ Limitations
7	**Issuing to Health Care Providers at Wards, Laboratory Units and Outpatient Clinics**	**Limitations /Problems**
	▪ The authorized person (head nurse of wards/clinics or head of the laboratory/radiology unit, etc.…) receives supplies from the main store based on his/her request and stores in their mini store ▪ The authorized person issues products (e.g. reagents, gloves, sutures, antiseptics, etc.…) to health care providers for conducting various procedures (e.g. surgery, delivery, laboratory tests, imaging, would cleaning, disinfecting, etc.…) without any recording and documentation ▪ The authorized person issues products to health care providers for self-protection (e.g. gloves, goggles, masks, etc.…) and care provision (e.g. antiseptics, disinfectants, gauze, cotton, bandages, etc.…) without any recording and documentation	▪ The lack of appropriate recording and documentation leads to pilferage, theft and loss of valuable medicines and supplies ▪ Actual consumption is difficult to determine ▪ The system doesn't allow the health facility to collect account receivables from sponsors of free and insured inpatients ▪ The system is not favorable to implement revenue retention and income generation activities ▪ The system in place does not ensure accountability
8	**Planning, Budgeting and Monitoring**	
	▪ The pharmacy unit only prepares list of medicines with budget estimate and submit it to the management of the health facility on annul basis ▪ Selection of medicines is carried out based on pharmacy unit assumption ▪ Quantification of medicines is carried out based on incomplete data and information ▪ Prioritization of medicines is not based on standard methodologies ▪ The pharmacy unit estimates medicines need without reconciling the prioritized lists with the budget	▪ The fact that the list is prepared by the pharmacy unit only (without including other professionals) may not address the actual needs/demands of health facility ▪ Wastage of resources due to unnecessary expiry ▪ Medicines essential to key services may not be available on continuous basis due to poor prioritization and quantification ▪ Poor satisfaction of clients/patients ▪ Compromised treatment outcomes due to poor patient knowledge and treatment adherence ▪ Development of antimicrobial resistance due to poor prescribing/dispensing practice and patient use of antimicrobials
9	**Auditing (finance, product and service)**	**Limitation /Problems**
	▪ Physical inventory is carried out irregularly or during staff handover ▪ In the Preexisting practice, medicines transacted	▪ Stock status and pharmacy transactions cannot be audited ▪ Traceability and identification of products in

SN	Operations/Activities	Identified Gaps/ Limitations
	are not properly recorded and documented ▪ Recording during receiving, or issuing and or dispensing doesn't include thee specific items, batch, expiry dates or codes ▪ Pharmacy service considered only the routine dispensing without drug use evaluation, prescription evaluation, drug therapy problem identification and so on.	situations of adverse events or product defects is almost impossible due to absence of standard documentations ▪ Innocent professionals had been accused due to lack of transparency in the system ▪ Irrational medicines use that resulted in resistance, dissatisfactions to client and low patient treatment outcomes
10	**Human Resource Development and Deployment**	
	▪ Pharmacy services are not only being managed by pharmacy personnel ▪ The performance of pharmacy professionals is evaluated regularly by using tools that doesn't measure level of effort, workload, and demands of human power ▪ The working environment for pharmacists is not suitable ▪ Pharmacy staff employment is carried out by the regional health bureau estimations without considering actual recordings of patient's loads ▪ The mix of professionals for pharmacy services was not adequately addressed (example: pharmacy accountant, pharmacists, clinical oriented pharmacists) ▪ Pharmacy workforce allocation doesn't consider the actual work load and quality of work needed	▪ Absence of adequate number of pharmacy staff at each health facility since deployment is not based on the actual work load and quality of work needed ▪ High attrition rate of experienced staff ▪ Pharmacy personnel are assigned to a specific job without having proper orientation and clearly defined job description ▪ Performance evaluation of pharmacy staff is not based objective criteria and accomplishments of defined tasks ▪ The pharmacy unit do not have adequate number of support staff (cleaners, porters, data clerks, cashiers, accountants and guards) resulted in inefficiency of pharmacy services

2.2. Causes and Consequences of the problems in the preexisting practice

✍ What are the causes?
✍ List the potential consequences?
Ask the group formed before and let two trainees answer questions by raining their hand in two minutes.

A) Causes

The problems associated with access to pharmaceuticals and quality pharmaceutical services in the preexisting practice are believed to be the results of multifaceted factors. These factors may include, but not limited to:

Poor Pharmacy Organization and Management: the way in which the pharmacy section had been organized within the health facility was not designed to respond the actual need of pharmaceutical services. The culture of planning, forecasting, implementation, monitoring and evaluation had not been in place or when available they were not standardized across health facilities.

Inappropriate Human Resource Deployment: The allocation, performance evaluation and retention of human resource for pharmacy services had not been based on standardized level of effort and actual workload analysis. The number and mix of workforce allocated to provide pharmacy services (pharmacist, pharmacy technicians, accountants, cashiers, clerks, porters, cleaners, and guards) were not properly determined. The number of students that pharmacy schools and colleges receiving and giving training was not based on the actual need of professionals in the country; rather with wrong information that was not based-on standard workload analysis.

Chaotic Work Flow: The workflow in dispensaries was not systematized and well designed to support quality and timely delivery of services. Pharmacy professionals were not assigned to perform specific jobs like counseling or prescription evaluation and billing. A pharmacist may be assigned as a supply manager—he who procure, store man—he who receive and issue, dispenser at-the-same-time that may make him/her inefficient and leads to pilferage, shortage, or loss of products.

Poor infrastructure, Equipment, disorganized dispensaries, and store: In the preexisting pharmacy services, the dispensary has one grilled window through which patients were served.

Only one or two pharmacists were giving service through a window without privacy of patients to ask questions and receive counseling. Furthermore, a patient must queue at least three times; 1st - to get the prescription evaluated, price of medicines confirmed in one of the grilled windows; 2ndto pay the price at the finance window (usually outside the pharmacy); and 3rdto collect the prescribed medicines and to get counseling by coming back to the dispensary grilled window.   To do so, patients were observed standing with long queue waiting for services before they see a pharmacist or a casher or in an environment with inadequate patient waiting areas, shelter and chairs to sit.

In general, pharmaceutical services had never been provided with adequate and secured storage spaces, cashier cubicles in the dispensary, dispensing & counseling counters, patients' waiting area, offices, rooms for extemporaneous preparation, provision of drug information services, reference materials. In addition, essential equipment/facilities including refrigerators, shelves, lockable cabinets, tablet counting trays, medicine envelopes, labeling stickers, wall/fridge thermometers, air conditioning systems, and fire extinguishers hadn't also been supplied to meet the demands. In most cases, pharmacies at health facilities do not have easy access to transportation facilities to move medicines within and outside health facilities. In consequence of all the problems, the patient satisfaction and knowledge on correct dosage was found to be too low that resulted in low health outcomes *[Baseline assessment HSDP IV, Findings of APTS evaluation WHO website].*

Absence of Systems and/or Tools: The pharmaceutical transactions and services taking place at health facilities were not supported by well-designed and up-to-date systems, software, proven methodologies used for prioritization, quantification, stock analysis and tools used for recording and documentation. The system in place has not been adequate to track consumption, discrepancies, wastages, product overstock/under stock, etc.…

Absence of Accountability and Transparency: The acquisition, storage and issuing of pharmaceuticals didn't follow a standard and transparent system that provides detailed information relevant for effective monitoring, evaluation and auditing medicines were not traced by uniquely identifying codes as well as recording and documentations were not transparent. This had led to difficult situation to ensure accountability. This had resulted in theft, misappropriation, and pilferage of medicines.

Inefficient Utilization of Limited Budget: The absence of systems and standardized tools for selection and prioritization of medicines, stock analysis and follow up of expiry and pilferage resulted in inefficient utilization of limited budgets. In consequence, unavailability and high wastage rate became common.

Absence of Financial protection and Other Risk Liabilities: Pharmacy personnel and other health facility staff who are involved in activities (such as storage management, pharmaceutical transactions, and cash collection) that might incur unavoidable financial and legal liabilities had not been guaranteed with appropriate protection mechanisms such as indemnity.

Inadequate Legal instruments and Enforcement: The management of medicines and provision of pharmaceutical services at health facilities had not been adequately covered by relevant legislations/regulations. Those that are available are not enforcing to protect safety of clients, give power to managers to give decisions, ensure proper utilization of resources and discourage professional malpractices.

B) Consequences

The problems in the preexisting pharmacy practice have resulted in:

Shortage of essential medicines – essential medicines are in short supply at health facilities

Wastage – high wastage due to expiry and theft

- Inefficient budget utilization – Medicines budget was not enough for procurement in most health facilities due to inefficiency
- Irrational use of medicines – resulting in AMR, morbidity and mortality
- Low patient satisfaction- Patient satisfaction on pharmacy services below expectation and lower than other health service delivery units in the country
- Low satisfaction of professionals: Improper utilization of pharmacy professionals resulted in low satisfaction on their profession
- Unavailability of pharmacy professional in the market and high turnover rate
- Low patient knowledge on correct dosage: resulted in low treatment outcomes

2.3. Potential Interventions

Various interventions have been tried to improve the supply management and rational use of medicines, transparent transactions, and efficient uses of budgets. These include:

- Implementation of Ethiopian Hospital and Health Center Reform guidelines

- A shift in pharmacy curriculum from product oriented to patient oriented

- Implementation of clinical pharmacy services

- Establishment of DTCs and DIS at health facilities

- Good dispensing practice

- Introduction of IPLS

- However, finally, to implement almost all the above interventions on the ground, a new system was evolved called Auditable Pharmaceuticals Transactions and Services (APTS), that represents Pharmacy Operation in Ethiopian context.

Chapter Summary

The preexisting pharmacy practice is the one that had been implemented for many decades in Ethiopian health facilities. It had several limitations that led to lack of transparency and accountability, unavailability of essential medicines, wastage of resources, poor dispensing, and counseling services, and poor patient satisfaction. The causes for these limitations include: poor pharmacy organization and management; inappropriate human resource development and deployment; chaotic workflow, poor infrastructure, and equipment; disorganized dispensaries and store; absence of tools and systems; lack of legal frameworks etc. To alleviate these problems, the government has implemented several interventions including, hospital and health centers reforms, a shift in pharmacy curriculum, DTC and IPLS. However, finally, to implement almost all the above interventions on the ground; a new system was evolved called Auditable Pharmaceuticals Transactions and Services (APTS) that represents pharmacy operation in Ethiopian context

Chapter 3: Overview of APTS

Chapter Description

In this chapter, evolution of the Auditable Pharmaceuticals Transactions and Services (APTS), that represents pharmacy operation, will be explained. It introduces the why and how the new intervention APTS is evolved, its achievements, challenges, lessons learnt and the overview of essential elements of APTS.

Primary Objectives

By the end of this chapter, participants will be able to analyze the evolutions of APTS, achievements, challenges, essential elements, lessons learnt and benefits

Enabling Objective

To attain the primary objective, the trainees will:

- Describe the evolution of APTS

- Discuss the lessons learnt and challenges

- Explain the essential elements of APTS

- Describe the benefits of APTS

Chapter Outline

- Introduction

- Evolutions of APTS

- Achievements

- Challenges

- Lessons learnt

- Essential elements of APTS

- Benefits of implementing APTS

- Summary

3.1. Evolution of APTS

3.1.1. Introduction

The Federal Ministry of Health (FMoH) of Ethiopia has been leading a sector-wide reform aimed at improving the quality and accessibility of health services. As part of this reform, the ministry had developed the Ethiopian Hospital Reform Implementation Guidelines (EHRIG) in 2010.

Debre Markos Referral Hospital in Amhara region was one of the pioneers in implementing EHRIG-Pharmacy chapter. According to the hospital's patient satisfaction survey, only 23 % of the patients were satisfied with the overall clinical services. *[reference; shegaw Alemu; Patient satisfaction survey* Limited availability of medicines was one of the reasons for patients' dissatisfaction. Based on the findings, the management of the hospital decided to carryout major hospital reform activities to improve the overall health care delivery system as per the EHRIG. The provision of pharmaceutical services was one of the areas identified for interventions to be taken.

Accordingly, the CEO and head of the pharmacy section initiated an effort to implement the pharmacy chapter. The hospital set up a team of pharmacists to identify the major gaps and suggest areas of improvement/intervention.

The hospital further identified the major bottlenecks hampering the provision of quality pharmaceutical services.

The major problem areas found were

- Poor availability of essential medicines,
- Wastage of medicines due to expiry and pilferage,
- Lack of facility specific medicines lists,
- Nontransparent transactions,
- Poor recording and documentation that is unable to track medicines transactions,
- Very low medicines budget,
- Poor quality of medicines dispensing and counseling services.

To resolve these bottle necks, the hospital organized visits to selected hospitals (ALERT and St. Paul) and community pharmacies (Kenema, Red Cross, and Anbessa Pharmacy) in Addis Ababa to learn from their best experiences. The lessons learnt from the visits were:

Some of the best practices learned from different pharmacy settings include the following—

- ALERT Hospital:
  - Transparent systems designed for transactions at the Special Pharmacy with well-organized structure for providing effective and efficient pharmacy services. Example the pharmacy setup was observed having mini-store, meeting room, dispensing counters, cashier cubicle, compounding room, accountant office, pharmacy coordinator office, toilet, bathroom, dressing area and lockable cabinets for each dispenser, accountant and cashers.
  - In addition, the hospital had printed and was using newly modified vouchers like model 19, model 22 and new sales tickets—even though using these vouchers and sales tickets were interrupted by external auditors since the hospital couldn't get legal permission from ministry of finance before printing of such serially numbered vouchers.
  - The hospital calculated workload and determine human resource need using the new proposed methodology but couldn't fulfilled the demand since difficulty to get permission from civil service specially for new positions and was working with temporarily employee; example for pharmacy accountant position.
- St. Paul Hospital—Independent and dedicated drug information services
- Addis Ababa municipal pharmacies—Transparent system
- Anbessa Pharmacy— well organized compounding practice
- Internationally proven methodologies from desk review and experience from experts

The team travelled from Debre Markos, also perceived that the system was drafted with written document at ALERT Hospital and St Peter HL, but failed due to the strange processes the hospital had to pass and unable to involve other stakeholders like the civil service, finance, justice bureaus.

Having all these information, Debre Markos team led by the head pharmacist decided to crossover all bottle necks and implemented the following major interventions:

- Renovate old dispensaries by opening two doors (entrance and exit doors) for workflow arrangement and to apply one stop shopping principles of the new system
- Prepare cubicles for cashiers, prescription evaluators, and counselors
- Employ additional staffs and allocating new positions temporarily for pharmacy

accountants which were not in a civil service position

- Code products and bin locations and assign bin owners responsible persons at the dispensary

- Assign a responsible pharmacist to lead medicine supply management functions.

- Developed efficient physical inventory tools and conduct beginning inventory at both the store and dispensary.

- Analyze three years of medicine consumption data by ABC and reconcile with VEN system.

- Develop and print the first hospital specific medicines list in the country which is prioritized by the VEN (vital, essential, and nonessential).

- Analyze three years of medicine consumption data by ABC. *Note: see the details about ABC in its section.*

3.1.2. Involvement of other stakeholders for consolidation of APTS

During implementation of APTS, some parts of the initiative was easy enough to be implemented by decision of the hospital. However, some of the interventions demand involvement of other stakeholders. The activities that need other stakeholders include but not limited to:

- Printing of serially numbered vouchers (receiving and issuing vouchers), sales tickets, and invoices. This needed involvement of Bureau of Finance and Economic Development

- Deployment of additional professionals as per workload analysis for pharmacists and professionals in new positions that don't exist in the Civil Service Bureau list of positions for professionals; example, getting permission for new position the pharmacy accountant position

- Giving new job position for pharmacy accountants, pharmacy personnel, and cashiers which needs stakeholders including the Civil Service, Legal Office and Finance Bureaus.

- Giving collective and individual responsibilities, which needs involvement of the legal office to develop a new regulation

The hospital was able to convince finance, legal and civil service bureaus to hire new professionals, print sales tickets and vouchers by involving them with consultative workshop

held to share best experiences. However, the hospital was unable to demolish the dispensaries by opening two doors and rearrange workflow. Finally, the Axum St Mary hospital demolished the dispensary and rearranges the workflow in one stop shopping system (Rx evaluation and billing, cash collection and counseling altogether). After looking that, the Debre Markos hospital also allocated budget and did the same.

To implement these major interventions, by referring the best experiences within the country and taking international best experiences, the first version was written by authors.

Major references taken includes: The World Health Organization (WHO) standards, International Dispensary Association (IDA), International Red Cross Association (IRCA), desk review of various publications, baseline assessment results.

How the name APTS was coined
The team members were discussing in Debre Markos Referral Hospital CEO office, Thursday morning, June 10, 2010, about the innovation. The drafter came-up with alternative names for the innovation
Auditable System for Pharmaceuticals Transactions and Services (ASPTS),   *Auditable Pharmacy Services and Transactions (APST),*   *Auditable Pharmacy-services and Transaction Systems, (APTS)*
There was a concern about all alternative names, due to the adjective: auditable that some professionals working in the health institutions may consider the systems, as a terrible controlling tool. However, some of the team members, especially the CEO of the Hospital, insisted that whatever the consequence may be, the team must push forward and implement it with the last name APTS since policy makers and various health professionals can help us in the implementation. After hard discussion about the pros and cons of the various names, the team, in that day, chose the abbreviation-APTS to be the most descriptive and catchy name for this new intervention. This name was the name of the system for two years. However, during editorial of the APTS implementation guide in 2012, editors modified the name as Auditable Pharmaceuticals Transactions and Services (APTS). This becomes the name of the innovation.

3.1.3. The starting phase of APTS and its achievements

Starting Phase: -

APTS was started with on the job training of professionals; mainly pharmacy personnel, accountants, cashiers, and auditors. Then the hospital started pharmaceutical transactions and service delivery using the new systems in July 30,2010 by hiring some staffs temporarily; whereas the formal implementation was started using approved vouchers by the Finance and

Economic Development Bureau and staffs with approved position by civil service since January 2011.

Achievements: -

- The 73.42 percent of the hospital consumption was found either essential or vital medicines in the last year using ABC/VEN reconciliation analysis
- The hospital developed the first hospital specific drug list prioritized by VEN in the country and procured items; 97.52 percent of medicines from the list during the year
- Continuous physical inventory of products both at the store and dispensary was made possible.
- The availability of tracer medicines in the hospital; N≥35, (used to treat top ten diseases) was significantly increased over time (100 percent).
- The medicines budget allocated was increased by 89.1 percent from June 2010–11 to June 2011–12 due to income from medicines sales [*]
- A system is in place that enables effective auditing through ensuring transparent and accountable medicine-related transactions.
- Wastage of medicines due to misuse, expiry, theft, and pilferage has been significantly reduced from 10% to less than 2%. [*]
- Adequate professionals had been deployed for pharmacy services
- Patient flow rearranged in a manner suitable for patients and professionals
- Patient knowledge on correct dosage was increased from 54% to 92%
- Patient satisfaction was increased from 23% to 90%
- Total monetary values of medicines dispensed (Cash + credit + forFree) increased from 1.9 million in 2011 to 10 million in 2013 [*3]

3.1.4. Challenges

The hospital faced the following challenges in the process of APTS implementation.

- Implementation of collective accountability and responsibility.
- Absence of indemnity
- Difficult to get permission from civil service for additional pharmacy service positions

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3 FMOH annual review meeting reports

- Pharmacy accountants, cashiers, cleaners, porters, guards were not in civil service list of job positions for pharmacy services.

In conclusion, the challenges encountered during the starting phase of APTS were complex and diverse. But the hospital, in collaboration with the RHB and other stakeholders, was able solve most of the challenges successfully.

3.1.5. Lessons learnt

Some of the lessons learned were:

- Involvement of other stakeholders including the audit bureau, finance bureau, civil service bureau, health bureau, ZHDs and WoHOs is critical for implementation of APTS
- Hospital management's commitment and capacity of decision making was crucial
- Training of all staffs including accountants, cashiers, pharmacy professionals
- Strong monitoring system is very important
- Legal framework was critical for proper APTS implementation

3.2. The Essential Elements and Benefits of APTS

3.2.1. Essential elements

APTS is a data driven package of interventions, with internationally proven methodologies, used for pharmacy practices. It has five essential elements (result areas):

- The Efficient Budget Utilization
- Transparent and Accountable Transactions
- Reliable Information for decision making
- Pharmacy Service organization
- Improved Customer Satisfaction

APTS is a package of the international proven interventions dealing with the overall pharmacy operations with five essential elements (result areas);

1. **Efficient utilization of medicines budget**

- **Sales management**: Establishing effective medicines sales management system: price setting, daily sales summary as cash, credit and free

- **Product prioritization**: Preparation of facility specific drug list prioritization as vital, essential and non-essential (VEN)

- **Reconciliation**: undertaking ABC/VEN analysis to identify and reconcile the most needed medicines used to treat 20 top diseases in relation to budget consumption (80% of budget) to address priority health problems of the catchment population by the limited budget

- **Stock analysis**: undertaking the three-analysis including consumption to stock ratio, stock turnover and stock status analysis to identify the usable stocks versus obsolete stocks, to get reliable financial and product information and increase sales.

- **Bin management**: to identify slow moving items and reduce rate of expiry

2. **Transparent and accountable pharmaceutical Transactions**

- Tools **-** receiving and issuing vouchers, sales tickets, registers, daily summary and monthly reporting forms in a way that can easily ensure transparency of transaction

- The pharmaceutical transactions and services should be supported by well-designed and up-to-date systems, software, proven methodologies used for prioritization, quantification, stock analysis and tools used for recording and documentation.

- Coding of medicines: is a system which enables one to identify medicines using unique identifiers (codes) so it would be easy for anyone to identify medicines and audit, make transactions and services transparent.

- Conducting efficient and effective physical inventory

- Auditing of products, finance and service

- Legal framework: implement specific legal framework that is related to pharmacy service to enforce accountability and equip managers the power to execute their duties.

3. **Pharmacy renovation, reorganization, equipment/facilities, Workload analysis and proper human resource deployment**

   - Dispensaries organized as Outpatient, Inpatient, Emergency and Chronic Care Pharmacies to promote one-stop shopping service and effective medicines sales

   - Reorganize pharmacy workflow best suited to improve medication use counseling and patient convenience (dispensaries with two doors—entrance and exit), arranging patient waiting area with shelter and chairs to sit.

   - Rearranging the dispensing setup as Rx evaluator➜biller➜cashier ➜ counselor – all in a queue for patient convenience.

   - Fulfilling the pharmaceutical services with adequate and secured storage spaces, cashier cubicles in the dispensary, dispensing & counseling counters, patients' waiting area, offices, rooms for extemporaneous preparation, provision of drug information services and reference materials.

   - Redefine roles of dispensers, pharmacy accountants and cashiers as per the workflow

   - Deployment of adequate number of pharmacy professionals and other supportive staff based on the workload in the health facility.

   - Evaluation of performance based on quantity, quality and transparency of services rendered using the daily summary, and auditing and onsite training based on the gap.

   - Measuring level of effort, analyzing workload and deployment of adequate number and mix of professionals for pharmacy services (pharmacist, pharmacy technicians, accountants, cashiers, clerks, porters, cleaners and guards)

- Fulfilling essential equipment/facilities including refrigerators, shelves, lockable cabinets, tablet counting trays, medicine envelopes, labeling stickers, wall/fridge thermometers, air conditioning systems, and fire extinguishers hadn't also been supplied to meet the demands.

4. **Information for decision making**

- Generating timely, reliable and consistent information on product transacted, finance and services rendered from daily summary and monthly reports for decision making. The information should be collected from vouchers, sales tickets, registers and formats which has serially numbered references. This information should be timely reported to be used for decision making in health facility, Woreda healthy office, Zonal Health department, regional and national levels.

   o Product information during the period includes: stock turn-over-ratio, wastage rate, consumption to stock ratio, physical inventory, product audit, availability of medicines for TOP ten diseases.

   o Finance information: includes, financial values of medicines procured/ received, issued, gross profit obtained, ending balance.

   o Service information: includes, number of counseling made per health facility, per pharmacist, drugs per prescription, number of patients served, number of DTP identified/ interventions, etc.

5. **Patient knowledge and satisfaction**

   The patient satisfaction increases due to workflow arrangement, human power adjustment, improving availability of prescribed medicines and better counseling *[reference WHO essential medicines portal APTS baseline assessment and evaluations of the implementation status].* The patient knowledge and satisfaction can be measured by cross sectional study through exit interview of patients

3.2.2. Benefits of APTS

The key benefits of APTS include:

- It enables efficient utilization of budget and helps to measure affordability
- It increases health facilities revenue by efficient sales management, reducing wastage
- It enables making informed decision on product, finance and services

- It facilitates auditing (product, finance and services) by improving transparency and accountability
- It enables to measure level of effort, human resource needs based on workload analysis.
- It increases patient knowledge on correct dosage and satisfaction on pharmacy services
- It supports the implementation of Balanced Score Card (BSC)
- It improves availability of essential medicines, supplies and reagents

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Session Summary

APTS was started in Debre Markos Referral Hospital. Due to its proven benefits, other hospitals in the region scaled up the system. The Debre Markos hospital and the Amhara region shared their best experiences, challenges, and lessons they learned during implementation to other regions and health facilities. Thereafter, FMOH, other regions and city administration adopted the system by enacting legislations.

APTS has five Essential Elements (Efficient Budget Utilization, Transparent and Accountable Transactions, Effective workforce deployment and development, Reliable Information for decision-making, Improved Customer Satisfaction)

Benefits of APTS includes reducing wastage and minimizing cost, enables making informed decision, facilitates auditing, increases patient knowledge and satisfaction, supports the implementation of BSC and improves availability of essential medicines and supplies

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Chapter 4. Legal framework of APTS

Chapter description

In this chapter, the legal framework that are necessary for the implementation of APTS, roles and responsibilities of stakeholders are addressed.

Primary Objectives

By the end of this chapter, participants will be able to recognize legal framework, scope of application, duties and powers of stakeholders and apply rules of ethical conduct of pharmaceutical services delivery.

Enabling Objectives

To attain the primary objective, the trainees will;

- Describe the legal frameworks enacted to implement APTS.
- Identify scope of application
- Discuss duties and powers of stakeholders
- Apply rules of ethical conduct of pharmaceutical services delivery and utilization

Chapter Outline

- Introduction to legal frame work on APTS legislation
- APTS regulation Articles
- Summary

3.1. Introduction

o **Individual reflection**
- What is the purpose of developing legislation for pharmacy services and supplies?
- Which region of country first developed legislation for pharmacy services and supplies?

The first legislation for pharmacy services and supplies at health facilities was developed by Amhara regional state at Gorgora workshop conducted from July 8-12, 2011 and enacted by the

Amhara Regional State Council on June 8, 2012. The regulation deals with selection, quantification, receiving, issuing, dispensing, financial transactions and reporting and overall pharmacy services. The regulation is intended to bring change in the pharmaceutical management system, the issue of transparency, efficiency, human resource deployment & development, producing reliable information on product finance and services for decision makers, rational use of medicines and resilient pharmacy service operations to address customer satisfaction.

Thereafter, the system—APTS was being put in to law regionally, in Dire Dawa in 2012, by the Federal Government in 2014, SNNP in 2014, Tigray in 2015, Oromia in 2015, and in Benishangul Gumuz, Gambela, Afar, Somali regions in 2016 and 2017 .

	Group activity Group the trainees in to five. Let them read the APTS regulations by dividing the articles to the group. Give 20 minutes for reading and let the group to present in three minutes each

3.2. APTS Regulation Articles

Almost all regulations have the following basic legal articles: -

1. Definition
2. Scope of Application
3. Objectives
4. Powers and Duties of Bureau
5. Powers and Duties of Zone and City Administration Health Department, Special Woreda, Woreda and Town Administration Health Office
6. Duties of Health Institution
7. Rules of Ethical Conduct of Pharmaceutical Service Delivery and Utilization.
8. Medicine Provision
9. Receiving Medicines
10. Medicine Storage and Handling
11. Medicine Distribution
12. Utilization of Medicine by Transfer
13. Cash Sales of Medicine
14. Credit or Insurance Sale of Medicines
15. Medicines Free of Charge
16. Disposal of Unfit Medicine
17. Prescribing Medicine
18. Dispensing of Medicine
19. Pharmacy Information Service
20. Clinical Pharmacy Service

21. Offering Pharmacy Service for Long Time Patient

22. Inventory of Drugs

23. System of Financial Reporting

24. Reporting Service Delivery

25. Reporting Unfit for Use Medicine

26. Auditing

27. Prevention Illegal Medicines Transfer

28. Duty to Cooperative

	Further reading assignment on: • The respective regional APTS regulations or federal APTS directives as per the types of the trainee's health facility level • Give one-night reading assignment to everybody and inform them one of them will present as a recap in the next morning by lottery

Chapter Summary:

The Federal government and all regional states of Ethiopia enacted their own regulations on APTS that give power for decision making, responsibility and accountability to managers, professionals, health facilities and various stakeholders. Professionals should apply rules of ethical conduct of pharmaceutical services delivery.

Chapter 5. Principles of Pharmacy Service and Organization

Chapter Description

In this chapter, the pharmacy organization, staffing, workflow, and operation that are reorganized based on APTS standards are described. The patient services in dispensaries, measurement of level of effort, workload analysis, bin management, collective and individual responsibilities of health facility professionals and principles of indemnity are explained.

Primary Objective:

At the end of this chapter, participants will be able to apply the principles of pharmacy service and organization for the quality of pharmacy practice and operations.

Enabling objectives

To attain the primary objective, the participants will;

- Explain principles of organization of pharmacy service
- Implement principles of human resource determination and work load analysis
- Describe dispensing flow of pharmaceutical services
- List responsibilities of bin owners/dispensers
- Discuss concepts of collective responsibilities
- Explain principles of indemnity

Chapter Outline

- Introduction to pharmacy service organization
- Anthropometry and ergonomics and patient flow
- Human resource determination and workload analysis
- Collective and individual responsibility of pharmacy staff
- Responsibility of health facilities
- Responsibilities of Federal (MOH, MOFED, PFSA), RHB, ZHD and Woreda HO
- Indemnity
- Summary

5.1. Introduction

The organization of pharmaceutical operations should be carried out in a way that enhances the performance of professionals and patient convenience & satisfaction.

The pharmacy section in hospitals should be organized as:

- Outpatient pharmacy service unit,
- Inpatient pharmacy service unit
- Emergency pharmacy service unit.
- Pharmaceutical supply management unit
- Drug information Service unit
- Compounding pharmacy service unit and
- Other units shall also be established depending on the hospital complexity and demand.

Note: This standard is designed for hospital. For health centers, drug information and, compounding may not be mandatory

The pharmacy organization should be designed to facilitate delivery of quality pharmaceutical services and convenience for patients.

Accordingly, the pharmacy operation should be organized as follows

- **Inpatient pharmacies**: Depending on the bed size and patient load, there should be one or more inpatient pharmacies. The inpatient pharmacies should be situated near to each major ward to effectively monitor the use of pharmaceuticals in the respective wards. The inpatient pharmacies should be conveniently designed to maintain the quality of pharmaceuticals and facilitate the dispensing process. They should have adequate space to effectively store most needed pharmaceuticals.

- **OPD Pharmacy**: Based on the arrangement of the OPD clinics and complexity of the health facility, OPD pharmacies may be organized in multiple locations so as to improve access and facilitate patient centered services (e.g. ART pharmacy, chronic care pharmacy, pediatric

pharmacy, oncology pharmacy, etc.). The OPD pharmacies should be carefully organized to create suitable workflow that ensures appropriate level of care to patients. It should also be cognizant of the works satisfaction of professionals.

- **Emergency pharmacy:** It should be organized near Emergency clinic and provide 24 hour services. It should have adequate space, shelves and dispensing counter like the other dispensing pharmacies. Since, the way of serving patients in emergency is different, the accessibility of medicines for nurses, physicians should be based on higher than other sections and they should take responsibility too. Example: Medicines may be dispensed by oral prescription and documented latter.

- **Drug Supply management unit:** to ensure uninterrupted supply of pharmaceuticals, the health institution pharmacy should have drug supply management unit. The unit has separate pharmaceutical stores for medicines and supplies (including consumable medical equipment's and laboratory reagents). The overall operation of the unit (selection, quantification, procurement, inventory management, warehousing and distribution) should be coordinated by a dedicated pharmacist. Separate store managers should manage the stores.

- **Drug Information service unit:** The hospital pharmacy should establish a drug information center to serve as a source of information to patients, health care providers and community.

- **Extemporaneous compounding:** In order to respond to specific patient needs the health facility pharmacy should have compounding services with separate premises and equipped with the necessary facilities.

- **Rooms for dispensaries.** All the dispensing room should be organized in such a way to facilitate patient service and make life easy for professionals. There should be enough space for prescription evaluators/ billers, cashiers and counselors. There also should be waiting area with chairs for sit. In a waiting area, television, modeling films for medicines use education will be a plus. Within a one dispensary the following rooms or cubicles should be available:
    - Mini-store (Only for high patient flow hospitals),
    - Prescription evaluation cubicles
    - Counseling cubicles
    - Special counseling or demonstration room,
    - Cashier cubicle,
    - Compounding room,

- Pharmacy accountant office (better to be nearby)
- Pharmacy coordinator office,
- Toilet, bathroom, dressing room/area

	Group discussion on the Anthropometry and ergonomics 　　Form 4 groups and let them discuss Which model do you think is the best for the Ethiopian customers to get service? 　　• For chronic and seated service? 　　• For OPD sanding service?) Note: Time allowed: 20 minutes for discussion and 5 minutes for each group for reflection and discussion

5.2.   Anthropometry and Ergonomics

Anthropometry is the study of human body measurements. The advantage of anthropometry is to create suitable furniture's, with which service is provided, designed by comparing majority of the populations.

Ergonomics is the study of workplace design that helps how a workplace and the equipment used there can best be designed for comfort, efficiency, safety and productivity.

The preexisting gates for entrance and exit to pharmacy dispensaries, the sizes and height of counters and cubicles for prescription evaluators, cashiers and counselors, the chairs with which professionals are giving services were not standardized in a manner suitable for professionals to serve clients and patients to rest their arms and get service comfortably. Due to this, patients were suffering from long queue and waiting time and professionals were found developing varicose vein due to long standing to serve clients. Therefore, to figure out solutions for these problems, the size of Ethiopian population (Anthropometry data) was taken from the Ethiopian survey. The height of average Ethiopian arms from the ground leads to 1.10 meters high counter suitable to rest their arms. Secondly, for pharmacy professionals; the suitable swivel chair that reduces varicose vein is height of 75 cent-meter chair.

In APTS, there are different types of models tested for patient service with various types of counter shape, height and table size for Rx evaluation and counseling services including:

The first model: is 1-meter and 10 to 15-centimeter height with 1-meter width, and open cubicle to ease communication between pharmacists and patients. This model is implemented in more than 60 APTS implementing hospitals. This model is tested to be the best at OPD of the

health facilities where many patients are served. The 1.10 to 1.15-meter height is proven to be suited for many Ethiopians to be served, since preliminary study indicated that the Ethiopian population Anthropometric data leads to 1.10 meters is the suitable height to rest their arms during standing services. The findings of this anthropometry data is used for the design of counter sizes for patients (for Ethiopian population to rest their arms, get service in convenient manner). The new APTS design is based on this finding.

Majority of APTS sites OPD pharmacy have two gates—entrance and exit. Some do have only one gate. The patient queue and waiting area with minimal width of 2.10 meter Some have unsuitable cubicle height that compels patients to bend down to communicate with the pharmacist. Example: Look the designed and implemented hospitals like Jimma University Hospital OPD pharmacy has only one gate. Kahsay Abera Cubicle roof is a bit shorter than customers. See below the case of Finote selam Hospital, Felege Hiwot Referral Hospital, Kahsay Abera Hospital Haromaya University Hospital, and Jima University Hospital and compare which one is the best model for service.

Figure 2: The case of Finote Selam Hospital, before and after APTS

The most comfortable height to rest arms while sitting is 75 centimeters
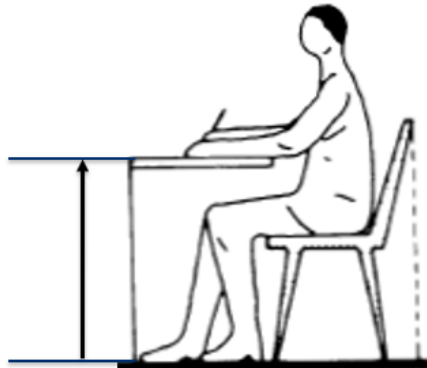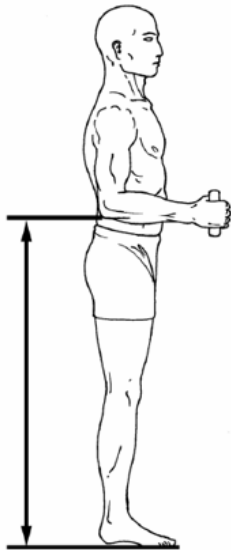
The most comfortable height to rest arms while standing is 1.10 meters

860

1450
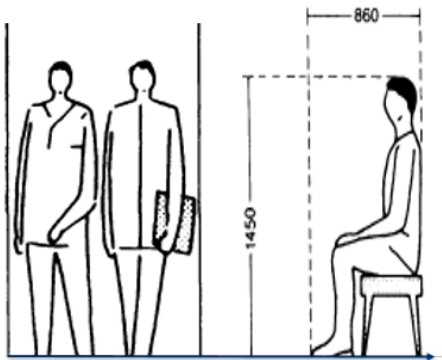
70 Cm x 3= 2.10 meter

- Consider the sum of distance of two people walking and one person seated ➜ to 2.1m (70cm x3 = 2.1meters)

- Therefore, the distance between the waiting area and dispensing counter should be at least 2.1 meters.

Felege Hiwot Referral Hospital patient flow at OPD Pharmacy Before and after APTS; 2013

Figure 3: The case of Felege Hiwot Hospital, before and after APTS

Figure 4: The case of Kahsay Abera Hospital

Patients getting service at Afar region in 2017 with the new design

• Proper counter height   • Short lines and waiting times

Figure 5: The case of Jima University Hospital, before and after APTS

Figure 7: Enjibara hospital, best shelves and counters 2018

Figure 8: suitable trolley and foot resting counter, North Gondar Health center

- **The second model**: has the same counter size and width as model one, but has a closed window with a narrow hole for communication between patients and pharmacy professionals like bank style. This model is implemented in very few hospitals in Ethiopia. The advantage of this model that pharmacists working in this area believed, was to prevent transmission of communicable diseases specially for airborne ones. However, other specialists recommended that such barriers will increase the transmission since air circulation will be minimized when closed since patients may be nearer than when open. Therefore, such models are not advisable and not convenient for

both patient and pharmacy professionals since it become a barrier for communication. See below the Dilla University Hospital OPD pharmacy, Gondar University Hospital and Tefera Hailu Hospital as samples for such design.

Figure 9: The case of Dilla University Hospital

Inside view   Outside view

Figure 10: the case of Gondar University Hospital

- **The third model**: has a table of 0.72 to 0.75 centimeter for pharmacists. Pharmacists are giving services being seated and patients are standing while they are getting services. This model is implemented only in few hospitals. This model may be advantageous whenever the health facility served few patients per day. Otherwise, it complicates service and compromises patient privacy. Therefore, it is not advisable in HF with high load of patients. See below the pictures of Mehal Meda and Debark Hospital OPD pharmacy as a sample.

Figure 11: The case of Debark Hospital March 2014

Mehal Meda, Hospital Dispensing flow at OPD pharmacy
Before and After APTS Implementation; July 2014 (Jos-model)

Figure 12: The case of Mehal Meda Hospital

▪ **The fourth model** has a table with height of 0.75 Centimeter inside (for pharmacy professionals) and counter with 1 meter and 10 to 15-centimeter height in the patient side. In this model, patients are served being standing and pharmacy professionals are serving patients being seated. This model is implemented only in few hospitals. The difference between the third and fourth model is that there is no counter in the third but there is a counter in the fourth. The advantages of this model are to keep computers in the table whenever there is a software service and keep other materials including tablet counters on the table. Secondly, the preliminary ergonomic data of Ethiopian professionals (furniture designs for professional's maximum comfort, efficiency, safety, and ease of use during service delivery) fits with this height, 0.75 cm for seating service. It also keeps the privacy of patients. Please see the cases of St Paul Referral Hospital, Bule Hora hospital and Kuyu Hospital. as example.

Figure 13: The case of St Peter Hl (left) and the case of Bule Hora Hl (right):2017

Figure 14: The case of Kuyu Hospital, observed from both side; 2017

- **The fifth model** is designed to serve for chronic patients and special counseling rooms as additional to the other models. This model has table height of 0.72 to 0.75 centimeter and chair for both pharmacist and patients. This model is implemented in more than 60 Hospitals. This model is the best for chronic care pharmacies and special counseling rooms for every type of hospitals. Please see picture of the Woldia Hospital.

Before APTS   **After APTS**

Figure 15: the case of Woldiya Hospital

Facilities and materials in one dispensary should include: -

- Lockable cabinets for each dispenser, accountants, and cashers.
- Swivel chair, calculators, computer,
- Reference materials (formulary, STG, and other books)
- List of Top ten diseases and list of medicines, supplies, reagents used to treat top ten diseases)
- Refrigerators, shelves,
- Tablet counting trays,
- Medicine envelopes,
- Labeling stickers,
- Wall/fridge thermometers,
- Air conditioning systems,
- Fire extinguishers
- Equipment used for compounding

Store Operations:

The health facility pharmacy should prepare a separate store for:

- Medicines, (within the medicines store; program and revolving drug fund (budget) medicines should be separately managed. In big hospitals, for this purpose, the medicines store may also be divided
- Supplies
- Medical equipment.

Materials for storage of medicines, supplies and equipment include but not limited to: -

- Separate mesh for narcotic and psychotropic medicines
- Table for receiving and dispatching (issuing)
- List of Top ten diseases and list of medicines, supplies, reagents used to treat top ten diseases)
- Refrigerators, shelves
- Wall/fridge thermometers,
- Air conditioning systems, and
- Fire extinguishers
- Storage guidelines and SOPS

- Trolleys
- Ladder
- Forklift for bigger hospitals (optional)

5.3. Patient flow

Once the patient arrives at the dispensing unit with a prescription, he/she passes through the following steps:

Prescription (Rx) Evaluator: When patients arrived at the pharmacy with prescription, they got prescription evaluator. The pharmacist validates the prescription for completeness, legality and legibility. He/she should also make correctly interpret any abbreviations. Then the Rx evaluator confirms the appropriateness of the drug choice, dosage form, strength, dose, frequency quantity and duration of treatment with the diagnosis. The Rx evaluator pharmacy professional is also required to identify drug therapy problems.

Biller for paying patients: Patients then will see the biller pharmacy professional who makes calculations and tells the amount of money to them. If the patient has the requested amount of money, the pharmacist writes the description of the medicines, their quantities as well as respective price on the sales ticket. The sales ticket is given to the cashier who sits next to the biller with the prescription. However, if the patient cannot afford the payment for the prescription, the pharmacist will communicate with prescriber and sort-out other best alternative medicines which patients can afford and at the same that has the same curative value. By doing so, the pharmacy professional will contribute rational medicines use in terms of dispensing affordable medicines to clients.

Note: The Rx Evaluator can do the billing at the same time whenever the patient load is minimal and if he/she is allocated to do both.

Cashier: The patient will see cashiers to pay on cash. The cashier will check the horizontal and vertical calculations for retail and total prices and receive the amount of charged. The cashier will reconcile the prescription with cash sales ticket by signing and recording the serial number of sales tickets on the prescription.

Credit/Free patients (sponsored patients): Patients who are not subjected to pay will get their prescription evaluated, cost confirmed by biller and will be send to delegated person to confirm sponsored patients and then to counselor for collecting their medicines with information.

Counselor: The patient will see counselor pharmacist and collect prescribed medicines with appropriate information on correct dosage of each prescribed medicines. The counselor will also conform whether the prescription received is reconciled with either cash sales or credit/ free registers serial number. Then the patient will be counseled appropriately and collect packed medicines with appropriate information. If medicines prescribed are stocked out in the dispensary, patient will collect copy of Rx prepared by the counselor to buy from other pharmacies. Note: whenever, the counselor can check the picked medicines and take responsibility for accuracy, a processer my assist.

(Note: please refer detail counseling process in the six dispensing steps). If the patient is getting the medicines for credit/free, he/she will sign on the register. This patient flow is found to decrease waiting time and increases care time. Please see the patient flow design below
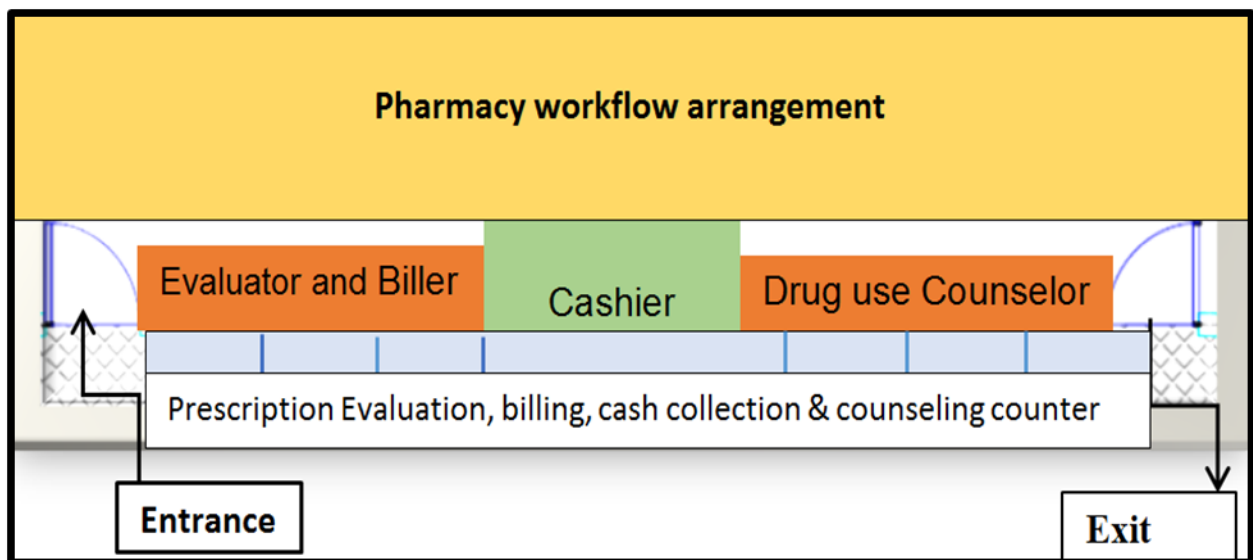
Figure 16: Patient flow arrangement in APTS implementing HF

5.4.   Human resource determination and work load analysis

Human resource needs should be determined by measuring level effort of various professionals and workload analysis. By considering the average number of patients served per day, the health facility can determine the number and mix of professionals required for the various pharmaceutical services. The pharmacy head in charge of leading the pharmacy operations of the

facility has to conduct a work load analysis for each pharmacy units and propose adequate and competent work force to the management /Human resource department of the health facility.

The following assumptions are used for workload analysis and approved by FMOH by being incorporated in the Ethiopian Hospital Service Transformation Guide (EHSTG): The number of counters for prescription evaluator, cashier and counselor was calculated using APTS principles and tested by analyzing one year data of the minimum, maximum and average patient load (considering peak hours) per evaluator per month, per counselor per month and per cashier per month of the 19 hospitals, published in FMOH special bulletin of the year 2017. This data was also, crosschecked with the Ethiopian Health Tier System of Health Sector Transformation Plan (HSTP) 2015/2016-2019/2020. All the three data are approximately similar and validate each other. Therefore, the number of counters is designed as follows;

Table 4: Number of counters to minimize waiting time even peak hours

	Health Center		Hospitals		
Group by ranges	**Rural**	**Urban**	**Primary**	**General**	**Tertiary**
Min Patient load /day	50	101	151	201	251
Max Patient load /day	100	150	200	250	460
Peak hours					
Morning	10a.m-12a.m	10a.m-12a.m	10a.m-12a.m	10a.m-12a.m	10a.m-12a.m
After noon	2p.m-3p.m	2p.m-3p.m	2p.m-3p.m	2p.m-3p.m	2p.m-3p.m
Total peak hours	3	3	3	3	3
Max number of patients at peak hours	50	75	100	125	230
Maximum number of patients served per hour based on the APTS principals					
Evaluator	4				
Casher	31				
Counselor	6				

Calculation of number of counters required based on number of patients on peak hours					
# Counters for Rx evaluator	4	6	8	10	18
# of counters for casher	1	1	2	2	3
# of counters required for counselor	3	4	6	7	14

Calculation number of counters required based on maximum total number of patients/ days					
# of Counters for Rx evaluators	3	4	6	7	14
# of counters for casher	1	1	1	1	2
# of counters for counselor	2	3	4	6	10
Minimum internal room size					
*Length (m)	8	10	13	16	27
**Width (m)	5	5	6	6	6
Assumptions used to determine number of counters for counselor and evaluators.					
1. Maximum number of patients at peak hour taken as 50% of maximum patient load					
2. The evaluator shall serve 75%of 1000 patients per month.					
3. The casher shall serve 250 patients per day.					
4. The counselor shall serve 1000 patients per month.					
5. Th e pharmacies shall be open or service six (5) days per week or 22 days per month.					
N.B.					
1. Number of counters calculated based on peak hour can be used to size the maximum room size of dispensing areas.					
2. Number of counters calculated based on maximum. patient load can be used to size min. room size of dispensing areas.					

- **For OPD dispensaries**: 1000 prescription (or 1500 counseling episodes) per pharmacy personnel per month. This assumption takes 1.8 medicines per prescription on average. This number of patients are for all Rx evaluators, processor and counselor. Example: if processor is assisting Rx evaluator, counselor and they will serve 3000 patients per month being together (they share 1000 each).

- **For chronic care and inpatient pharmacies.** Three drugs per prescription is assumed to be dispensed on average for chronic care whereas 6 products for inpatient. In chronic care patients, counseling take lots of time, whereas, in inpatient, recording and documentation takes majority of the time. Therefore, 500 patients per month per pharmacy personnel is assumed for both.

- **For clinical pharmacy services in wards**: 25, 30, 35 beds per pharmacist per day for tertiary, secondary and primary hospitals, respectively.

- **For emergency pharmacy:** The number of drugs per Rx is the same as OPD pharmacy, i.e. 1.8 drugs per prescription on average. However, since emergency service is critical compared to OPD, pharmacists should dispense immediately-without waiting time and may dispense without prescription, and finally will collect prescription and record. This result in demanding short time for dispensing whenever there is emergency. Secondly since emergency patients will not come sequentially; but once many- that leads to high load of patient for one pharmacist in short time, the number of patient assumed to be served by one pharmacy personnel per month is assumed 750 patients. The service will be delivered in 24 hours per day in 7 days of a week.

- **For accountants:** Practical experience showed that up to 5000 patients per month is can be served by accountants. However, in a health facility, at least two accountants are needed.

- **For cashers:** practical experience showed that up to 500 patients can be served by one cashiers per day. However, since cashiers may be changed every 8 hours, especially for emergency, and there should be at least one cashier per dispensing unit in a day. Usually the number of cashiers are determined by the number dispensing units. However, in a health facility, at least two cashiers are needed since the collected money should be deposited in bank.

Human resource: To deliver efficient and quality pharmaceutical services, sufficient professionals should be deployed with the required mix and number based on the type of services and workload. Hospitals and other health facility pharmacies should have at least the following positions and professional mix:

- **Pharmacy Services Director/ pharmacy head**: in charge of overall activities of the pharmacy services; one personnel

- **Pharmacy Unit Coordinators:** coordinates the overall activity in each unit. When necessary there may be team leaders under coordinators. One personnel per dispensing units.

Pharmacy personnel: in charge of managing dispensing and related functions at the following service areas: -

- **Rx evaluator/biller and counselor** as per the above calculation

- **Drug Information Pharmacist;** one pharmacy personnel

- **Compounding pharmacist**; as per the patient load; one pharmacist for 20 prescriptions per day

- **Pharmaceutical supply management pharmacist**: Ranges from 1 to 3 as per the size of the hospital

- **Pharmaceuticals Store Manager:** ranges from one to three as per the size of the hospital and store number

- **Pharmacy Accountants:** As per the above calculation.

- **Cashiers:** as per the calculation and number of dispensing units.

- **Porters:** responsible for loading, unloading, delivering, and arranging; ranges from one to 5 as per the size of the hospital

- **Cleaners:** responsible to keep service delivery premises clean and tidy at all time as per the size of the hospital

- **Patient assistant:** responsible to keep order at dispensing outlets so that patients could be served in an orderly and secure manner. As per the size the hospital

- **Admin assistant:** responsible for secretarial works and office management of the pharmacy director/head; one for pharmacy head or directors

- **Guards**: as per the size of the Health facilities

5.5. Collective and individual responsibilities of pharmacy staffs

The implementation of APTS at health facilities demands the concerted efforts of key players at all levels of the health care system in the country. This needs high level commitment from the top leadership as well as administrative and technical experts. Therefore, there should be a coordinated, transparent, and effective guidance and communication to ensure consistency and uniformity of practice at all health facilities

Individual responsibilities of pharmacy staff members

Medicines are arranged on shelves following therapeutic/pharmacological classes. The bins are assigned convenient identifiers and allocated to the specific dispenser at a time. The length of time for bin ownership can vary among hospitals. The bin owner has the following responsibilities.

Individual responsibilities of Bin owners/Dispensers

- Request medicines by IFRR/ or Model 20/Health from store

- Receives medicines issued from the store and sign on model 22/health

- Labels the codes, selling prices and/or retail prices on each package

- Shelves the medicines into the bin location

- Follows the expiry dates of drugs in each bin assigned to him/her

- Provides all the necessary information required to complete Model 20/health

- Follow the movement of stocks using FNSD (Fast moving, Normal moving, Slow moving, Dead stock) and near expiry, etc.; report to head of the dispensing unit

- Makes sure that the his/her bin location is adequately stocked and is accessible to other dispensers all the time

- Control the stock from theft, pilferage, and other losses, take inventory when there is suspicion, and perform random audit (whenever necessary) along with the pharmacy accountant, auditors, or head of pharmacy unit

- During the quarter inventory, fill-in the inventory sheet and makes it ready for physical inventory

- Keeps up-to-date information on stock status, price changes, availability of different choices of medicines

- Report the average monthly consumption of drug in his/her bins to head of the dispensing unit

Figure 17: Bin location, the case of Shashemene Hospital

Figure 18: The case of Haromaya University Hospital

Collective Responsibility of Bin owners

The management of medicines transactions and services involves multiple professionals especially at dispensing outlets. The provision of continuous services to clients requires the concerted effort and coordination of all professionals with the essence of trust and good workplace relationship.

This requires accepting collective or shared responsibility amongst the professionals working in a unit. For instance, in order to ensure transparency and accountability for medicine transactions taking place at dispensing outlets, shelves are categorized by bin locations which are in turn assigned to different owners. On the other hand, providing service to clients usually requires a dispenser to access bin locations that are not in his/her own control. In order to facilitate this process, there has to be a common understanding amongst all dispensers to hold a collective responsibility in order to avoid the locking of bin locations during absence of a bin owner and to take shared accountability for shortages and losses of medicines received from the pharmacy store.

Similar situation may be encountered at the pharmacy store where more than one store managers are assigned to manage the inventory.

Therefore, there should be a mechanism to institute collective responsibility within health facilities. To implement collective responsibility, FMOH/RHB/ZHD/WoHO should issue a policy/directive that enforces the practice of collective responsibility at health facilities. On the other hand, the health facility should follow up the implementation of collective responsibility

and accountability at dispensing outlets and pharmacy store (if applicable) right from the time of employment and orientation of the staff.

Responsibilities of pharmacy accountant

 The pharmacy accountants are responsible to: -

- Requests and receives sales ticket pads from the hospital/HF property administration store
- Issues every sales ticket pads to service providers after registering all details on the sales ticket register (refer the sales ticket pad register) when every service provider at dispensing outlets and service unit requests sales ticket pads from a pharmacy accountant.
- Receive the used sales ticket pads from pharmacy personnel or whoever else used tickets after checking and segregating it by used, lost, voided and/ or damaged pages and getting the signature of the returnee and or responsible person.
- Distribute free/credit register to all dispensing units and collect registers used in the last day (yesterday).
- Receives used sales tickets from cashiers by casher delivery note, after checking the serial numbers and signature of the cashier
- Receives copies of model 19/health and 22/health from store every time when there are transactions to calculate stocks (received, issued and stock on hand) during the month
- Check price control sheet prepared by store manager when new items are received
- Summarize form 64/ for the daily collected money or using deposited slip in bank or monetary value received by main casher (in a safe box)
- Perform daily summary for all transaction made, number of patient served, and number of products dispensed on cash from sales tickets, on credit/free from registers.
  - o Note: The daily summary is better to be summarized by softcopy and printed copy should be documented
- Perform monthly report for all transactions, patient served, and product dispensed in collaboration with delegate pharmacy personnel

- o Note: The monthly report is better to be summarized by softcopy and printed copy should be documented and sent to CEO, RHBs or FMHO for decision making as reliable sources
- o Note: cash sales tickets may be used by pharmacy personnel, laboratory technologists, radiologists and nurses.

Responsibilities of cashier

- The cashier ensures that the serial number of sales tickets, delivered for payment, is consecutive and inform to the respective dispenser otherwise
- The cashier checks the price (unit/sum) and collects the right amount of money from the respective clients. In cases of price discrepancy, he/she shall inform to the respective dispenser for correction
- Then, she/he signs the sales tickets, delivers the original to the client and retains the second copy.
- The cashier transcribes the serial number of the sales ticket on the prescription, signs and stamps so that the dispenser will be sure that the patient has paid accordingly.
- The cashier informs the client to please collect his/her drug at the dispensing counter
- The cashier should summarize the daily sales by cashier's delivery note and submit to the accountant

Note: at the end of the day, cashiers usually sign on the remaining pad of the cash sales tickets; however, this activity is a duplication of effort (redundancy) since all information required is found in the cashiers' delivery note and on the Rx. Whenever, auditors audit, they can use the remaining pad that is not signed by the cashier and whenever there is difference, they can reconcile by checking cashers delivery note and /or Rx. Otherwise, signing on the reaming pad is not a crime but unnecessary workload.

- Cashiers should not sign on daily summary over and under since the daily billing of one pharmacy personnel may be received by different cashers. So, the cashiers will sign only in their cashiers' delivery note.
- Cashiers delivery note should not be duplicated, only delivered to accountant. For the sales tickets and cashiers' delivery note delivered, cashiers received model 64

Responsibilities of auditor

- Auditors should collect source document from store man (Model 19/health and Model 22/Health, physical count of products signed by physical counters and checkers), cash sales ticket pads, cash sales tickets with cashier delivery note, model 64 registers/free/credit, daily summary reports and monthly reports.
- During physical inventory, auditors should take cut off from all Model 19/health, 22/Health, sales tickets and registers; see the procedure of inventory taking and take sample physical count for checking.
- Product audit starting from procurement, receiving, issuing and dispensing
- Conduct regular and random financial auditing of the health facilities
- Conduct regular and random service performance auditing
- Present the findings of performance audit report to the management

5.6. Responsibilities of Health Facilities

The implementation of APTS at health facilities demands the concerted efforts of key players at all levels of the health care system in the country. This needs high level commitment from the top leadership as well as administrative and technical experts. Therefore, there should be a coordinated, transparent and effective guidance and communication so as to ensure consistency and uniformity of practice at all health facilities.

Accordingly, the roles and responsibilities of all stakeholders at different levels needs to be clearly defined and understood to create synergy and accountability during implementation of APTS. This is expected to maximize the efficiency of supporting the system and ensure effectiveness of implementation. Therefore, the roles and responsibilities of different actors of APTS implementation are defined as follows.

Health Facilities

- Collect a baseline data that shows the overall status and take pictures of the before parts
- Develop detailed plan of action that guides the implementation of APTS
- Create consensus amongst the health facility staff on the importance of the initiative
- Provide training and orientation to relevant staff to initiate implementation of APTS
- Ensure the continuous availability of the necessary vouchers, sales tickets, forms and registers
- Reorganize the pharmacy services in line with requirements for implementation of APTS

- Employ and reassign technical and support staff
- Allocate the necessary budget and resources required to facilitate implementation of the system
- Implement the Ethiopian Hospitals Transformation Guide (EHSTG) operational standards
- Conduct continuous supervision to ensure proper implementation of APTS at all service delivery points, identify challenges if any and make timely corrective decisions
- Prepare regular report and submit to the next level of authority

- Carryout workload analysis and performance evaluation for development and deployment of existing and additional staff

5.7. Responsibilities of Woreda, Zones, regions & Federals

Group activity

Form 4 groups. Group reading and discussion for 7 minutes on:
- Responsibilities of Woreda, Zonal, regional, and federal (MOH, MOFED, PFSA)
- Each group shall present their group readings for 2 minutes

5.7.1. FMOH, Regional, Zonal and Woreda responsibilities
- Develop, revise and facilitate the endorsement of policies and legal framework
- Develop directives to enforce the execution of shared responsibility and indemnity as part of supporting the effective implementation of APTS
- Provide continuous and all rounded follow-up and support to health facilities
- Organize and conduct training in collaboration with relevant stakeholders
- Conduct regular supportive supervision and mentoring
- Support the deployment of appropriate mix of staff required to implement APTS
- Consolidate progress reports submitted from health facilities regularly and generate aggregate information that can be used for making informed decision
- Follow up the entire process concerning the implementation of APTS

5.7.2. MOFED/BOFED responsibilities
- Print and distribute all the necessary vouchers and sales tickets

5.7.3. Pharmaceutical Fund and Supply Agency
- Filling the cost of all products transacted

- Creating transparency by recording all information about products including name, batch number, expiry date, and code all the products delivered to health facilities
- Timely settlement of all credit procurements
- Reverse logistics whenever health facilities are overstocked

5.8. Indemnity

The basic purpose of indemnity is risk sharing. if an individual suffers from losses and shortages, the cost of holding this responsibility can pose a large financial hardship. So, individuals find it worthwhile to share the risk through indemnity to protect themselves from ever having to pay the full cost of the risk out of pocket. In principle, risk sharing through indemnity is most worthwhile when the event insured against is largely unpredictable, frequent and costly, unwanted, unplanned and uncontrollable by the employee.

By its nature, medicines are valuable and costly products. In the course of managing the transactions of these products, unavoidable human errors may occur. During activities, such as receipt of medicines at the pharmacy store, issue of medicines to dispensing outlets and service units, dispensing of medicines to patient, billing, etc., there are lots of recording activities related to costing, pricing and generation of receipts. Accordingly, there are various opportunities for making unintentional errors. These errors will make pharmacists, pharmacy technicians and cashiers at risk of being responsible to cover losses and shortages.

So, any person who performs one or more of the functions stated above must be covered by indemnity insurance from the employer. So, the regional health bureau or Federal Ministry of Health should develop and issue appropriate indemnity policy based on the volume and value of transactions that are prone to deserve indemnity coverage for use under respective hospitals. Health facilities should implement this policy to effectively implement APTS.

Chapter Summary:

Pharmacy organization should enhance the performance of professionals and patient convenience & satisfaction. Delivery of efficient and quality pharmaceutical services, require appropriate number of work-force with the required mix and number based on the type of services and workload of the health facility. Individual and collective responsibility and basic purpose of indemnity needs to be clearly defined and understood to create synergy and accountability during implementation of APTS.

Chapter 6. Pharmaceutical Coding

Chapter Description

In this chapter, the importance and types of Pharmaceutical Coding will be explained. The chapter provides detailed description of the components of the alphanumeric coding system: base code, price code, batch code, therapeutic category code and code for expiry date, receiving date and country of origin. Furthermore, the relationship of this coding with General Specification (GS1) Global Standard barcodes, health insurance codes will be discussed.

Primary Objective: -

At the end of this chapter, participants will be able to apply the national pharmaceutical coding.

Enabling objectives: -

To attain the primary objective, the trainees will be able to;

- Describe pharmaceutical coding
- Explain the advantages of pharmaceutical coding
- Implement price control sheet
- Apply pharmaceutical coding

Chapter Outline

- Introduction
- Types of coding system
- Advantages of coding system
- Summary

6.1. Introduction

Individual activity (5 minutes)
- What is coding?
- What type of coding do you know?
- What do you think the importance of coding?

Let the trainees to conduct side talk for three minutes and let the faster to answer by raising their hands.

Coding is a system of assigning a unique identifier for a product. A code is used to represent a product using letters, numbers, or their combinations to transfer messages for identifying a

product. Coding has two parts; the base code and detail codes. The detail codes include, batch codes, expiry dates, country of origin, receiving date and internal price coding.

The internal price coding refers to the process of assigning codes to pharmaceutical products within the health facility to uniquely identify the price. So, coding makes cost follow-ups of each medicine in a health facility easier.

Medicines, medical supplies, laboratory reagents and raw chemicals, raw materials for extemporaneous preparation, radiology chemicals, sanitary chemicals (antiseptics and disinfectants) and consumable instruments should be coded in health facilities. The purpose of this coding is to ensure traceability of medicines and transactions at any point in the supply chain system and service delivery. It also makes all types of pharmaceutical transactions transparent, understandable for non-health professionals and auditable. Unless medical products are coded, it would be very difficult to trace them, to audit, especially by non-health professionals (auditors), loss and patient harm due to adverse drug reactions i.e. it helps to uniquely identify products during adverse drug events (ADE).

Coding is also extremely important to summarize daily sales of dispensed medicines manually, using cash registers or software.

Computerization of medicine transactions is much easier when medicines have codes. National control of medicines can also be greatly enhanced. The national coding will also be an input for international general specification of global standard (GS1) barcoding. Coding will also simplify implementation of the health insurance scheme since the national code identifies products with costs across the country. Federal Ministry of Health has responsibility of assigning of the base codes to pharmaceutical products at the national level.

The responsibility of health facility to use the national code is to prepare and update facility specific VEN classified drug list.

Case study

1. If Amoxicillin 125 mg /5ml suspension is sold at 25 Birr and another one received at different price of 19 Birr, is it possible to shelve all of them at   same time and sell without committing price errors?

    o   If an auditor requests you an evidence for Amoxicillin 125 mg/ml suspension sold on cash on birr 19 per bottle, how do you convince the auditor that 19 birr is the real price and not birr 25?

2. If a store keeper receives 10 boxes of Amoxicillin 500 mg capsule at 260 Birr /box from PFSA and other 2 boxes with a different price from other source at 300 Birr on the same date, what are the activities required of a store keeper to record on model 19/health and issue with model 22/health so that there will not be price mix-up?

3. You have been dispensing by recording diphenyl hydantoin and sometimes recording phenytoin to patients prescribed with phenytoin; what evidence do you present they are the same generic names standing for the same medicines in case of legal question is raised or asked by auditors

    o   Example, look the case of Dessie Referral Hospital. The CEO of Dessie Hospital wanted hydrochlorothiazide to be audited through product audit in 2015. The auditors collected sold hydrochlorothiazide as evidence of sold items. The auditors then reported audit deficit of 60,000 Birr. The professionals resisted to acknowledge the deficit and instead assisted the auditors to collect the sold items again. This resulted in no deficit. The cause of deficit was the fact that the auditor by-passed HCT but collected hydrochlorothiazide. Which of the following was the best tool that should have been used by the auditor to prevent such a big mistake?

        i.   use "hydrochlorothiazide 25mg tablet"?
        ii.   use "HCT"
        iii. thiazide diuretic
        iv.   use a unique code that represents all naming of hydrochlorothiazide like "Thia-10-1"

4. If a patient comes with complaints of an ADE after 6 months having sales tickets indicating that it was dispensed from pharmacy of this hospital and EFMHACA wanted to recall this product, how can you trace back which specific medicine was dispensed?

6.2.   Types of coding system

The type of characters majorly classifies coding systems they use for representing pharmaceuticals. They can also be further sub classified by whether they are fixed or variable. Generally, there are two coding systems.

- Alpha-numeric coding system
- Numeric coding system.

1. Alpha-numeric coding system

This is a type of coding that uses letters and numbers. Alpha numeric code is constructed from 7 characters. The first 4 are letters taken from the generic name of the product followed by three digits. Therefore, we use the alpha-numeric coding system by using 4 letters and three-digit numbers.

Next to the four letters, numbers are assigned based on the strength, dosage form and/or cost of the product. Numbering starts from the smallest strength and continues to the highest. The two numbers that come immediately after the letters refer to the dosage form and strength of the product.

Alpha-numeric coding can be variable or fixed. In the variable coding system, a third number is used to show the change in price. This number varies according to the price of the product.

2. Numeric Coding System

This is a coding system using numbers that starts from one and can increase until the maximum number of items. Products with different strength and dosage form will have different codes. To give codes using this system, arrange all the products (segregated by dosage form and strength) in alphabetic order.

Assign number 1tothefirst product in the list and continue numbering until the end. With this coding system, products of same strength and dosage form with varying costs cannot behand led at the dispensary at the same time. Therefore, this system requires a cost variation announcement every time when the cost varies.

Note: The numeric coding system is very old model and becomes difficult to identify the product using this code specially when there is a long list of products and if sources are missed. Therefore, APTS recommends the use of alpha-numeric coding system

3. Alpha-numeric variable coding and its application

This is a type of coding that uses letters and numbers. As mentioned above, alpha numeric code is constructed from 7 characters. The first 4 are letters taken from the generic name of the product followed by three-digit numbers. Alphanumeric code possesses less burden of memorization on the pharmacy professionals as the alpha components of the code gives clue about a medicine under question.

4. Four letters for codes

See the following scenario cases how to give letters for the codes:

Scenario 1:

In cases where the drug contains only one compound, take the first four letters of the generic name of the compound:

Example: ***Amox*** for amoxicillin ***Para*** for paracetamol.

Scenario 2:

If drug is a combination of two separate drugs, take the first two letters from each generic drug name.

Example: ***Amcl*** for Amoxycillin + Clavulanic acid, ***Arlu*** for Artemether + lumefantrine

Scenario 3:

If the drug is a combination of three separate drugs, take the first two letters from the first drug name and the first letter from the second and third drugs.

Example 1: ***Oxhp*** for oxytetracycline + hydrocortisone + polymyxin B

Example 2: ***Alms*** for Aluminum Hydroxide + Magnesium Hydroxide + Simethicone

Scenario 4:

If the drug is a combination of four separate drugs, take the first letter from each word.

Example: ***Amsa*** for Aluminum Hydroxide + Magnesium Hydroxide + Simethicone + Alginic Acid

Scenario 5:

In cases of product names with adjectives in the form of halogenations, methylations, acetylation, etc.… the first four letters of the name of the parent compound is taken.

Example: ***Sali*** for acetyl salicylic acid and ***Phen*** for chlorpheniramin***Zepa*** for Bromazepam

Scenario 6:
   A. In case of products which have, the same letters that should be selected for codes based on the above criteria due to same parent compound, the first adjunction letter of the product which overlapped with other is taken for codes to differentiate them.

Example ***Quin*** will be the code for both chloroquine and quinine. In this case, we use:

> ***Quic*** for <u>c</u>hloro<u>qui</u>ne   and   ***Quin*** for <u>quin</u>in

   B. In case of medicines with one base parent compound or with common name but with multiple combinations; like; *dopa*, *levo*, *dextro*, *cis* and *trans* molecules, classifications, substituents and adjunctions, take three letters from the parent compound and one letter from the adjunctions, substituents or classifications

Example 1- Dopa could be the common letter. But, only Dop is taken and one letter is taken from the isomers

Dopc for <u>C</u>arbi<u>dop</u>a   ***Dopl*** for <u>L</u>evo<u>dop</u>a   ***Dopm*** for <u>M</u>ethyl <u>dop</u>a   ***Dopa*** for <u>Dopa</u>mine

Scenario 7:

In case of a product is found having two generic names, one of the name is taken which is usually used in Ethiopia and the other name of a product is recorded in bracket

Example 1: ***Para*** for Acetaminophen and <u>Para</u>cetamol; the product will be recorded as Paracetamol (acetaminophen);

Example: <u>Hyda </u>for Phenytoin and Diphenyl<u>hyda</u>ntoin; The product will be recorded as Phenytoin (diphenyl hydantoin). *Note: the name is taken from Diphenyl Hydantoin.*

Salb for albuterol and <u>salb</u>utamol   ***Hyos*** for <u>**Hyos**</u>cine and Scopolamine

Example 2-   ***Vita*** for <u>Vi</u>t<u>a</u>min <u>A</u> (retinol) ***Vitc*** for Vitamin <u>C</u> _(Ascorbic Acid) ***Vitk*** for <u>**Vit**</u>amin <u>K</u>1, _(Phyto menadione)

Scenario 8:
In case of a product were a product is found with more than one salt forms, take three letters from a parent compound and take one letter from the salt

Example: ***Dics*** for <u>**Dic**</u>lofenac <u>**s**</u>odium   ***Dicp*** for <u>**Dic**</u>lofenac <u>**potassium**</u>

Scenario 9:

In case of a special products like laboratory raw chemicals, raw materials for extemporaneous preparation, sanitary chemicals (antiseptics and disinfectants) and consumable instruments, code by taking three letters from the product and take three fixed numbers

Example 1: **_Sal_1-01** for **Sal**icylic Acid powder (the 1st number which is "1" indicates raw chemical or raw material)

Example 2: **_Sul_1-01** for **Sul**phur precipitate pure (the 1st number which is "1" indicates raw chemical or raw material)

Example 3: Cet2-01 for Cetrimide (the 1st number which is "2" indicates the product is antiseptics or disinfectants)

Example 3: **_Cyl_3-01** for Measuring **Cyl**inder (the 1st number which is "3" indicates consumable instruments)

5. **Two numbers for codes**

Next to the four letters, numbers that come immediately after the letters refer to the dosage form and strength of the product. Numbering starts from the smallest strength and continues to the highest in ascending order. The two numbers are assigned starting from 01 to 99 using the following agreements. For chemicals, it is agreed to use 1-01 to 4-09. See the following table and refer the national code: -

Table 5: Base codes for various dosage forms and raw materials

Pharmaceuticals Transactions and Dispensing Solutions (PTDS) Base codes	
Dosage Form	**Base Code Range**
Capsules	01 to 09
Tablets, Lozenge	10 to 19
Oral preparation (such as suspension, syrup, solution, drop, elixir, gel, emulsion, oral powder, paste)	20 to 29
Injectable, implants, Infusion	30 to 39
Eye, Ear & Nasal preparations (such as drops, solution, suspensions, ointments, spray, Inhaler, aerosol)	40 to 49
Topical preparations (such as cream, ointments, lotion, shampoo, gel, powder) Note: Cream Starts from 50 whereas ointment starts from 56 but lotions and shampoos start from 50	50 to 59
Suppositories, pessaries, Vaginal creams, Vaginal ointment and tablets, Vaginal Ovule Note: Creams starts from 60 and vaginal ointment starts from 66	60 to 69
Medical Supplies Reagents (such as lab reagents), radiology chemicals	70 to 99
Raw chemical for Laboratory, raw materials for extemporaneous preparation)	1-01 to 1-09

Sanitary chemicals (antiseptics and disinfectants)	2-01 to 2-09
Consumable instruments	3-01 to 3-09
Others (like close, woods etc.…)	4-01 to 4-09

The six digits of the codes (4 letters and two numbers) are considered as a base code. The base code of the product represents

- Generic name of the product

- Dosage form of the product

- Strength or volume or size of the product

Example 1: **_Amox-02_**. This shows "Amox" indicates amoxicillin, "0" indicates capsule, and "2" indicates that the 2nd strength; Therefore, the product is Amoxicillin 500mg Capsule.

Example 2.

Sodc-30	Sodium Chloride	Injection	0.9% (Normal Saline) "10 ml
Sodc-31	Sodium Chloride	Injection	0.9% (Normal Saline) 20 ml
Sodc-32	Sodium Chloride	Injection	0.9% (Normal Saline) 500 ml
Sodc-33	Sodium Chloride	Injection	0.9% (Normal Saline) "1000 ml
The two numbers 30, 31, 32, 33 represents both strength and volume of the IV fluids.			
Sodb-10	Sodium Bicarbonate	Tablet	500 mg
Glov-70	Gloves Surgical sterile latex pairs		Size 6.5
Glov-71	Gloves Surgical sterile latex pairs		Size 7
Glov-72	Gloves Surgical sterile latex pairs		Size 7.5
Glov-73	Gloves Surgical sterile latex pairs		Size 8
Glov-74	Glove latex disposable examination	non-sterile, Small Size	
Glov-75	Glove latex disposable examination	non-sterile, Medium Size	
Glod-70	Glove Heavy duty		Small size

Note: The two numbers 70, 71, 72, 73 and 74 represents the size of the product

Sub classifications are given within a range of codes. When there are syrups and suspensions for a specific product;

- Oral syrups are assigned codes of numbers from 20-25.

- *Oral suspensions* are assigned codes of numbers from 26-29. However, if there are no suspension and syrup for a single product, all will start from 20.

Example:

Ampi-20	Ampicillin suspension 125 mg
Ampi-21	Ampicillin suspension 250 mg
Ampi-26	Ampicillin oral drop 100 mg

The coding for medical supplies and laboratory reagents & chemicals is based on their size, strength and volume.

Note: assignment of base code is like the above. Please look examples

Table 6: Coding of medical supplies-taking catheter as an example

Catf-70	Catheter Foley siliconized latex balloon sterile two ways	Size 4 CH
Catf-71	Catheter Foley siliconized latex balloon sterile three ways	Size 4 CH
Catf-72	Catheter Foley siliconized latex balloon sterile two ways	Size 6 CH
Catf-73	Catheter Foley siliconized latex balloon sterile three ways	Size 6 CH
Catf-74	Catheter Foley siliconized latex balloon sterile two ways	Size 8 CH
Catf-75	Catheter Foley siliconized latex balloon sterile three ways	Size 8 CH
Catf-76	Catheter Foley siliconized latex 5-15 ml balloon sterile two ways	Size 10 CH
Catf-77	Catheter Foley siliconized latex 5-15 ml balloon sterile three ways	Size 10 CH
Catf-78	Catheter Foley siliconized latex 5-15 ml balloon sterile two ways	Size 12 CH
Catf-79	Catheter Foley siliconized latex 5-15 ml balloon sterile three ways	size 12 CH
Catf-80	Catheter Foley siliconized latex 5-15 ml balloon sterile two ways	size 14 CH
Catf-81	Catheter Foley siliconized latex 5-15 ml balloon sterile three ways	size 14 CH
Catf-82	Catheter Foley siliconized latex 30-50 ml balloon sterile two ways	size 16 CH
Catf-83	Catheter Foley siliconized latex 30-50 ml balloon sterile three ways	size 16 CH
Catf-84	Catheter Foley siliconized latex 30-50 ml balloon sterile two ways	size 18 CH
Catf-85	Catheter Foley siliconized latex 30-50 ml balloon sterile three ways	size 18 CH
Catf-86	Catheter Foley siliconized latex 30-50 ml balloon sterile two ways	size 20 CH
Catf-87	Catheter Foley siliconized latex 30-50 ml balloon sterile three ways	size 20 CH
Catf-88	Catheter Foley siliconized latex 30-50 ml balloon sterile two ways	size 22 CH
Catf-89	Catheter Foley siliconized latex 30-50 ml balloon sterile three ways	size 22 CH
Catf-90	Catheter Foley siliconized latex 30-50 ml balloon sterile two ways	size 24 CH
Catf-91	Catheter Foley siliconized latex 30-50 ml balloon sterile three ways	size 24 CH

6. **Price code (the seventh characters-(number)**

For a drug having the same generic name, dosage form and strength but with different cost, the codes vary by using variable coding system. The variable code is the last numerical digit of the

code of the product; it varies according to the cost of the product by increasing the last digit sequentially starting from number 1 for the first price. **Example:**

- The code of **Amoxicillin** 250 mg capsule with a cost of 10 Birr is ***Amox-01-1***
- The cost of **Amoxicillin** 250 mg capsule changes to 20 Birr, the code will be ***Amox-01-2***

In cases where we use fixed coding, the code remains the same irrespective of variations of the cost. In such situation, a product with a revised price cannot be shelved for dispensing prior to finishing the already existing one. In addition, when the product with the old price is completed, announcement of cost variation is mandatory before initiating of dispensing from the product with the revised price. All dispensers should immediately note the change in price.

Table 7: Example of cost code (variable and fixed coding)

SN	Description	Cost	Fixed Coding	Variable Coding
1	Amoxicillin Capsule 250mg	1 birr/capsule	Amox-01	Amox01-1
		1.25 birr/capsule	Amox-01	Amox01-2
2	Amoxicillin Capsule 500mg	1.50 birr/capsule	Amox-02	Amox02-1
		1.75 birr/capsule	Amox-02	Amox02-2
3	Amoxicillin Injection 250mg in vial	4 birr/vial	Amox-30	Amox30-1
		7 birr/vial	Amox-30	Amox30-2
		8 birr/vial	Amox-30	Amox30-3
		9 birr/vial	Amox-30	Amox30-4
4	Amoxicillin Injection 500mg in vial	11 birr/vial	Amox-31	Amox31-1
		11.5 birr/vial	Amox-31	Amox31-2
		12 birr/vial	Amox-31	Amox31-3
5	Amoxicillin Syrup 125mg/5ml	10 birr/bottle	Amox-20	Amox20-1
		10.50/bottle	Amox-20	Amox20-2
6	Amoxicillin Syrup 250mg 5ml	13 birr/bottle	Amox-21	Amox21-1
		15 birr/bottle	Amox-21	Amox21-2

7. Using price code for price control sheet

The price code is an additional number to be coded in a specific health facility per the cost of the product whereas the base codes are prepared nationally. After the base code for a specific product is assigned, the price code is also assigned for price controlling. Auditors uses the price control sheet for auditing as a reference. The price code is assigned by store manager with pharmacy coordinator/dispensing head. The copies of price control sheet should be available at all dispensing units, accountant office, audit office and store. All shall sign at the price control sheet while receiving. The price code should be recorded in Model 22/health, sales tickets,

credit/free registers, price control sheet and physical inventory forms. Whenever, there is software, the software may automatically set such code and print the price control sheet

A specific product with similar dosage form and strength but different batch, expiry and price which is registered in a separate row in both physical inventory and model 19; But it should be registered in one row in price control sheet but with specific price codes. When there is a need to trace/identify the batch number, expiry date of a specific product, the price control sheet should be reconciled with the physical inventory sheet and model 19/health.

Example: - if a patient comes with a sales tick containing Amox-02-3 code with some adverse drug reaction, and need to identify the batch number and expiry date of the specific product dispensed, one can reconcile the batch and expiry date of the Amox-02-3 from the model 19/ Physical inventory sheet in a row which contains amoxicillin with the corresponding cost or price of 0.85 cents and specific batch and expiry.

However, whenever there is software, the batch and expiry dates of the product should be recorded in model 19/health, model 22/health, sales tickets generated from the software, and free/credit registers. When using manual vouchers, sales tickets and registers, it is to reduce workload that recording of batch and expiry is not recommended in the model 22/health, sales tickets and credit /free registers.

Table 8: Price Control Sheet

Name of Hl _____									
SN	Drug code	Description (Drug name, dosage form, strength and brand)	Retail Unit	1	2	3	4	5	6
1	Sali-11-3	Acetylsalicylic Acid - 81mg – Tablet (Enteric Coated)	Tablet	~~0.1~~	~~0.15~~	0.20			
2	Acyc-50-2	Acyclovir - 5% - Topical Cream	Tube	~~14.85~~	14.70				
3	Alma-10-2	Aluminum Hydroxide + Magnesium Trisilicate - (120mg + 250mg) - Tablet (Chewable)	Tab	~~0.3~~	0.25				
4	Albe-20-1	Albendazole - 100mg/5ml - Oral Suspension	Bot.	10.6					
5	Amcl-10-1	Amoxicillin + Clavulanic acid 375mg	Tab	2.35					

Note: the price code like ~~0.1~~ and ~~14.85~~ which have been strikethrough indicates that medicines with such prices are finished and instead same medicines with another price (0.20 and 14.70) are available.

The following table 6 summarizes the main advantages and disadvantages of the main types of pharmaceutical coding system.

6.3. Advantages of coding system

Coding is used for:

- Price controlling
- To simplify health insurance implementation and settlement
- To serve as an input for general specification (GS1) standard barcodes for the country; since globally medicines are going to be coded and the national procurement list and product directory for all pharmaceuticals are needed.
- Auditing of pharmaceuticals specially by non-health professionals (auditors)
- To simplify software development and use
- To uniquely identify products during ADR, ADE

- To calculate some WHO indicators. Example % of injectable from the other dosage forms can be automatically calculated by selecting codes that starts from 30 to 39 as a numerator and all medicines codes as a denominator x 100. This is observed to simple specially when software is being applied

When the price control sheet is used (variable coding system is used), price variation announcement is not needed since it will be indicated in the price control sheet. When using price control sheet, a product with various costs can be shelved in the dispensary at the same time.

Table 9: Advantages and disadvantages of using various coding systems

Coding Type	Advantage	Disadvantage
Alpha Numeric Coding System	**Variable Coding**	
	▪ Easy to remember as the code starts with the first few letters of the generic name and the numbers are few & logically assigned based on the strength and dosage form of the drug. ▪ It doesn't require price variation announcement or reprogramming of cash registers or computers ▪ Allows to handle/dispense same product of same strengths but different cost at the same time	▪ Difficult to use the system in the absence of pharmacy professionals as it requires knowledge of parent compounds of the products.
	Fixed Coding	
	▪ Easy to remember as the code starts with the first few letters of the generic name & logically assigned based on the strength and dosage form of the drug.	▪ Requires price variation announcement ▪ Doesn't allow to handle same product of same strengths but different cost
Numeric Coding System	▪ Giving codes is very simple ▪ Can be used for health posts where there are very few items	▪ Doesn't allow handling of same product with different cost at the same time ▪ Requires price variation announcement every time when cost is changed ▪ Once the code is missed in the record, it is very difficult get back the code

Coding Type	Advantage	Disadvantage
		▪ It doesn't indicate which drug, dosage form or strength /volume
▪ Note: alpha numeric variable coding is the nationally recommended code.		

Summary

Coding is a system of assigning a unique identifier for a product by using letters and numbers. All categories of pharmaceuticals should be coded. The purpose of this coding is to ensure traceability of medicines and transactions at any point in the supply chain system. The code is useful for implementation of GS1 standards and in software development for pharmaceutical transactions so that products will not be missed or repeated.

Federal Ministry of Health has responsibility of assigning of the base codes for all pharmaceutical products at the national level.

Chapter 7. Pharmaceutical Physical Inventory

Chapter Description

In this chapter, introduction of physical inventory and the steps involved in undertaking physical inventory are described.

Primary Objective:

At the end of this chapter participants will be able to apply principles of APTS to conduct physical inventory of pharmaceuticals

Enabling objectives:

By the end of this chapter, participants will be able to:

•   Explain physical inventory in APTS

•   Describe the steps for conducting physical inventory

•   Use the physical inventory formats

•   Interpret results of the physical inventory

•   Report results of the physical inventory

Chapter Outline:

•   Introduction
•   Steps for Conducting Physical Inventory
•   Summary

7.1. Introduction

	Think-pair-share Give chance to conduct side talk for 5 minutes, ask them and give chance to answer any one by raising their hands • What is physical inventory? • What are its advantages? • Share your experiences on physical inventory.

Physical inventory is one of the pharmaceutical inventory management methods and it refers to physically counting the actual number of pharmaceuticals in a health facility. The purpose of inventory control system is to inform personnel when and how much of a product to order and to maintain an appropriate stock level to meet the continuous needs of patients. It helps to ensure continuous availability of essential medicines always in adequate quantities. It is also used to monitor losses through expiry, pilferages, or other reasons. It also avoids over and under stocks. During physical inventory, all items in pharmaceutical stores, various dispensaries and other service delivery units are counted.

For proper physical inventory to take place there must be an appropriate recording of transactions at the store, dispensing out lets and service delivery units. Stock cards and bin cards are used to track the balance, movement of stock (issues and receipts) at the pharmacy store. Cash and credit sales tickets as well as registers for credit/freely dispensed drugs are used to monitor the stock movement and value of inventory at the dispensary and other service delivery units.

In order to conduct physical inventory, different inventory forms are used for pharmacy store and for dispensing outlets and service delivery units. The inventory forms used are slightly different. (Refer to the forms used at the pharmacy store and dispensary/service delivery units). The main reason for using different tools is because of the differences in the type of information available at the dispensary and pharmacy store. Stock/bin card balance, discrepancy and cost of medicines can be easily obtained from the store. At the dispensary, physical count and retail prices are readily available. As a result, the cost of medicines at the dispensary can be calculated from the retail price after doing the physical count. *(Refer inventory formats in the annex)*

6.1. Steps for Conducting Physical Inventory

Conducting physical inventory has three steps: preparatory; actual physical count; analysis, interpretation, and reporting.

7.1.1. The preparatory Step (Before physical count)

The first step is preparation for physical inventory. In preparation for inventory, the stock at the pharmacy store and dispensary should be arranged and recorded to facilitate physical count.

Activities in the preparatory phase include:

- **Group** all products per expiry dates, batch number, codes, and unit, unit cost in the store and retail price in the dispensary units. Separate expired medicines
- **Rearrange and shelve** as per the above grouping
  - Shelving the regrouped products is better if its starts from bottom up and then to the side way
- **Register medicines in the store and dispensaries** in the 'before' parts of the respective formats
  - **Useable stocks:** should be recorded in a separate physical inventory-format-page
  - All damaged and expired stocks should also be recorded in another separate physical inventory-format-page
  - Products with different expiry dates, cost or price and batches should be recorded in separate rows of the physical inventory-formats
  - All recorded items should be coded by each row. All medicines with different cost will have variable codes. Please refer price code at price control sheet and roles of auditors' (product and finance auditors) used to identify specific products.
- Sign in the signature spaces and record name of the recorder
- Inform all pharmacy professionals working in the store and dispensaries about the physical inventory plan, so that everyone will avail themselves during physical inventory.
- An internal auditor will be available to cut off the vouchers, registers and sales tickets before taking physical inventory. Please refer the details in roles and responsibilities of auditors, bin owners and store managers.

The reasons why all pharmacy professionals working in the HF should participate in the inventory are:
  - All those who worked in these units are responsible for the shortage and overages. So, they should sign observing the inventory
  - Professionals may be reassigned from one dispensary to another and from one store to another. So, everyone should be aware of what is happening during physical inventory
  - Physical inventory will be finished within short period when all staffs participate in the physical inventory. Therefore, the CEO should delegate all pharmacy

personnel whenever physical inventory of one unit is conducted so that the inventory time will be minimized and patient service will not be compromised

- Inventory should never be conducted in the absence of the responsible persons (those personnel who have been working in the unit)
- Note: a member of few committees delegated to take physical inventory will not be as effective and efficient. Therefore, in APTS principles, committees for physical inventory are discouraged

7.1.2. Actual Physical Counting Step (During physical count)

During this step, actual physical count of pharmaceuticals is undertaken. Physical inventory of stores is carried out every quarter. The time for inventory should preferably be at the end of September, December, March, and June of the budget year. The inventory should be taken on weekends whenever possible. Where as physical inventory of dispensaries is carried out every month. This should be conducted preferably in the weekends too since patient service will not be compromised. The hospital management should consider the weekend part-time works using the rules and regulations of the country. When the last day of the moth is either on Tuesday, Wednesday or Thursday, then physical inventory may be conducted either the previous weekends or in the coming weekends. Then the report will start from the date of the physical inventory regardless of the end of the month. Actual physical count should be carried out in the presence of the responsible persons in the respective locations (e.g. store manager, dispensers, etc.). Members of the physical counting group, that includes most of the staffs, are assigned by the head of the health facility.

Activities in the second phase (during physical inventory): -

- The assigned professionals should be grouped into teams of 2 persons
- Every two personnel should be assigned in separate shelves
- The first person should count physically starting from bottom up as per the registered products serial number
- The second person will record the quantity and both will sign on the signature space for 'counted-by'
- **Exchange:** When the team finished the shelve, the coordinator of the physical inventory will exchange the team with other team who also finished counting of medicines in another shelve.

- **Recount:** The exchanged team will also recount the already counted medicines by the other group and sign on the signature space for 'recounted-by'.

- **Discrepancy:** If there is discrepancy, the team will inform to the first counter team and will repeat the shelf for the third time together with the first team. Whenever, there is shortage or overage when compared with bin cards and stock cards, the responsible person should be communicated immediately and asked for justification for the discrepancy. Once the responsible person believes that the physical count is counted amount, then the difference will be recorded. This process increases transparency and accountability.

- **Signature:** the team will sign on the counted-by-space and recounted-by-space accordingly.

The group should make sure that all sections of the inventory forms that need to be filled before and during the inventory are properly completed, signed and submitted to the concerned authorities of the health facility.

7.1.3. Analysis, Interpretation, and Reporting Steps (after physical count)

This step describes activities after physical count. The pharmacy accountant, who should always be part of the group, must complete the section to be filled after the inventory**.** The inventory at the pharmacy store is valued based on the cost of medicines; whereas the inventory at the dispensary is valued based on retail prices of medicines. To balance; the cost of medicines at the pharmacy store and dispensing outlets including service units should be added up together. In doing so, the monetary values (total selling price) of the physical inventory at the dispensing outlets should be converted into cost to bring the values at the store and dispensary into same unit.

The formula is; -Selling price =cost + profit margin;

Example: If the selling price of the medicines is 120 birr at dispensary, with a profit margin of 20%, what is the cost of the medicines?

- Formula 120 birr = cost + 20%xcost

- 120 birr =cost (1+0.2); 120=1.2 cost and 100=cost

To simplify, the formula will be cost= selling price / (1+ profit margin)

- Cost =120/1.2=100

The result of inventory will be incorporated in the monthly and quarterly report of APTS at the store and dispensaries separately: -

- o Beginning inventory plus received minus issued should be reconciled with the ending inventory. If the calculated ending inventory is equal to the physical ending inventory, it means there is no overage or shortage.
- o The ending inventory should be divided into two;
    - o Useable stocks
    - o Wasted stock (expired and damaged)

The internal auditor should verify all the findings of the physical inventory. After completing the verification, the pharmacy head should report to the head of the health facility. The results of the inventory should be further analyzed and interpreted by methods such as stock status and consumption methods and ABC analysis. The results of the analysis should be used to make informed decision that contributes to continuous availability of essential pharmaceuticals. The information is also used to ensure effectiveness of mechanisms put to counteract wastages and pilferages. The result should also be reconciled with availability of medicines and supplies for top ten diseases and considering seasonal epidemics.

Chapter Summary:

Physical inventory refers to physically counting the actual number of pharmaceuticals in a health facility. The purpose is to inform personnel when and how much of a product to order to ensure continuous availability of essential medicines always in adequate quantities Conducting physical inventory has three steps: preparatory; actual physical count; analysis, interpretation, and reporting. During the preparatory phase, pharmaceuticals are arranged and recorded using the inventory formats. Actual counting of products available in the store and in dispensaries should be made by the pharmacy staff (preferably during weekends). The team records actual quantities in the pre-prepared physical inventory format. Then, finding of the physical inventory are reconciled, analyzed, interpreted, and reported to the management. The pharmacy section with the management will take subsequent decisions based on the findings.

Chapter 8: Managing Pharmaceutical Transactions

Chapter Description

This chapter discusses the management of pharmaceutical transactions at health facilities. The chapter explains the processes of receiving of products from suppliers into the store; requesting and issuing of the products to/from the store to various dispensing and service delivery units by setting prices.

Primary Objectives

At the end of this chapter, trainees will be able to utilize receiving and issuing vouchers by conducting various activities of product transactions from store to service delivery units

Enabling Objectives:

At the end of this chapter the participants will be able to will;

- Explain the process of products transaction; receiving, requesting and issuing
- Describe the criteria for physical inspection
- Implement/fill the forms for pharmaceutical transactions in health facilities

Chapter Outline:

- Introduction
- Receiving of pharmaceuticals at the health facilities
- Requesting Medicine from the pharmacy store
- Issuing medicines from store
- Summary

8.1. Introduction

Pharmaceuticals Transactions in health facilities are process of receiving of pharmaceuticals in the store, issuing to various dispensing outlets and service delivery units & dispensing of products to clients on cash, credit and for free. These transactions should be conducted using legally approved and serially numbered by Ministry of Finance documents including receiving, and issuing models and sales ticket, pad registers. The health facility can prepare the registers by giving legal pages or facility level serial numbers. In these models the numbers; 19/health, 20/health (IFRR) and 22/Health indicate that the models are receiving, requesting, and issuing vouchers. The word health indicates that this voucher is specific to drugs, reagents, medical supplies and equipment.

The sales of pharmaceuticals should be summarized daily using appropriate daily summary forms and all transactions should be reported monthly using financial and service reporting forms. Transactions, coding, and physical inventories are the basic elements for auditing of pharmaceuticals. The flow of pharmaceutical transactions and side by side activities are expressed in diagram as follows:

Receiving

- Base Coding
- Updating bin cards
- Shelving
- *Note: Bin cards should have cost /price column*

- Updating stock cards
- Record/estimate cost
- Setting price

Requesting

- Completing Model 20/Health (IFRR)
- Approval of request

Issuing

- Sales ticket pad register
- Sales ticket pad

- Receiving approved request
- Completing Model 22/1

Dispensing

- Code and price labelling
- Shelving at dispensary
- Billing/sales ticket
- Completing dispensing registers

Daily summary/Report

Random sample auditing

Random sample inventory

Monthly financial and Service Report

Stock turnover analysis

Quarterly Report

Internal audit

- Quarterly inventory
- Stock status analysis

External audit

Annual Report

Annual inventory

8.2. Receiving of Pharmaceuticals at Health Facilities

The receiving of products involves physical inspection, physical counting, recording of products with costs and codes using standard formats. After receiving, prices should be set before issued to service delivery units.

8.2.1. Physical Inspection

Physical inspection is the process of checking product quality and quantity during receiving of medicines in health facilities. This is the key step to identify product defect if any.

Steps of physical inspection of medicines: The process of physical inspection by store manager and DSM officer is as follows:

Compare list of names of medicines with the supplier's invoices and original purchase order and check: -

- Number of containers/ packages delivered is correct
- Quantity in each package is correct
- Quality of each batch is correct
- Medicine (generic and brand names, country of origin etc.) and dosage form (tablet liquid, other form) are correct
- The strength of the medicine is correct (milligrams, percent concentration, other measurements).

Physical inspection is better to be made based on dosage forms as follows:

A. Physical inspection for tablets/capsules during receiving, please **c**heck samples that:

- Tablets/capsules are identical in size and in shape and in colour. Coloured spots, hollows, fragments/ breaks/friability behaviour, uneven edges, cracks, embedded or adherent foreign matter, stickiness may show poor quality. Variation of shade of colour from batch to batch may be normal. However, if it is within the same batch it may be an indicator of poor quality
- Tablet markings are identical: example; scoring, lettering, numbering and unique identifiers are present if required (example: article code, ministry of health stamp, not for sale stamps, only for promotion stamps, specific facility stamps)
- No odour after tablets/capsules have been exposed to room air for 20 -30 minutes and no odour when a sealed bottle is opened except for flavoured tablets

- Counterfeit/ fake/ products may not be labelled by uniform spell, logos and label layouts.

B. Physical Inspection for Intravenous preparations

- During receiving of parenteral (IV liquids in bags, ampoules, dry solids for reconstitution, suspension for injections) should be inspected physically as follows:
  - Clear solutions -free from un-dissolved particles
  - Dry solids for use in injection free from visible foreign particles
  - There are no leaking containers (bottles, vials, ampoules and bags

C. Physical inspection for Oral liquid/semisolid dosage forms

- During receiving of oral dosage forms, check that:
  - The bottle size/shape of containers is uniform
  - No gas evolves when bottles are opened that indicates fermentation (puff sound)
  - No leakages, breakages, label deformities, no colour changes in the same batch and no foreign particles are found. After inspecting of medicines, receiving using voucher 19 /health shall follow.

Note: when a suspected bottle is opened for test, record by considering it as a wastage

8.2.2. The process of recording

Receiving of pharmaceuticals takes place using a receiving voucher (Model 19/health), that replaces the previous receiving voucher (Model 19). Model 19/health is a serially numbered official receiving voucher prepared in four copies and published by the Ministry of Finance and Economic Development. It is used to receive pharmaceuticals that come into the health facility through procurement, transfer, donation or other means.

Steps of recording:
- The store manager receives the issue voucher/ or delivery invoice from various suppliers and other sources. He/she crosschecks the physical count with the items and quantities stated in the delivery invoice (supplier sales invoice, Model 22/health or Model 22/health donation certificate/shipping document, etc.)
- The store manager transcribes the list from the issue vouchers or delivery note into the receiving voucher (Model 19/health).
- The store manager records base-code for each item, shelves and updates the bin card accordingly. *Note 1: The bin-card should have cost and price column and the store*

manager should record the price in the bin card so that it would be easy to check the price whenever needed rather than searching cost from model 19/health and to cross check the price with expiry and batch number. It is found practically important and doesn't have any harm if it does have cost/price.

- The store manager distributes the original model 19/health along with the delivery note or issue voucher of supplier, to finance, second copy to the deliverer, third copy to the stock card clerk and the last 4th copy remains with the pad. The third copy will be recorded by the stock card clerk and then shared to pharmacy accountant so that the accountant will file and use to produce monthly reports.
- For sponsored products, when receiver health facility doesn't want the original for finance settlement, the original can be given to the deliverer /sponsor for settlement. The other copies will continue the same as above.
- The remaining models and received issue vouchers should be properly documented
- The stock card clerk updates the stock card whereas the store manager updates the bin card.
- For those pharmaceuticals that are received without cost, the facility drug supply management officer or head pharmacist estimates the cost in consultation with the finance office and store manager. The management of the health facility should approve cost estimation procedures.
- The product should be appropriately shelved

Remarks:

- *Any receipt of products to the health facility pharmacy store should get prior approval of responsible pharmacist for drug supply management or chief pharmacist.*

- *Final payment should be completed only after approval of receipt of products (for conformity with quantity, quality, identity, and other requirements) by the responsible pharmacist for drug supply management or chief pharmacist.*

8.2.3. Setting Price

The provisions of Health Care Financing Reform Legislation enable hospitals to raise and retain revenue. The sale of pharmaceutical products is an important source of hospital income. Except for exempted health programs (e.g. immunization, TB, ART, Family planning etc.) Pharmaceuticals should be sold at a price that covers the actual cost of the medicine plus a service charge. The Ethiopian Hospital Service Transformation Guidelines also indicates that transparent and uniform procedures should be established for setting the unit selling and retail price of each pharmaceutical. However, both for free and budget products should be dispensed with retail prices. The difference will be: - For cash sales, products are recorded and sold at retail prices and the health facility receives money. For free sales, the products are also recorded and dispensed with retail prices however, the health facility will not receive money

These are the main reasons why such detailed sales procedures on cash credit and free are presented in APTS document.

In theory, the setting of price on medicines should be based on cost of medicines, expenses incurred because of managing medicines (e.g. holding, transportation cost and printing cost of vouchers) and provision of pharmaceutical services (e.g. personnel cost). Nevertheless, pricing decisions must be made in full recognition of the tension between cost recovery objectives and social policies regarding access to care. In making these decisions, one can follow either fixed or variable percentage margin on the cost of medicines. For instance: some hospitals like Dessie Referral Hospital, sells certain medicines (e.g. Insulin) at cost. Many hospitals have 20% profit markup and some others have 25% fixed profit margin and so on. As a result, the price of medicines will be determined by adding an agreed up on profit margin (e.g. 25% in Amhara region) on the cost of medicines. For example, if the cost of one box of Ampicillin 500mg is 200 birr, then the selling price using 25% will be 250 birr. The intention of this margin is to cover the

expenses incurred & unavoidable losses and retain minimum profit to ensure sustainability of the supply of essential medicines and provision of optimal pharmaceutical services without compromising social responsibility.

The rounding up and rounding down: The price of medicines can be roundup or round down. Most health facilities are rounding up medicines since the total price doesn't significantly affect customer. The value of Ethiopian cents is becoming very low and 10 cents, 25 cents and 50 cents are not available in the market. Therefore, health facilities can round up all products to Birr. However, if health facility wants to both round down and round up for retail price that cost above 5 cents, it is possible to do as follows. If the additional rounding up and down of the retail price is: -

- Equal to or greater than 2.5 cents; round up to 5 cents (only for prices greater than 10 cents). E.g. 12.5 cents. The additional one 2.5 cents can be 5 cents and round up to 15 cents.

- Less than 2.5 cents; round down to 0 cents (only for prices greater than 10 cents). E.g. 11.15 cents

- Equal to or greater than 7.5 cents; round up to 10 cents

- Less than 7.5cents; round down to 5 cents

- Less than 5 cents; round up to 5 cents

Note: for retail prices, less than 5 cents, it is possible to only round up to 5 cents, since it is impossible to round down to zero cost. If the health facility decided to round up all variables, and never round down, it is possible to do so since HF can decide and is the best option. This option is set for health facilities that must round down and round up. **Example: -** If the retail price of Amoxicillin is birr 1.78, it means the price will be rounded up to birr 1.80. However, if the retail price were 1.72, it would be rounded down to birr 1.70.

Example: - If the retail price of Amoxicillin is birr 1.78, it means the price will be rounded up to birr 1.80. However, if the retail price were 1.72, it would be rounded down to birr 1.70

- Note: For those health facilities that decided to round up all cents to birr, they can round up 5, cents, 10 cents, 25 cents and 40 cents: all to 50 cents.

Example: - If the retail price of Amoxicillin is birr 1.78, it means the price will be rounded up to birr 2:00 and if the retail price were 1.72, or 1.65 or 1.80 or 1.90; all will be rounded up to 2 Birr

Note: profit margin in Ethiopia hospitals practically varies widely per their expenses. Since available medicines at government health facilities are generic (with minimal costs), price of medicines sold to a single patient will not be exaggerated even at the highest profit margin of HF; example: 45%. However, whenever there is a special pharmacy for revolving drug fund or a pharmacy opened for private wing and that pharmacy can procure brand products (expensive medicines), the price for a single patient will be high if the margin is high. In this case the profit margin should be less and rounding down becomes necessary.

In setting the selling price at each health facility, the store manager transcribes the cost from the receiving voucher /and or procurement invoice to the issuing voucher and sets the retail prices for each product being issued to dispensing outlets. The pharmacy accountant approves correctness of each costs, total costs, and prices. Finally, medicines will be transferred to the ultimate user based on the retail price calculated from the unit selling price.

Sometimes, health facilities may receive medicines that may not include cost (e.g. in cases of donations). In such situations, the cost of medicines is estimated by the facility drug supply management officer or head pharmacist in consultation with the finance office and is approved by the head of the health institution. Cost of medicines can be estimated by refereeing the cost of the same medicines with identical strength and dosage form that were recorded before, either by budget or donations. On occasions where such costs had never been recorded before, only expert estimation works. When donated, products are dispensing for free; cost incurred due to transportation, printing of vouchers, packaging, labeling and personnel services should be clearly registered (as profit margin) and covered by the health facility so that the client will get it for free.

8.3. Requesting Medicines from Pharmacy Store

The requisition of medicines by different dispensing outlets and other service units (wards, radiology units, laboratory units, etc. from the pharmacy store should be carried out using an internal facility reporting and resupply form /IFRR (Model 20/health).

Model (20/health) is an official requesting form prepared in double copy and printed and distributed by the health facility. It is used to request pharmaceuticals from the pharmacy store

by filling in and reporting all relevant information indicated in the internal facility reporting and requisition form Model (20/health).

The process of requesting medicines within the health facilities includes the following:

The responsible person from dispensing outlets and service units completes part of Model20/health, approved by head pharmacy, and submit it to the store manager

- In situations where there are more than one bin owners, each bin owner should identify items to be requested and stocked in their respective bin locations. The pharmacist responsible for coordinating bin owners (dispensers) ensures the proper completion of Model20/health

- The store manager calculates consumption, the amount needed to arrive at maximum for the requisition period, fills in the quantity to be approved (refer Model20/health) and submits it to the chief pharmacist of the facility for approval

- The store manager transcribes the list from the approved Model20/health into the issuing voucher Model 22/health

- Note: This form is used for normal consumption trend only.

The formula in this form is not applicable in situations where: -

- There is a dramatic change in morbidity or utilization patterns

- when change in treatment guidelines, regimen,

- In cases of disease outbreaks or initiation of new programs/new products.

In such situations, previous consumptions may not apply and therefore dispensers should put requests based on the current needs.

8.4. Issuing of Pharmaceuticals

The issuing of medicines from the pharmacy store to various dispensing outlets and other service units (wards, radiology units, laboratory units, etc. is carried out using an issuing voucher (Model 22health).

Model 22healthis a serially numbered official issuing voucher prepared in four copies and published by the Federal Democratic Republic of Ethiopia, Ministry of Finance and Economic Development. It is used to issue pharmaceuticals from the pharmacy store. The process of issuing drugs, supplies, reagents and equipment within the health facilities includes the following:

- The store manager receives and transcribes the incoming approved requisitions and proceeds with the processing of issuing vouchers (enters all information including the medicines name, unit, quantity, medicines code, cost and retail prices). In this level, the medicines code should carry price code in addition to base codes.
- The store manager signs on the voucher and delivers the requested items to the dispensing outlets and service units
- The responsible person from the requesting unit reconciles the dispatched items with those listed in the issue voucher and confirms receipt of product by signing on the issue voucher
- In addition to the receiver, as part of confirmation of receipt of products:
  - The other pharmacy professionals in the dispensary will sign on the spaces in the issue voucher as a witness for issued items. Note: witness can be those who are assigned to do by head pharmacist or any individual working in the pharmacy
  - Staffs from service units (wards, TB clinic, MCH clinic, laboratory, radiology, etc.) should sign on the space issuing voucher as a witness for issued items
- This voucher should be prepared in quadruplicate; the first copy (original) will be sent to the accounting unit of the pharmacy, the second copy to the receiver, the third copy to the stock card clerk and the fourth will remain with the pad.
- The approved request should be field properly with the issuing voucher
- The store manager updates the bin card accordingly from the copy which remains attached to pad.
- The stock card clerk updates the stock card from the third copy of the issue voucher

Note: Stock cards are better handled/managed by the stock card clerk and this should be supervised either by the pharmacy accountant or drug supply management officer.

Summary

The receiving of products involves physical inspection, physical counting, recording of products with costs and codes using standard formats. After receiving, prices should be set before issued to service delivery units. Once the price is set, products can be issued to service delivery units based on the request of each unit. Products transacted should be properly recorded in the receiving, requesting and issuing vouchers. Professionals involved in the transaction should sign on respective spaces in the vouchers. Copies of all the necessary vouchers should be shared to responsible persons/units. The remaining pads should be properly documented.

Chapter 9: Sales Management

Chapter Description

In this chapter, selling of medicines (on cash, on credit or for free) to patients at dispensing outlets and consumption of pharmaceuticals (majorly supplies and reagents) at the service delivery units will be explained. Utilization of various formats including sales ticket pad register, cash sales ticket and dispensing registers will also be described.

Primary Objectives

At the end of this chapter, participants will be able to implement the principles of sales management of product from store to dispensaries and users

Enabling Objectives:

To attain the primary objective, the trainees will;

- Receive sales tickets, prescriptions, registers and formats
- Utilize APTS sales tickets, prescription, registers and formats
- Document APTS formats and sales tickets used for selling and dispensing of medicines

Chapter Outline:

- Introduction
- Sales management of pharmaceuticals
- Summary

9.1. Introduction

Selling of medicines refer to the transactions between the client/patient and the service provider at dispensing outlets and service delivery units. This transaction involves sales of medicines on cash or credit or free including exempted health programs (e.g. TB, ART, Immunization, etc.) These transactions should be carried-out using the official forms and tools (sales ticket pad register, cash sales tickets and credit sales tickets) used for cash and credit sales. Whereas, the credit/free registers will be used for credit or free sales. *Note: credit sales can be managed either using credit sales tickets or credit register.*

9.2. Sales management of pharmaceuticals

Group activity
Form 4 groups and guide them to read by group and discuss for 10 minutes on: -
Sales ticket pad register
Cash sales and Credit Sales Ticket
Free /Credit Register
Credit or for Free Sales Tickets
Give 2 minutes for each group to present what they understood

9.2.1. Sales Ticket Pad Register

It is a register with pages or serial number, used for controlling the movement of sales ticket pads issued to and returned from dispensers. It identifies sales ticket pads by their serial numbers. The pharmacy accountant should distribute sales ticket pads to all dispensing outlets and service units after recording all the details in the register (refer sales ticket pad register). The steps involved in managing the movement of sales ticket pad should be as follows:

- The pharmacy accountant requests and receives sales ticket pads from the hospital property administration store
- Every service provider at dispensing outlets and service unit requests sales ticket pads from a pharmacy accountant
- The accountant issues every sales ticket pad to service providers after registering all details on the sales ticket register (refer the sales ticket pad register)
- The accountant receives used sales ticket pads after checking and segregating it by used, lost, voided and/ or damaged pages and getting the signature of the returnee and or responsible person.

Note: Service providers are accountable for lost, damaged, voided sales ticket leaves and therefore, must confirm such incidences with their signature on the sales ticket pad register. Sales ticket pad register doesn't need copies. Doing such practice is making unnecessary and redundancy works. The pharmacy accountant is responsible for the forms.

9.2.2. Cash Sales Ticket

Cash sales ticket is a receipt delivered to clients/patients in exchange of payment of cash. It is often a serially numbered triplicate copy consisting of 50 pages per pad, each bearing the name and address of the health facility. It serves both as a sales ticket and a legal receipt of the health facility for medicine sales.

Table 10: Procedure for processing cash sales of medicines

Outpatient Pharmacy	Emergency or Other Service Delivery Units
▪ The patient delivers the prescription to the dispenser ▪ The dispenser checks the prices of medicines and informs the patient about the available options and get his/her consent prior to billing ▪ The biller/evaluator will evaluate the prescription based on the dispensing steps (refer to the section: six dispensing steps) ▪ The dispenser completes the sales ticket (refer the sales ticket for contents), signs and delivers the first two copies (original and first copy) to the patient for payment. However, the delivery of the sales ticket to the cashier should be taken care of by the dispenser whenever possible. ▪ The dispenser retains the last copy of sales ticket with the pad for use by the pharmacy accountant. ▪ The cashier ensures that the serial number of sales tickets, delivered for payment, is consecutive and inform to the respective dispenser otherwise ▪ The cashier checks the price (unit/sum) and collects the right amount of money from the respective clients. In cases of price discrepancy, he/she shall inform to the respective dispenser for correction ▪ Then, she/he signs the sales tickets, delivers the original to the client and retains the second copy. **Cashiers Reconciliation:** the cashier transcribes (write) the serial number of the sales ticket on the space provided on the prescription. Then, signs and stamps on the prescription so that the dispenser	▪ Patients may be served with verbal prescription and before sales tickets /credit free registers are completed in case of severe emergencies. Then later, the recording and payment will be conducted ▪ The patient or delegate delivers the prescription or laboratory or imaging or other procedure requests to the service provider ▪ The service provider checks the prices of medicines/procedures and informs the patient about the available options and get his/her consent prior to billing ▪ The dispenser/service provider completes the sales ticket (refer the sales ticket for contents), signs and delivers the first two copies (original and first copy) to the patient for payment. However, the delivery of the sales ticket to the cashier should be taken care of by the dispenser/service provider whenever possible. ▪ The cashier ensures that the serial number of sales ticket, delivered for payment, is consecutive and inform to the respective dispenser/service provider otherwise ▪ The cashier checks the price (unit/sum) and collects the right amount of money from the respective clients. In cases of price discrepancy, he/she shall inform to the respective dispenser/service provider for correction

Outpatient Pharmacy	Emergency or Other Service Delivery Units
will be sure that the patient has paid accordingly. ▪ The cashier informs the client to please collect his/her drug at the dispensing counter ▪ The dispenser retrieves the medicines from the shelves and delivers it to the counseling pharmacist along with the prescription ▪ The counseling pharmacist verify the prescription with retrieved medicines and the sales ticket, prepare and fix the labels, and dispenses the medications to the patient with appropriate drug use counseling (refer the six dispensing steps). ▪ The original bill is returned to the client with sympathy **Note:** *Billing two customers with one receipt is forbidden.*	▪ Then, she/he signs the sales tickets, delivers the original to the client and retains the second copy. ▪ The cashier informs the client to please obtain the service from the service providers ▪ The cashier transcribes the serial number of the sales ticket on the prescription so that the dispenser will be sure that the patient has paid accordingly. ▪ The dispenser/service provider delivers the service with proper counseling ▪ The original bill is returned to the client with sympathy **Note:** *Billing two customers with one receipt is forbidden.*

9.2.3. Credit Sales Ticket/Credit Sales Dispensing Register

A) **Credit Sales Ticket:** is a receipt delivered to clients/patients in exchange of presenting a prescription paper, identification card and prior notification of credit sales agreement from the sponsoring organization. It is the same as the cash sales ticket except the name "Credit Sales Ticket". It serves both as a credit sales ticket and a legal receipt of the health facility for credit sales of medicines. Health facilities are advised to use credit sales ticket for all credit patients, but if this is not possible due to multiple reasons, the facilities should use credit sales dispensing register instead.

B) **Credit Sales Dispensing Register:** This register is a recording tool to keep track of clients served by the pharmacy based on a credit agreement entered between the health facility and sponsoring organizations, such as kebele/woreda and private institutions such as banks, factories, etc., to which the beneficiary belongs. This register should be applied at the outpatient pharmacy, inpatient pharmacy, emergency pharmacy, radiology, laboratory and nursing stations.

The procedure for processing credit sales of medicines for patients at dispensing outlets and service units should be well organized and properly documented as presented in table 10. below.

Note: *Staffs of the health facility (who are sponsored by the health facility) should be considered as credit customers. That means, the sponsor of staffs, should settle or assign budget to the pharmacy equal to the amount dispensed for staffs*

Table 11: Processing Credit Sales at Different Dispensing Outlets and Service Units

Outpatient	Inpatient/Emergency
▪ The dispenser receives the prescription from the client and checks for availability of documented credit agreement from the claimed sponsor ▪ Verify the identity of the client & his/her affiliations with the sponsoring organization	▪ The service provider/dispenser receives an order of a physician (medication, diagnostic request, etc.…) and checks whether the patient deposited an advance cash (in case of self-sponsored patients) or availability of documented credit agreement from the claimed sponsor ▪ Verify the identity of the client & his/her affiliations with the sponsoring organization
▪ The dispenser completes registration of the patient i.e. patient name, coupon number (insurance coverage ID), card number and address of the patient, on the credit sales register. He/she also registers all the essential details about the dispensed medicine including retail price and total retail price (for the details, refer credit sales register). **Reconciliation**: The dispenser will write the serial number of the register on the prescription so that to assure the medicines is registered and for auditing **Note:** There should be a specific dispenser assigned to manage credit sales register at least daily.	▪ The service provider/dispenser completes registration of the patient i.e. patient name, coupon number (insurance coverage ID) card number, bed number and address of the patient, on the inpatient credit sales register. He/she also registers all the essential details about the dispensed medicine including retail price and total retail price (for the details, refer credit sales register) ▪ Here, one sheet of the register should be dedicated to a single client. The registration of services and medicines utilization continues until the patient completes treatment. Whenever a dedicated page is finished, the position of the next page should be indicated at the end of the finished page. ▪ Prior to discharging the patient, the responsible service provider should collect the credit sales information from each service units (where the patient received service) and submits to the pharmacy accountant for invoicing (applicable to both self-sponsored during discharge and credit clients during monthly settlement)
▪ The dispenser retrieves the medicines from the shelves and delivers it to the counseling pharmacist along with the prescription	▪ The dispenser retrieves the medicines from the shelves and delivers to the care giver or the nurse according to a written order of the prescriber

Outpatient	Inpatient/Emergency
	▪ The nurse provides (from her/his own stock) the supplies that are necessary to provide the required clinical services and procedures ▪ The radiologist/lab tech in the diagnostic unit provides the necessary diagnostic procedures up on official request using supplies and reagents from their own stock
▪ The dispenser requests the client to please confirm the transactions through his/her signature on the space provided on the register.	▪ The dispenser/service provider requests the client or care giver to please confirm the transactions through his/her signature on the space provided on the register.
▪ The counseling pharmacist verifies the prescription with retrieved medicines and the register, prepare and fix the labels, and dispenses the medications to the patient with appropriate advice and counseling.	▪ The responsible pharmacist supervises the appropriate handling and administration of medicines
▪ Arrange prescriptions dispensed with credit sales orderly by assigning number to correspond with the patient identifier entered in the credit sales register	▪ Arrange prescriptions or lab requests or service orderly provided to the client with credit sales by assigning number to correspond with the credit sales register sheet
▪ The pharmacy accountant checks the completeness of the register and cross checks the unit, retail unit prices and total retail prices corresponding to each prescription	▪ The pharmacy accountant checks the completeness of the register and cross checks the unit, retail unit prices and total retail prices corresponding to each prescription/order or services
▪ The accountant sums up the credit sales prices for all the dispensed items corresponding to each register located at different dispensing outlets	▪ The accountant sums up the credit sales prices for all the medications and services given to the client from each register at different locations (wards, laboratory, inpatient pharmacy, etc.…)
▪ In cases where the sponsoring organization requires a credit sales ticket, the dispenser prepares and issues the original copy of credit sales ticket to the patient.	▪ In cases where the sponsoring organization requires a credit sales ticket, the credit invoice prepared by the pharmacy accountant should be accompanied by the credit sales ticket
▪ Prepares a formal invoice with covering letter for each sponsoring organization (at least monthly) to facilitate collection/reimbursement of credit sales	▪ Prepares a formal invoice with covering letter for each sponsoring organization (at least monthly) to facilitate collection/reimbursement of credit sales

9.2.4. Free Medicines Dispensing Register

This register is a recording tool to keep track of clients served by the pharmacy for free of charge based on evidence of confirmation of being beneficiaries of exempted programs. This register should be applied at the outpatient pharmacy, inpatient pharmacy, emergency pharmacy, radiology, laboratory, and nursing stations.

The procedure for processing dispensing of medicines free of charge for patients at dispensing outlets and service units should be well organized and properly documented. The daily summary is processed using daily free dispensing summary sheet in the same way as credit sales. The monthly report should also be prepared and submitted as part of the overall pharmacy transaction report.

Processing for Free Medication Dispensing at Different Dispensing Outlets and Service Units:

- The dispenser/service provider receives the prescription from the client and checks whether the client is beneficiary of exempted programs.
- The dispenser/service provider completes registration of the patient i.e. patient name, card number and address of the patient, on the free medicines dispensing register. He/she also registers all the essential details about the dispensed medicine including retail price and total retail price (refer the free medicines dispensing register).
    - In case of inpatient, one sheet of the register should be dedicated to a single client. The registration of services and medicines utilization continues until the patient completes treatment
- The dispenser retrieves the medicines from the shelves and delivers it to the counseling pharmacist along with the prescription
- The dispenser/service provider requests the client to please verify the transactions through his/her signature on the space provided on the register
- The counseling pharmacist verifies the prescription with retrieved medicines and the register, prepare and fix the labels, and dispenses the medications to the patient with appropriate advice and counseling (refer the six dispensing steps)
- The nurse provides (from her/his own stock) the supplies that are necessary to provide the required clinical services and procedures

- The radiologist/lab tech in the diagnostic unit provides the necessary diagnostic procedures up on official request using supplies and reagents from their own stock
- Arrange prescriptions dispensed free of charge orderly by assigning number to correspond with the patient identifier entered in the free medicines dispensing register
- The pharmacy accountant checks the completeness of the register and cross checks the unit, retail unit prices and total retail prices corresponding to each prescription
- The accountant sums up prices of medicines dispensed for free for all the dispensed items corresponding to each register located at different dispensing outlets

Note: *The register designed for credit and free patients is designed similarly. Therefore, it is possible to print registers together and then can be separated by their headings of the register written at the cover page.*

Session Summary:

Transactions of pharmaceuticals, medical supplies and reagents should be carried-out using the official forms and tools (sales ticket pad register, cash sales tickets and credit sales tickets) used for cash and credit sales. Professionals should receive sales tickets and formats from accountants, utilize and document recorded formats

Whereas, the credit/free registers will be used for credit or free sales.

Every professional should sign on the respective formats and document appropriately. The major similarity of cash, credit or for free transactions is that all should be recorded. The major difference is that they use different formats. Secondly, cash will be collected on-time for cash sales; whereas product will be transacted without on-time payment for credit and for free transactions.

Chapter 10: Daily Summary and Monthly Reports

Chapter Description:

In this chapter, the daily and monthly summary of product and finance transactions, service rendered at each dispensing unit will be described. The process of summarizing the products received at the store and issued to dispensing outlets and service delivery units on monthly basis will be summarized. Further to this, the information driven from data and its analysis on product consumptions, workload measured, and various service delivered will be explained.

Primary Objectives

At the end of this chapter, participants will be able to practice daily summary and monthly reports on finance and product transacted and service rendered.

Enabling Objectives

At the end of this chapter the participants will be able to

- Prepare formats for daily summary and monthly report
- Identify the transaction made on cash, credit and for free on daily basis
- Produce the daily summary of services delivered, medicines sales on cash, credit and for free; using the formats
- Analyze the shortages, overages and adjusted sales of pharmaceuticals
- Identify the key information obtained from the daily summary and monthly reports which will be used for decision making

Chapter Outline

- Introduction
- Daily summary
- Monthly pharmaceuticals and service reports
- Analysis and interpretation
- Summary

10.1. Introduction

To do daily summary and monthly reports for pharmacy services and transactions, various forms are used including; Model 19/health, Model 22/health, cash sales tickets, cashier delivery note, Model 64, dispensing registers, daily summary forms for credit /free and cash, and monthly financial and service reporting forms.

Model 19/health and Model 22/health: These models are serially numbered tools. All products received and issued during the month should be summarized using a copy of model 19/health model 22/health accordingly on routine basis. These summarized copies should be documented at the accountant office to serve for monthly reports. *See the detail; in the receiving and issuing-session.*

Cash Sales Ticket/Credit Sales Tickets: These tickets are serially numbered tools. All products sold either on cash or credit should have a copy of cash/credit sales ticket documented at the accountant office being summarized by cashier's delivery note. *See the detail on sales management of pharmaceuticals session*

Cashiers delivery note: Is a single page sheet used for delivering of cash sales tickets and cash to the accountants. The form summarizes the names of dispensers and serial numbers. Note: it doesn't to copy this form since Model 64 helps an evidence for delivering the cash sales tickets and the cash.

Model 64: Is the serially numbered model used as an evidence for transferring of cash sales tickets with cash to the account or main cashier**.**

Credit/Fore free Register: This is a serially numbered/page numbered register. The credit or for free register is a pad used for recording of all the products dispensed either for free or on credit. The register should be two for a single service so that when pharmacy accountants are summarizing the first day activity using one register recorded, the other register will be used for

the specific day recording and vice versa. *See detail sales management of pharmaceuticals session.*

Daily summary: This is a single page sheet, preferably produced by a computer using excel sheet. It is the compilation of the daily activities of professionals working in the pharmacy concerning product and financial transactions and service delivery. Daily summary format is single copy sheet that used to summarize the daily sales on cash, on credit and for free and services given by dispensers and other health service providers. It is also used to monitor the daily financial flow and transactions of medicines and medical supplies within the health facility. The daily summary will be prepared by the pharmacy accountant on daily basis, documented properly. *See in the table 9 below.*

Monthly reporting format: This is a single page form produced by excel sheet that used for summarizing of the monthly transactions of products, finance and service delivered. *See the detail below in table 10*

10.2. Daily summary

10.2.1. Daily summary for cash and credit

Table 12: Steps of Preparation of Daily Summary for Cash and Credit Sales

Cash Sales Daily Summary	Credit Sales Daily Summary
▪ The cashier segregates and arrange cash sales tickets by serial number and biller and delivers The second copy of cash sales ticket to the pharmacy accountant	▪ The accountant receives the Credit Sales Register from the dispenser ▪ If the facility is using credit sales ticket, the accountant receives the second copy of credit sales ticket from the dispenser
The pharmacy accountant arranges the sales tickets based on its serial number and identify the tickets which are used properly or not as follows: ▪ Check serial number voided, lost, damaged, used, referring all the delivered sales tickets using cashier's delivery note, comparing with the cash sales ticket pad register ▪ Price checking against price control sheet ▪ Count the products dispensed ▪ Check total horizontally and vertically	▪ The pharmacy accountant crosschecks the pricing of each medicines dispensed to the client ▪ If the facility is using credit sales ticket, follow the procedure on the cash sales daily summary
▪ Complete the daily summary sheet for cash sales properly	▪ Complete the daily summary sheet for credit sales properly

Cash Sales Daily Summary	Credit Sales Daily Summary
▪ In cases where there are voided, damaged or over and underpriced sales tickets, the accountant should get the signature of the dispenser in the corresponding raw for taking responsibility	▪ If the accountant discovers that a client served on credit basis is over or under priced, he/she should report to the appropriate authority for further communication and correction of the discrepancies
▪ Calculate the total compounding fee/other services fee, if any, and segregate from each sales ticket	▪ Calculate the total compounding fee/other services fee, if any, and segregate from each pages of the register
▪ Calculate the total over/under priced by all dispensers per day and take appropriate measure	▪ Calculate the total over/under priced by all dispensers per day and follow corrections of under and overages.
▪ Compare the bank deposit slip with total daily sales (of both medicines & services). If there is any discrepancy, the source of error is due to either over collection or under collection of cash by the cashier. Accordingly, the pharmacy accountant should diagnose this discrepancy and take appropriate measures to rectify the differences as per the policies of the health institution	▪ Not applicable
In order to calculate the daily total adjusted sales for medicines: ▪ Deduct the total daily overages and compounding/services fee from the total daily sales of medicines and services and ▪ Add total daily shortages to the total daily sales of medicines. ▪ The result is a daily adjusted total sale of medicines and this will be used by the internal and external auditors to calculate the total cost of sales of medicines for the day ▪ The sum of adjusted sales will be the actual amount sold during the month and this is the amount to be deducted from beginning stock to arrive at ending stock.	In order to calculate the daily total adjusted sales for medicines: ▪ Deduct the total daily compounding/services fee from the total daily sales (of medicines and services) ▪ The result is a daily adjusted total sale of medicines and this will be used by the internal and external auditors to calculate the total cost of sales of medicines for the day Note: This adjusted sale disregards the overages and shortages if the facility has made the necessary correction through communicating the sponsor.
Notes: ▪ The total number of drugs dispensed (by type) is approximately equal to the total number of	Notes: ▪ The total number of drugs dispensed (by type) is approximately equal to the total

Cash Sales Daily Summary	Credit Sales Daily Summary
counseling made to clients per day by all dispensers	number of counseling made to clients per day by all dispensers
▪ The total number of sales tickets is approximately equal to the total number of patients served	▪ The total number of patients can be obtained by counting the list from the register

10.2.2. Daily summary for free dispensed medicines and services

Preparation of Daily Summary for medicines dispensed for free:

- The accountant receives the free medicines dispensing register from the dispenser
- The pharmacy accountant crosschecks the pricing of each medicines dispensed to the client
- Complete the daily summary sheet for free medicines properly
- If the accountant discovers that a client served on free basis is over or under priced, he/she should report to the appropriate authority for further correction of the discrepancies
- Calculate the total compounding fee/other services fee, if any, and segregate from each pages of the register
- Deduct the overages and compounding/service fee from the daily total freely dispensed medicines and services

To calculate the daily total adjusted freely dispensed for medicines:

- Deduct the total daily compounding/services fee from the total daily freely dispensed of medicines and services
- The result is a daily adjusted total freely dispensed of medicines and this will be used by the internal and external auditors to calculate the total cost of freely dispensed medicines for the day

Note: This adjusted sale disregards the overages and shortages occurred during credit and for free dispensing, assuming the facility has made the necessary correction through communicating the sponsor.

Notes:

- *The total number of drugs dispensed or count of internal drug codes is approximately equal to the total number of counseling made to clients per day by all dispensers*
- *The total number of patients can be obtained by counting the list from the register.*

10.3. Monthly Pharmaceutical Transactions and Service Reports

There are two types of reports produced from APTS. They are Monthly Financial Reports and Monthly Service Reports. They are the summary information compiled on monthly basis on monetary values of the pharmacy transactions and the number and quality of services rendered. The management of the health facilities should make appropriate evaluation of the contents of the monthly reports and take timely decisions on matters that require interventions. The compiled financial and service reports of federal hospitals should consistently be sent to the Federal Ministry of Health, Medical Service Directorate and the reports generated from regional hospitals should be sent to RHB/ZHB/Woreda Health Offices on monthly basis accordingly. The reports from different federal hospitals will be aggregated and a summary report be generated by the Federal Ministry of Health (Medical Service Directorate) whereas the reports from regional hospitals should be summarized by the Pharmaceutical Supply and Services core process at the regional, zonal and woreda levels. As per the summarized reports, the respective bodies should assist hospitals by supportive supervision and preparing review meetings.

Monthly report is the compilation of the daily summary of activities and analyzing various data gathered to produce information for decision making on finance, product transacted and service rendered.

10.3.1. Monthly financial report

A report compiled every month from the daily summary of dispensed transactions on cash, credit and for free and services rendered by the pharmacy outlets in the health facility. It also shows the store transaction indicating the amount of beginning and received stock, transferred and expired stocks. The monthly financial report of each section (pharmacy store, outpatient pharmacy, inpatient pharmacy, emergency pharmacy, laboratory, radiology, wards and OPD clinics) should be prepared by the pharmacy accountant and reconciled with the result of physical inventory (taken at least quarterly). The report should be prepared using the monthly financial reporting form (MFRF).

Data Sources for the Monthly Financial Transactions are the monetary values of:
- Receiving voucher records
- Issuing voucher records
- Daily summary of dispensed medicines on cash, credit and for free

- Physical Inventory of medicines at the end of the month

- Expired and transferred medicines

- Records of overages and shortages

- Records of services rendered in every dispensing outlets and service delivery units

10.3.2. Monthly Service Report

A report compiled every month concerning the various types service information recorded during the month, like the number of drug use counseling, number of patients serviced, availability of medicines and affordability of prices.

The pharmacy section of the health facility should prepare and submit a monthly service report on indicators that shows the key aspects of pharmaceutical services using the monthly Pharmacy Services Reporting Form (MSRF)

Data Sources for the Monthly Services Reports includes the following:
- Records of the daily summary about the number of patients served on cash, credit and free on daily basis

- Records of daily summary about the number of drug use counseling made for cash, credit and free patients

- Records of other various services rendered by the pharmacy during the month

Note: Refer the MSRF and MFRF in the annex and use the excel sheet for exercise

10.4. Analysis and interpretation

Analysis and interpretation of monthly service and transaction reports should be made after the report is compiled. To do the analysis, inventory of the store and dispensary should also be available.

Steps of analysis of monthly financial report:
- Take begging stock from the first physical inventory and add all received stocks in the facility

- Record   all dispensed, expired, damaged, transferred medicines in a separate inventory format

- Subtract all dispensed, expired, damaged, transferred medicines

- Take physical inventory again and calculate by value

- Covert all the data into monetary forms

- Reconcile the remaining physical inventory with the calculated ones.

Steps of monthly product analysis report:

- Conduct physical count as above and identify the over and under stocks

- Take expert opinions and bin managers' report to analysis each product status

- Calculate consumption to stock ratio analysis and stock turnover ratio analysis. Use the result as a general indicator for decision making that the monthly consumption is in acceptable range or not. If not, identify specific medicines that contribute for abnormal range and do stock status analysis for all identified specific products.

- Calculate the expiry rate of the month and identify the causes if it is out of the range and take measures

- Identify high value medicines in the inventory, near expiry, and obsolete (nonmoving) medicines, and drugs that cause low consumption to stock ratio should be subjected to stock status analysis

- Measure should be taken as per the stock status analysis and monthly reports

Steps of analysis of monthly Service report:

- Workload analysis: Number of patient served, number of counseling made and patient knowledge on prescribed medicines etc. are performance indicates of the facility. Intervention should be taken to improve quality of pharmacy services and the number of professionals needed should be adjusted based on the analysis.

- WHO indicator analysis: number of drugs per prescription, % of injectable (Note: only when using software, you can calculate using baseloads 30-39 as numerator and other dispensed as a denominator), affordability, and taking measures based on the findings; example sources of procurement may be checked for unaffordable products, producing all the necessary data by graphs.

- Then totally summarize all analysis's using graphs tables and summarized wordings to present to the decision makers

10.4.1. Service analysis

Service delivered in APTS implementing sites have been analyzed and published in research bulletins and journals. Among them, please find the following examples

Example on patient satisfaction

- Satisfaction of Patients with Services Provided by the Hospital Pharmacy at Felegehiwot Hospital has dramatically improved after implementation of APTS

Patients' Satisfaction of Pharmacy Services
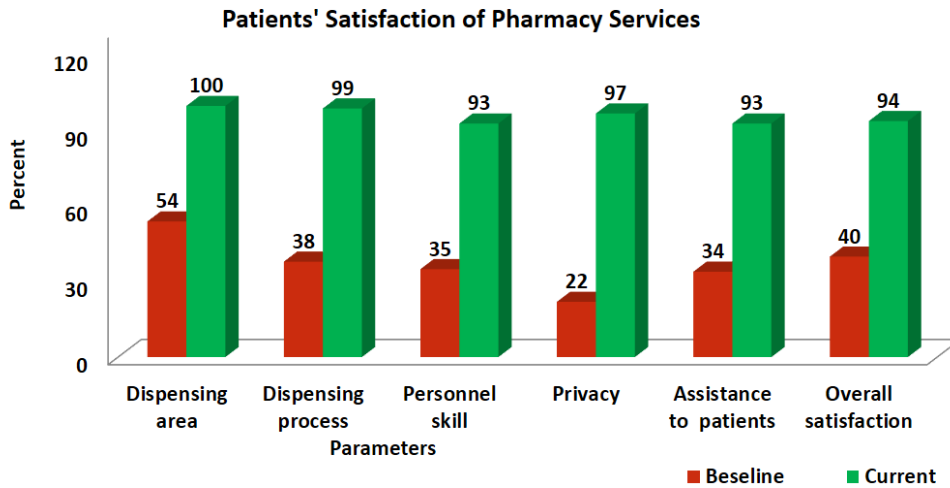
DTPs detection at OPD, Chronic care and ART pharmacies by RX Evaluators after APTS implementation in 8 eastern Amhara hospitals (March 2014 to Feb 2015)

150
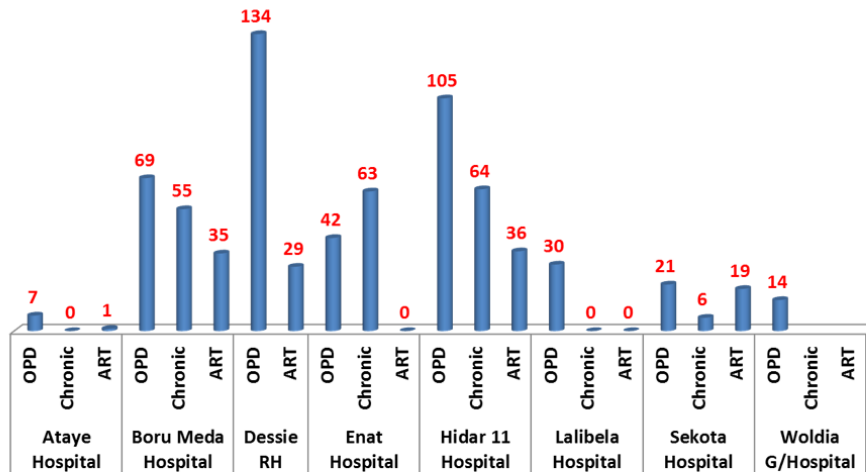
Example on patient knowledge

Percentage of patients' understanding of medicines dispensed to them improved at Felegehiwot Hospital after implementation of APTS

Patient Knowledge on Dispensed Medicines
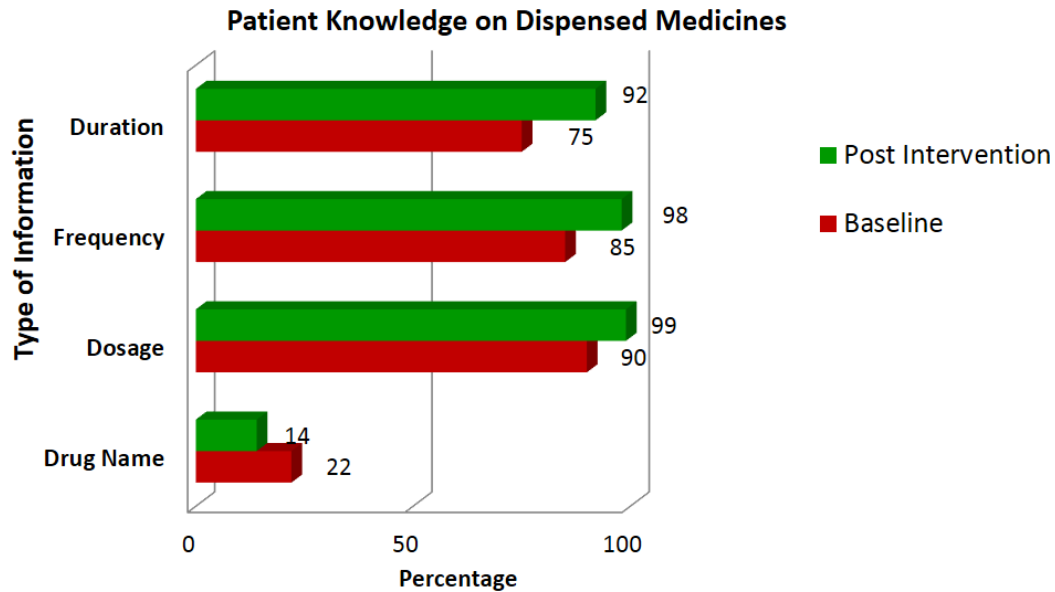
Figure: Number of patient visits (served) per month in pharmacies of various Amhara region hospitals from July 2016 to May 2017; published in research article part 4 of FMOH special bulletin 2017.
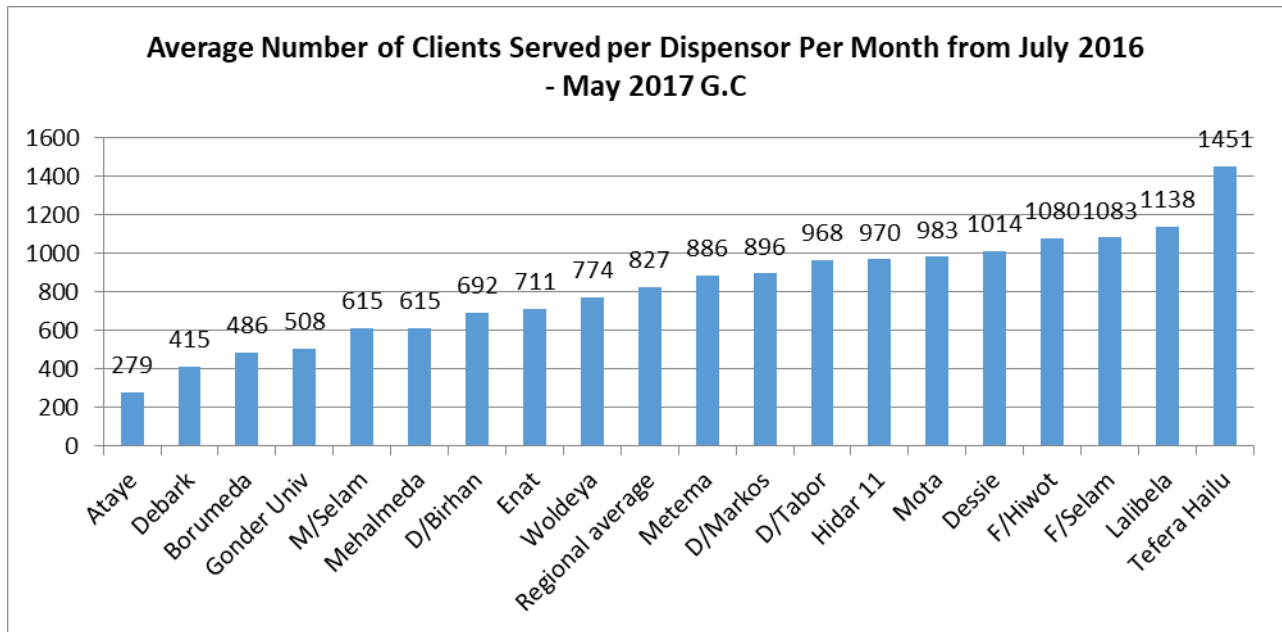
Average number of clients served per dispenser per month from July 2016 to May 2017 in 19 health facilities in of Amhara region published in FMOH 19th ARM special bulletin research articles section4- 2017.
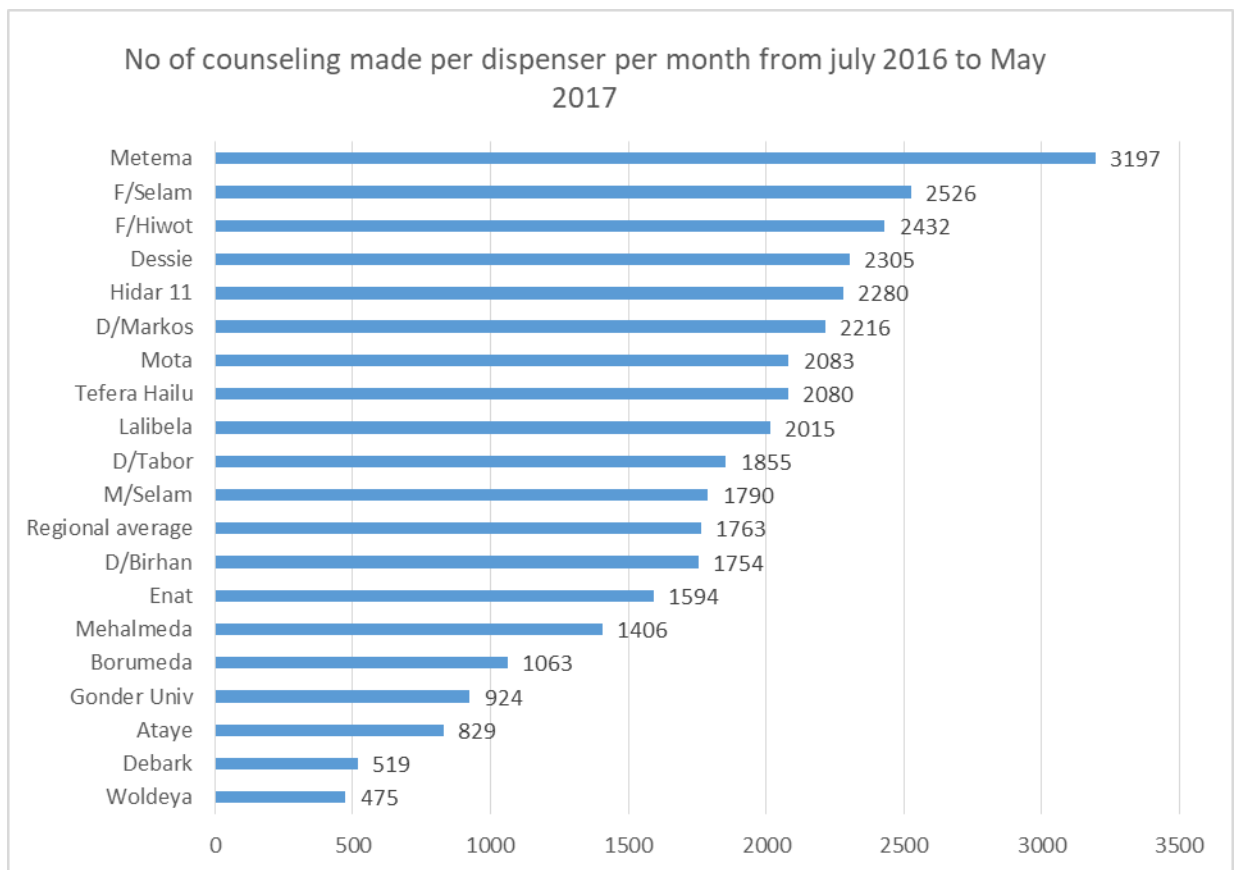
Number of medicines use counseling made per dispenser per month in 19 hospitals of Amhara region from July 2016 to May 2017
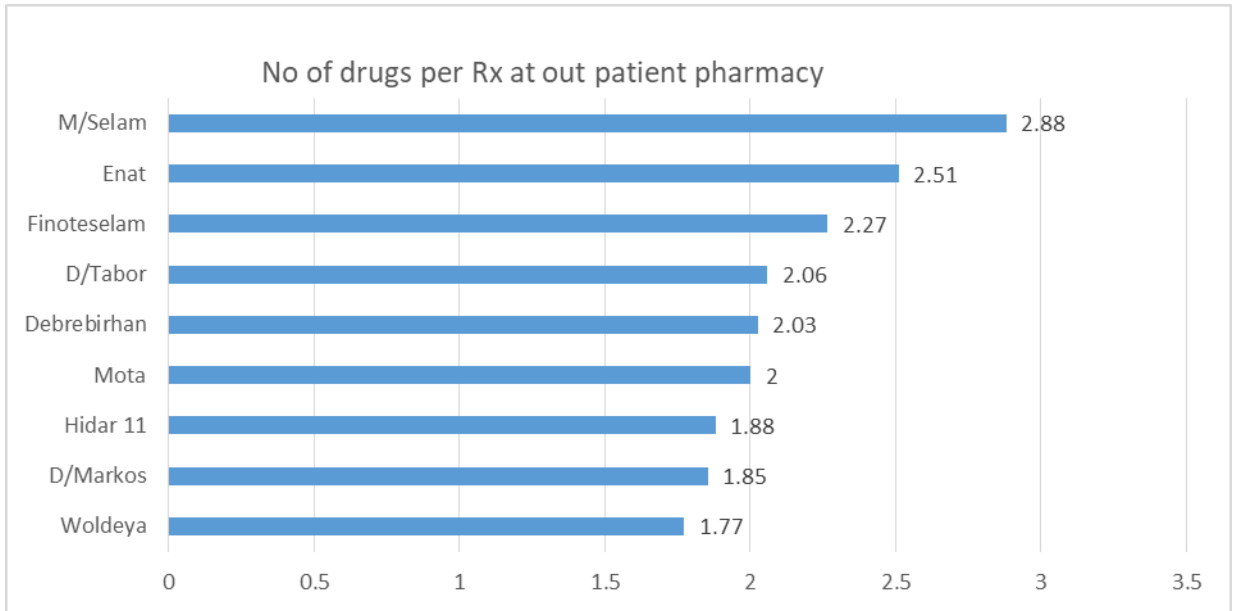
Number of drugs per encounter in out-patient pharmacies from July 2016 to May 2017
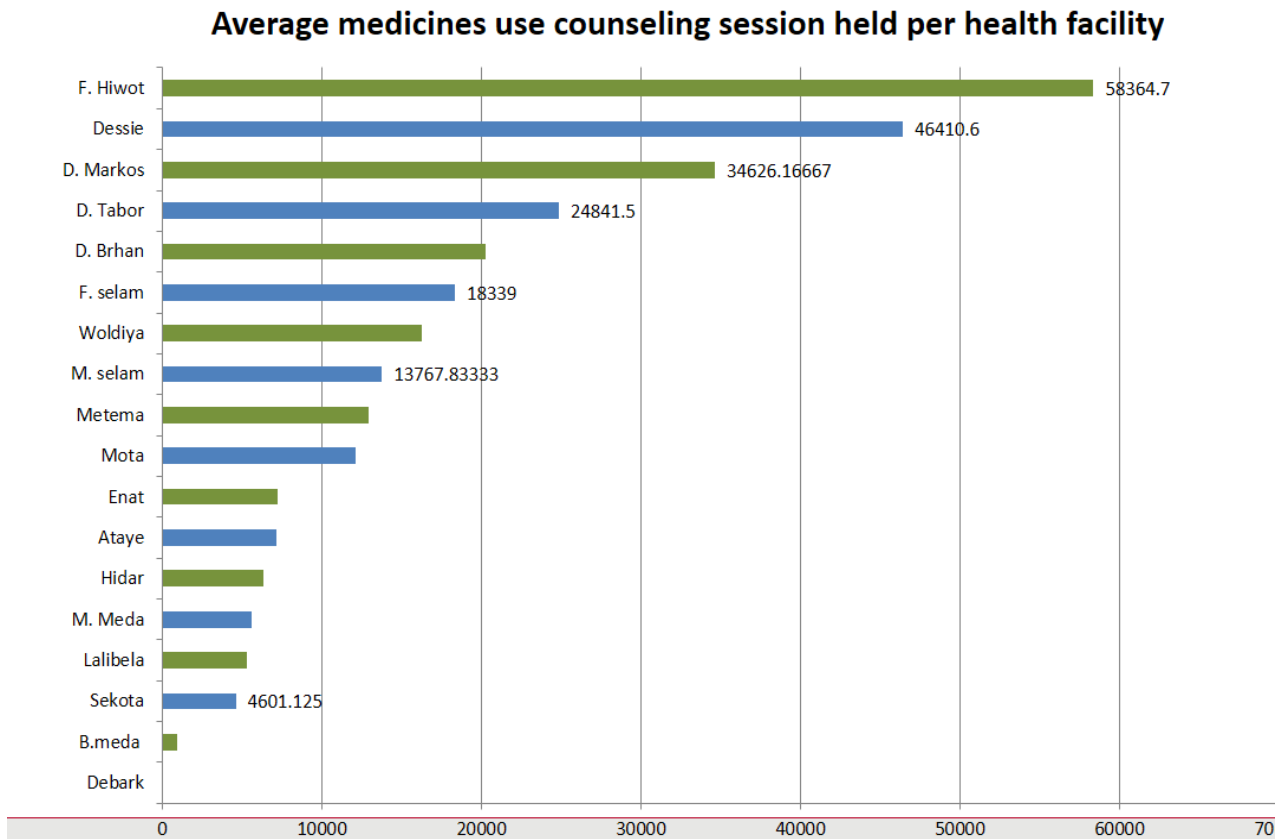
Average # of medicine use counseling sessions held monthly per dispenser (July 2014- June 2015G.C)

Location	Value
D/Tabor	6775
Finotesel…	4071
Metema	2386
D/Markos	2373
Dessie	2372
M/Selam	2340
Woldeya	2221
Mota	2137
Regional	2081
Felegehi…	1983
Ataye	1615
Standard	1500
Debrebir…	1486
Tefera…	1338
Gondar…	1057
Enat	1011
Borumeda	954
Mehalm…	823
Hidar 11	768
Lalibela	752

Human resource deployment before and after APTS

Hospital	Before	After
Haramaya University Hl	22	32
Dilla University Hospital	19	27
Hawasa Referal Hospital	23	39
Tercha Gen. Hospital	9	11
Bonga Genral Hospital	9	10
Duramie Genral Hospital	12	14
Amanuel Specialized Hospital	29	42
Gondar University Hospital	35	78
Jimma University Hospital	37	54
Sekota/Tefera Hailu Gen. Hospital	8	12
Arba Mich Gen. Hospital	12	19
Dilchora Ref.Hospitral	13	19
Hossaena Gen. Hospital	18	24
Butajira Gen. Hospital	15	20
Legeharie Health Center	3	5
Enat General Hospital	8	14
Borumeda General Hospital	5	24
Ayder Referral University Hospital	19	85
Tirunesh Bejing Gen.Hospital	12	22
Felegehiwot Referral Hospital	20	48
Woldya General Hospital	12	23
Debre Tabor Ref. Hospital	10	29
Axum Gen. Hospital	12	21
Desse Ref. Hospital	11	46
Debre Markos Ref.Hospital	15	42

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Av.No. of drugs per prescription in out patient from July 2014 - June 2015G.C
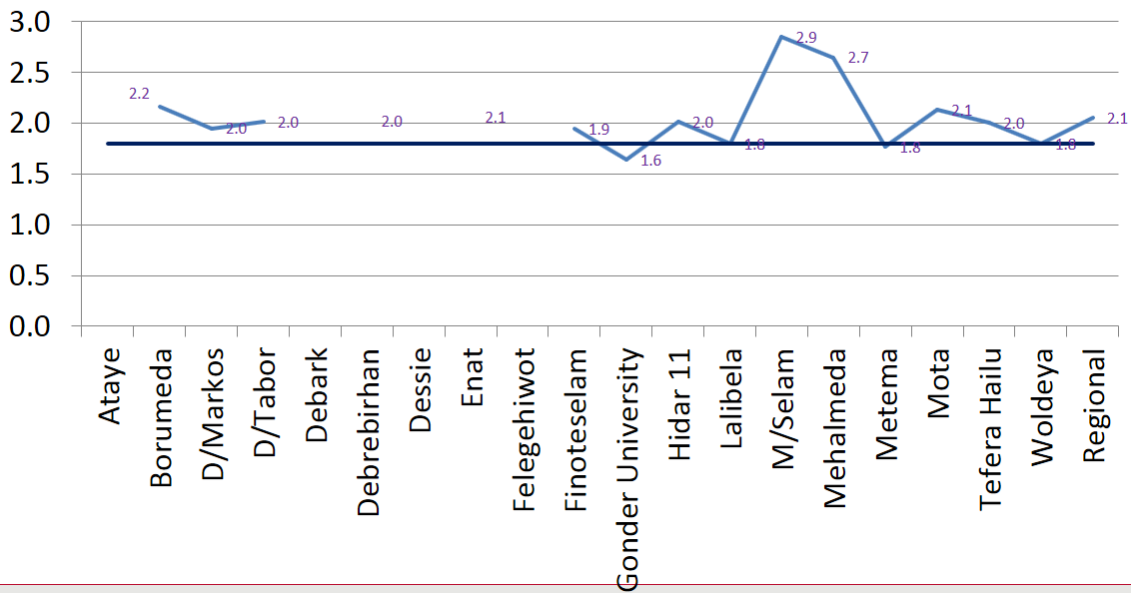
Average availability of key medicines for top ten diseases in 46 APTS implementing health facilities from Jul-2014 to Jun-2015, compared with the HSDP IV baseline and targets; N=25 to 30
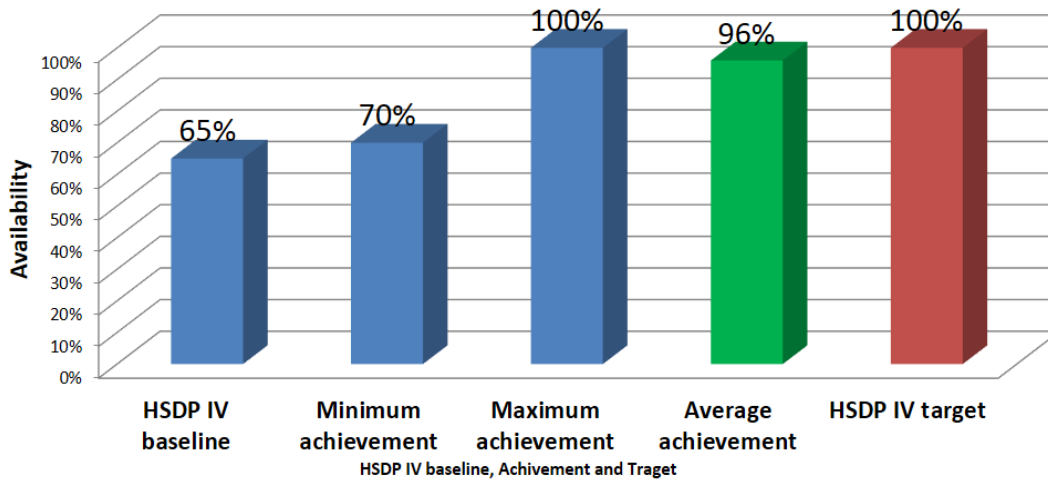
Avaialability of Key Medicines for top ten diseases in selected APTS implementing hospitals N= 25 to 30; May 2015

Site	Value
Bonga baseline	90%
Bonga	100%
Mehal Meda baseline	80%
Mehal Meda	100%
Lalibela baseline	90%
Lalibela	100%
Hidar 11 baseline	96%
Hidar 11	100%
Finote selam baseline	80%
Finote selam	100%
Enate baseline	86%
Enat	100%
DebreMarkos baseline	65%
DebreMarkos	100%
Borumeda baseline	90%
Borumeda	100%
Arba minch baseline	73%
Arba minch	100%
ALERT baseline	76%
ALERT	100%
Desse Baseline	93%
Desse	95%
Felegehiwot baseline	40%
Felegehiwot	80%
Dilchora bseline	45%
Dilchora	70%
National Baseline HSDP IV	65%

10.4.2. Financial analysis

Financial transactions of medicines in APTS implementing sites have been analyzed and published in research bulletins and journals. Among them, please find the following examples:

Total sales of medicines from some APTS implementing hospitals; Jun 2014 to Jul-2016 (23 months)
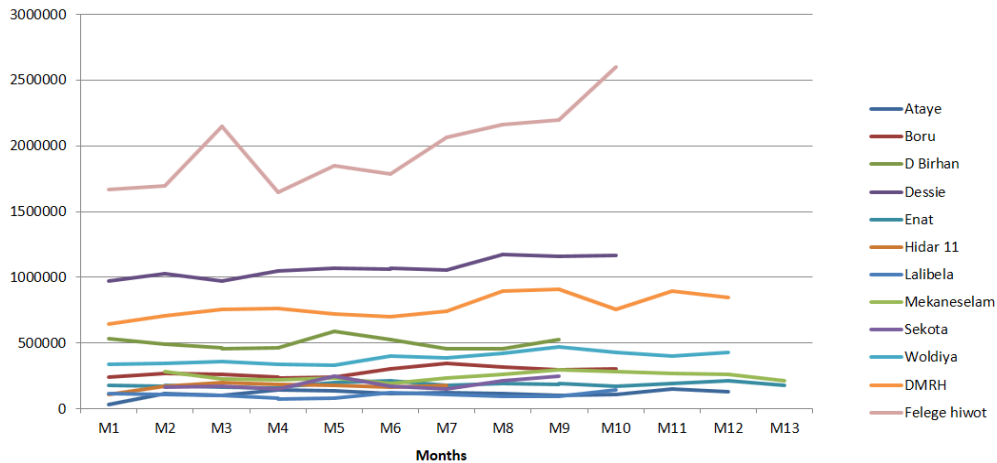
Rational Drug use: definition WHO

Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and affordable to them and their community." (WHO, 1985).

By using APTS summary reports; APTS recommendation:

Av. price of medicines dispensed per patients on cash (P) X 30 days

    Smallest salary of unskilled government worker (690).

(DW)= (Px30)/690; If DW $\leq$ 1 = affordable; if DW >1 to DW $\leq$ 3 = some-how affordable and if DW> 3= un-affordable

Note: 1 days is recommended internationally
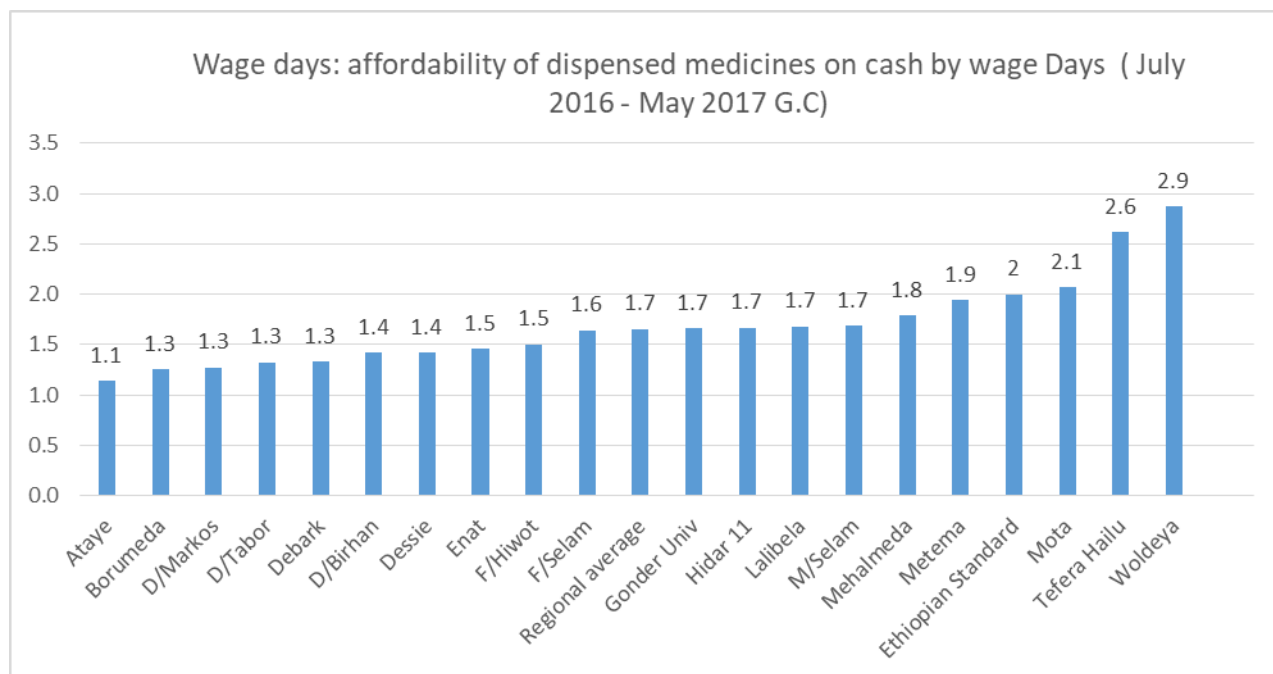
Affordability of medicines sold on cash using wage days in 19 hospitals of Amhara region from July 2016 to May 2017. Published as a research article in FMOH special bulletin 2017.
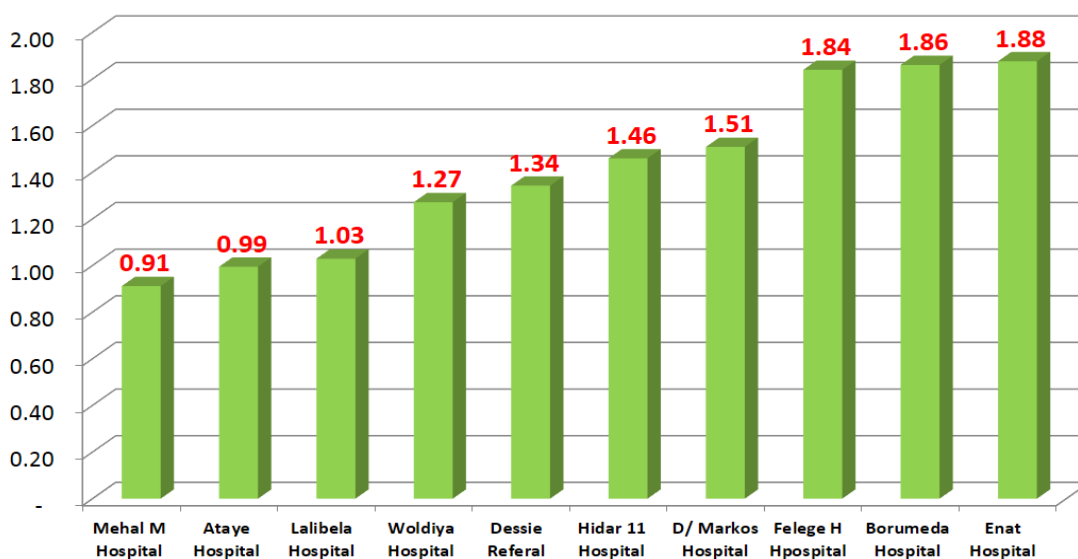
Wage days needed to pay for medicines sold on cash using smallest salary of government employee from July to Dec. 2016.
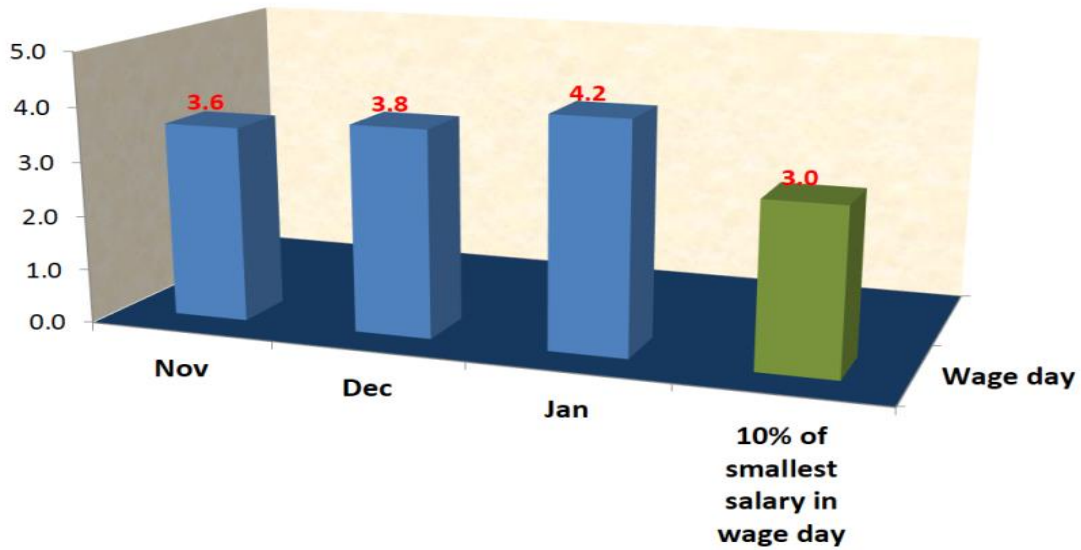
Wage days needed to pay for medicines sold on cash using smallest salary of government employee from Nov to Jan 2015 at ALERT hospital.

Average monthly gross profit from medicine sales (cash + credit + free) (in thousand-ETB) of the Amhara region hospitals from Jul-2014 to Jun- 015
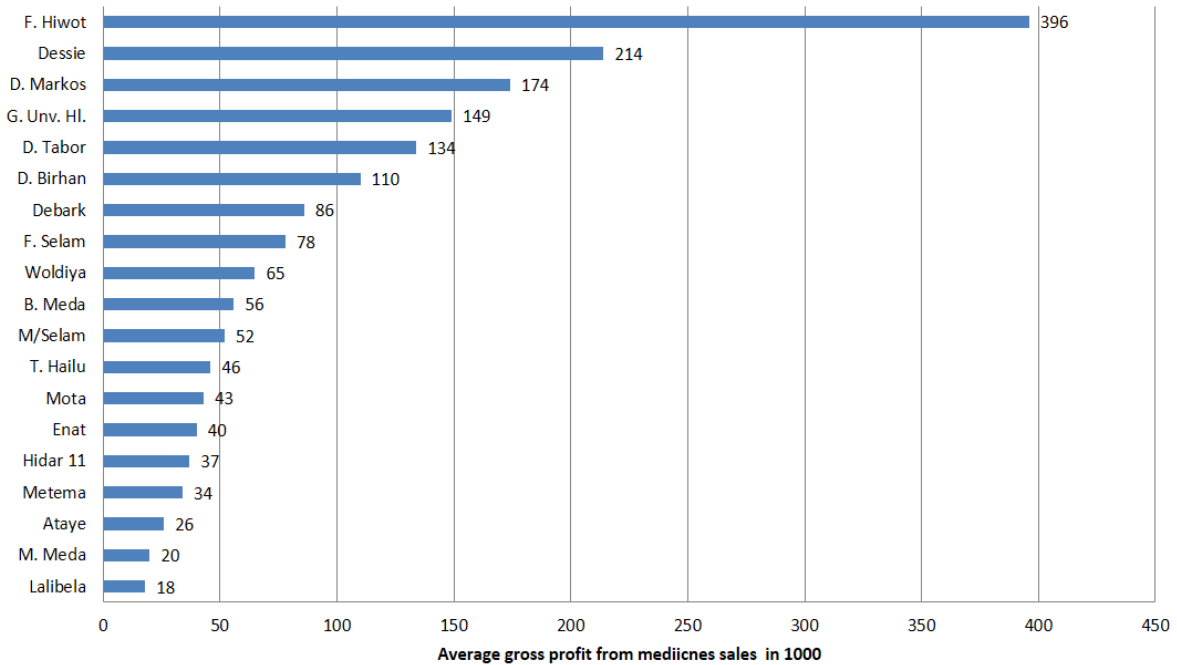
Total Price of Medicines Dispensed for Maternity Service Compared with other Health Services (July 2014-June 2015G.C)

Chart: Horizontal bar chart showing Prices of medicines by Hospitals. Felegehiwot 3946681, Dessie, D/Markos, D/Tabor, Gonder University, Debrebirhan, Finoteselam, Woldeya, Mota, Enat, Ataye, M/Selam, Tefera Hailu, Borumeda, Hidar 11, Lalibela, Debark, Metema, Mehalmeda. X-axis: Prices of medicines (0 to 4500000). Y-axis: Hospitals.
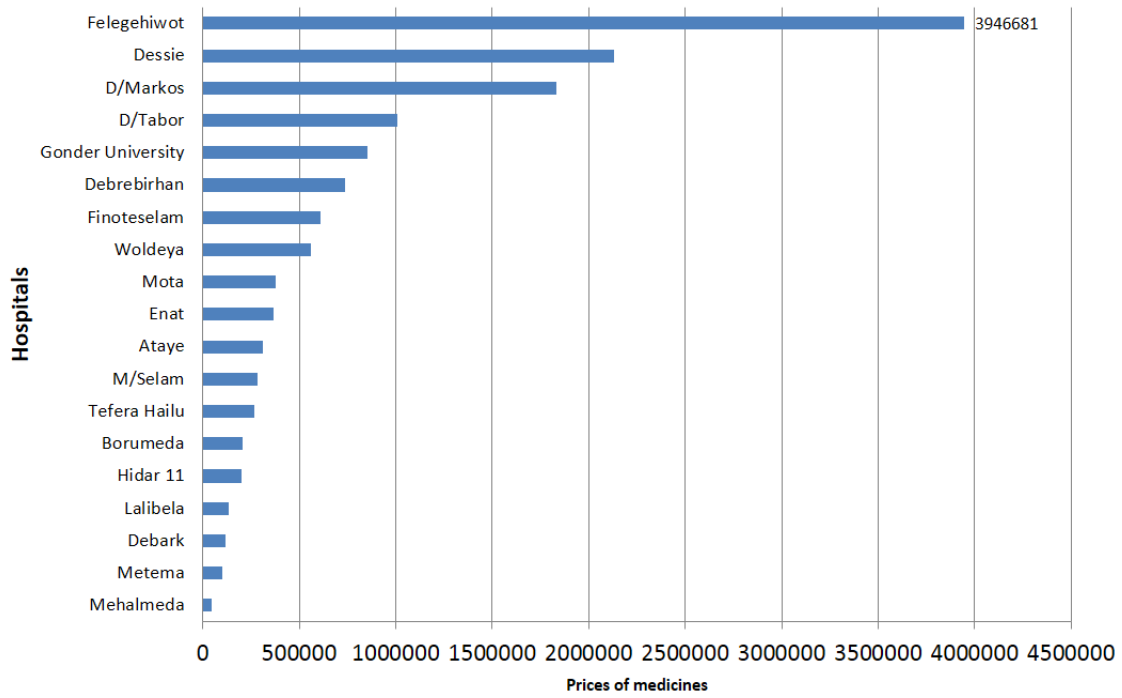
Medicines Budget Share of Mothers and Babies from the total patients served in % in 10 APTS implementing hospitals 2013-2016

Chart: Bar chart. Borumeda Hospita 3, Hidar 11 Hospital 5, Woldiya Hospital 10, Ataye Hospital 11, Enat Hospital 12, Dessie Hospital 14, Lalibela Hospital 16, Mehal M Hospital 16, D/ Markos Hospital 19, Felege H Hpospital 24.

160
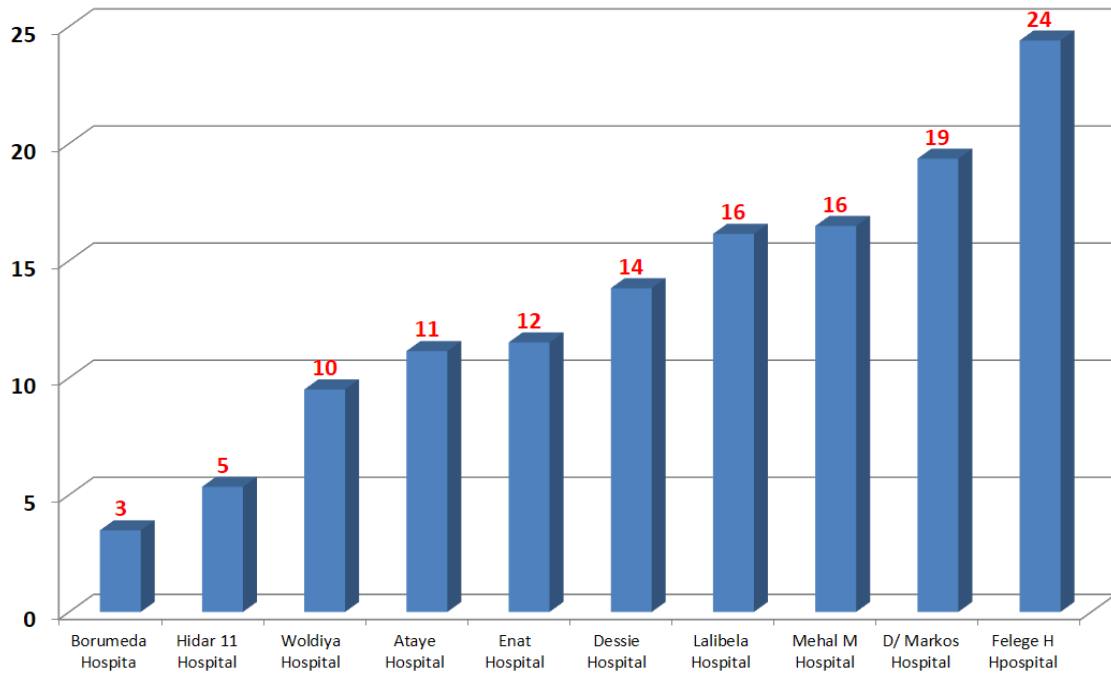
Medicines budget share of mothers and children (MNCH) % compared with total medicines consumed in the hospital; Federal ministry of Health, Sep 2015

- Ataye Gen. Hospital — 22
- Finote selam Gen. Hospital — 21
- Desse Ref. Hospital — 20
- Felegehiwot Referral Hospital — 20
- Woldya General Hospital — 19
- Debre Markos Ref.Hospital — 18
- Jinka gen. Hospitals — 18
- Hidar 11, Gen. Hospital — 17
- Enat General Hospital — 17
- Mota Gen. Hospital — 16
- Debre Tabor Ref. Hospital — 16
- Metema Gen. Hospital — 16
- Debre Birhan Ref. Hospital — 15
- Lalibela gen. Hospital — 15
- Debark Gen. Hospital — 14
- Mekane Selam Gen. Hospital — 13
- Sekota/Tefera Hailu Gen. Hospital — 10
- Mehal Meda Gen.Hospital — 10
- Borumeda General Hospital — 7

10.4.3. Product analysis

Wastage Rate of Pharmaceuticals of all Amhara region Hospitals from July 2014 - June 2016G.C

Data points: R.BL 10, N.BL 8.24, July 0.61, Augest 0.47, September 1.72, October 2.11, November 0.53, December 0.27, January 0.17, Febraury 0.13, March 0.69, April 0.45, May 0.21, June 1.23

161
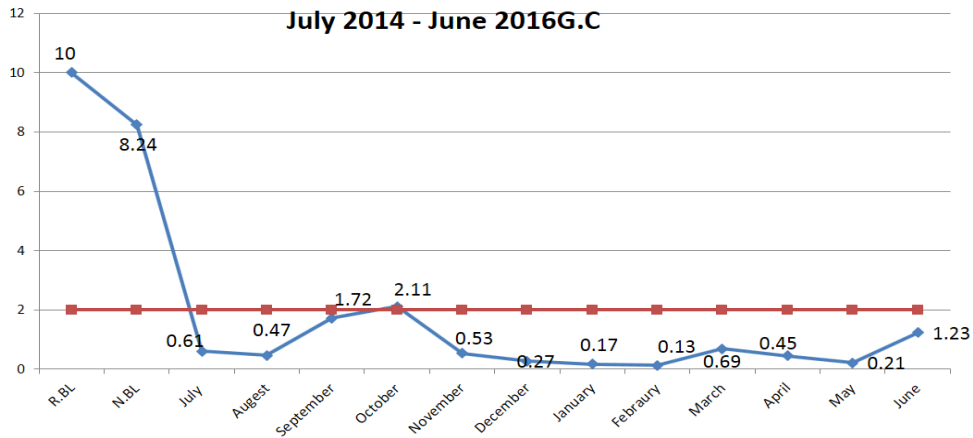
Rate of medicines expiry in % in the Health Facility (July 2014- June 2016G.C)

Chart categories (left to right): Gonder University, Mehalmeda, Debrebirhan (0.3), Debark (0.3), D/Tabor (0.4), D/Markos (0.4), Finoteselam (0.5), Felegehiwot (0.5), Woldeya (0.6), Borumeda (0.6), Metema (0.6), Dessie (0.7), Ataye (1.0), Hidar 11 (1.4), M/Selam (1.4), Lalibela (1.6), Enat (1.7), Mota (2.2), Tefera Hailu (4.2), Regional (0.7), Target (2.0)
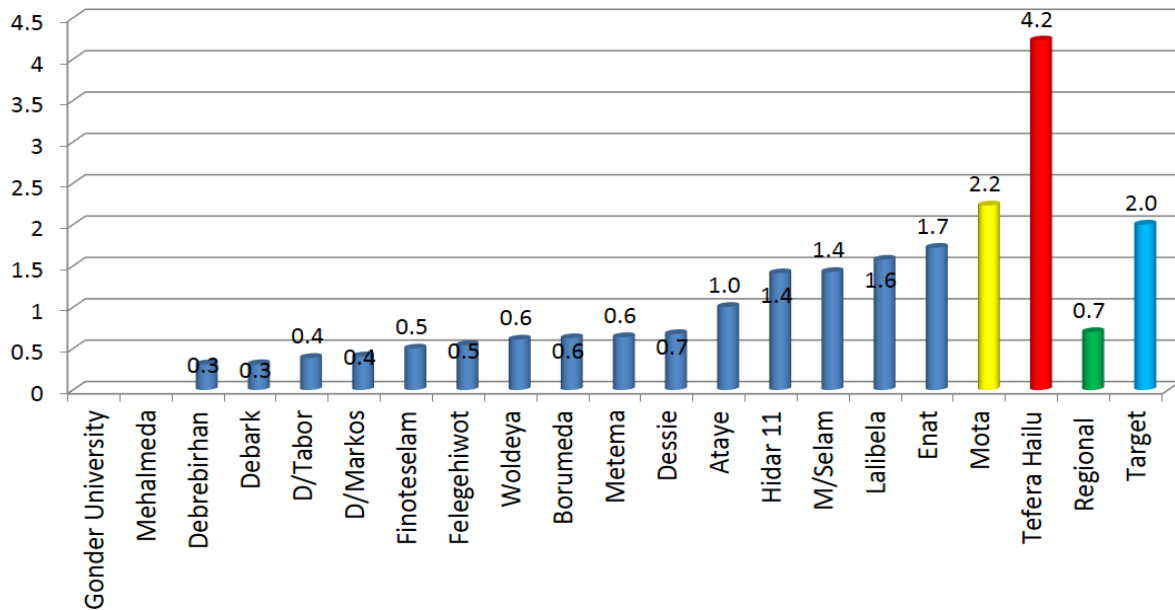
Examples of CSR-General Indicator

CSR Quarterly Average

DMRH 21%, Kahsay Abera 15%, Debre Tabor 18%, Mota 12%

Legend: ■ CSR Quarterly Average
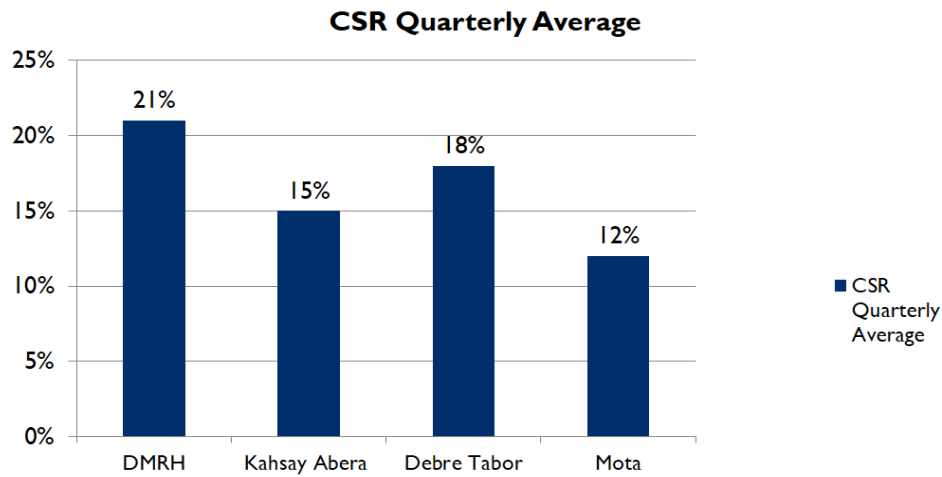
Chapter Summary

All products received, issued, dispensed and service delivered should be summarized on daily basis. The cash credit or for free summary should be recorded with costs. Then, the summary should also be compiled in to monthly categorized by finance transacted, service delivered and product consumed.

To do daily summary and monthly reports; formats including Model 19/health, model /22/health, cash sales ticket pad register, cash/credit sales tickets, free/credit registers, cashiers' delivery note, model 64, daily summary formats and monthly reporting formats are mandatory to use.

Using the monthly report, various analysis should be conducted to deliver information for decision making including total sales on cash, credit or for free, gross profits, rate of expiry, consumption to stock ratio, number of patient served per day, per health facility, per professional; number of DTP identified, intervention made etc.

Chapter 11: Good Dispensing Practice in APTS Workflow

Chapter Description:

This chapter provides an overview of the good dispensing practice as per the national steps of good dispensing practice considering the APTS dispensary workflow. It discusses how the dispensing service is delivered in a way that ensures rational use of medicines.

Primary Objective

At the end of this chapter, participants will be able to provide rational medicine dispensing and counseling services to patients using good dispensing practice in APTS workflow.

Enabling Objectives

By the end of the session, participants will be able to:

- Describe pre-dispensing activity
- Describe the six steps of dispensing
- Implement the cautionary/advisory labels
- Counsel patients on the rational use of dispensed medicines

Chapter Outline

- Introduction
- Pre-dispensing preparation
- The six dispensing steps
- Wordings used for cautionary/advisory labels
- Counseling Points for Selected Dosage Forms
- Summary

Case study

- W/ro Bizunesh Tessema is a 39 years old female who is a mother of 5 children and she is expecting her 8th child. She is now in the 2nd month of pregnancy. She was a 5th grade student when she got married. She and her husband are daily laborers. W/ro Bizunesh was diagnosed with osteomyelitis, vaginal candidiasis and minor skin infection. She presents to the dispensary with the following prescription.

Discuss on:

- How a dispenser is going to counsel or give advice on her

✍ prescription.		
Prescription **XYZ Hospital; Tel +251 XXXXXXX** **S. No. 12345** Patient's full Name: <u>Bizunesh Tessema</u> Sex: <u>F</u> Age: <u>39</u> Weight: <u>60</u> Card No. <u>10964/98</u> Region: <u>Oromia</u> Town: <u>Ariti</u> Woreda: <u>Robi</u> Kebele: <u>01</u> House No. <u>6245</u> Tel. No: <u>0913XXXXXX</u>☐ Inpatient ☐X Outpatient ☐ Emergency Diagnosis, if not ICD: <u>Osteomyelities, Vaginal candidiasis, minor skin infection</u>		
Drug Name, Strength, Dosage Form, Dose, Frequency, Duration Quantity, & route of administration.		**Price**
Rx - Ampicillin capsule, 2 QID # 56 - Gentian violet solution # 01 - Clotrimazole 500 mg PV, then 100mg once daily, for seven consecutive days. - Diclofenac e/c 50mg # 10 tabs		
Prescriber's Evaluator's Counselor 's Full name <u>Tadesse Tilahun</u> _____ _____ Qualification _GP _____ _____ Registration # _0043_____ _____ _____ _____ Signature/ Date: ____Signed __11/03/17_____ _____ _____		

When you ask her, she discloses that there were occasions where she discontinued medicines (Amoxicillin) given her for UTI as she became symptom free within a few days of starting treatment. She confesses that she would take medicines at any time of the day doubling their amount to save time and reduce burden of taking medicines many times a day.

The client confidently speaks that when her UTI symptoms relapsed, she used 6 tablets of medicines left over by her husband before 2 years. She said that if she had any such left over medicines at home or had been available at nearby shop, she would not have wasted her time and money coming to the hospital. W/ro Bizunesh still worries that she may not complete all medicines now given to her.

Moreover, she reported that she feels stomach pain when using the pain killer Diclofenac enteric coated tablet with antacids. She took it chewed/crushed assuming that the pain killer would work faster but the pain becomes worse.

Pharmacist- Martha Tarekegn consulted Ato Tadesse, GP, for some problems on the prescription using *STG 2014 and Formulary 2013*. After communication, corrected prescription is written.

Answer the following questions based on the case:
- o List the problems with the prescription in the introductory case?

- o Do you think all her drug therapy needs are adequately addressed?

- o How do you manage the problems of the introductory case prescription?

- o What could be the problem if this prescription was dispensed as it is now?

- o What counseling points do you consider?

NB: The problems of the introductory case prescription can be captured if the six steps of dispensing are strictly and consistently followed.

11.1. Introduction

There are evidences that show the current practice of dispensing practices are not satisfactory. It is well studied that irrational dispensing practices contributes to irrational use by patients. The consequences of irrational use are documented and results in patient harm in the form of adverse drug events, wastage of valuable resources, antimicrobial resistance, etc. Pharmacy Chapter of EHRIG and FMHACA's Good Dispensing Practice Manual have adopted the six steps of dispensing. However, these standards were not properly implemented due to poor dispensing workflow, inadequate workforce, poor dispensing facilities, and related administrative and system inefficiencies. Hence this needs a framework to effectively alleviate these challenges in the provision of dispensing and counseling services. This chapter discusses the dispensing processes considering the APTS and clinical pharmacy standards of practice.

11.2. Pre-dispensing preparations

Before the dispensing process begins, prepare yourself and the working environment to make it professionally appealing and aesthetically attractive for dispensing.

- Wear a clean and white gown with a name tag on it.
- Make sure that the room, shelves, and dispensing counter are clean and organized.
- Avail all the materials necessary for dispensing activities. This include but not limited to:
  - o A clean dispensing counter of adequate size having a smooth, impervious working surface.
  - o Tablets and capsules counter

- Avail labeling materials, if possible pre-printed ones

- Adequate copies of relevant up-to-date reference manuals should be available for quick reference during dispensing. References such as national standard treatment guidelines, national formularies, USP/DI, British National Formulary, Good Dispensing Manual are very essential. Quick-check guides for drug interactions and contraindications need to be available at the dispensing counter. Also, laminated dispensing and counseling guides should be available for quick reference.

11.3. The six dispensing steps

The following steps should always be followed during dispensing of medicines to patients or their care givers. However, these steps shall be contextualized depending on the type of drug, the patient status and condition and the type of dispensary unit

1. Receiving, interpretation and evaluation of a prescription
2. Billing and recording transactions
3. Selection, manipulation or compounding of the medicine
4. Packaging and labeling of the medicine
5. Provision of medicines to the patient with counseling
6. Filing the prescription and transaction documents

Step 1: Receiving, interpretation and evaluation of a prescription

This is step 1 of dispensing. It is a critical step where prescriptions are received, interpreted, and evaluated. A dedicated pharmacist should be assigned for interpretation and evaluation of prescriptions. While receiving and dealing with prescriptions, and handling clients:

- Receive the prescription in a professional and dignified manner with confidence and smile.

- Confirm the identity of the client, i.e., make sure whether the prescription is presented by patient or the caregiver.

- Be alert and avoid talking, ear phones, mobile phones, etc. that might distract attention while receiving, reading and checking the prescription.

The following are basic steps used for evaluating prescription at step 1 of dispensing for ambulatory patients served through outpatient pharmacy, emergency pharmacy, ART pharmacy and chronic care pharmacies. The prescription evaluator should check for:

1. Legality of the prescription (Standard Rx, ART Rx, NPS Rx, authorized signature, title & date)
2. Legibility of the prescription (must be clear-never do guess work)
3. Completeness of Rx (make sure all parts of RX are filled)
4. Medication history using open ended questions
5. Correctness of indication, dose, frequency, duration, contraindications, safety, interactions and others using recent guidelines, STG, formulary and resources in DIS etc.
6. Issues by verifying with the prescriber-If in doubt or have issues to discuss with
7. Drug therapy problems (DTPs) and document using relevant format
8. Price of medicines Rx, announce to the patient and confirm payment

1. Checking for legality of a prescription

It should be a guiding rule that dispensers must always make their inherent practice to always first proves that prescriptions are legal. A prescription is legal when:

- The medicines are written on the right prescription such as standard Rx, NPS and ART
- It is written (can also be typed) and signed by an authorized prescriber.
- Pharmacyprofessionalsshouldbealertingtodetectmisuseofprescriptionblanks by clients (obtained by stealing from private practitioners or from Government hospital OPDs, where blanks are often left lying around).
- Pharmacy professionals should also be alert to fake prescriptions written/ printed by the patient or client coming to the pharmacy. If the hand writing is not the usual handwriting of the prescriber or you notice it to be unusual otherwise, confirm with as senior colleague or call the prescriber to confirm. Do not dispense such prescriptions, and be sure to alert the prescriber about the misuse.
- Date of issue not exceeding 15 days for narcotic drugs and psychotropic substances. But it varies for other prescriptions and antibiotic prescriptions should not take longer.
- Prescription paper are critically affect health system when used wrongly by wrong prescribers since they will induce use of medicines for wrong purposes. Therefore, prescriptions should be used for the intended purpose only. That is why prescribers only should get the hospital labeled prescription. To do so, FMOH has now adopted a tool that controls movement of the prescription papers. The pharmacy store should deliver to nurses by signing them that they will deliver to prescribers only by

registering the serial number of the prescription. Note: please refer prescription movement control form.

2. Checking for legibility of the prescription

A brief examination of each prescription should be made immediately upon receiving from the patient to ascertain the legibility of various parts of the prescription.

- Pharmacy professional must examine the prescription only behind the dispensing counter, and must not allow themselves to bed is traced while doing so. Any doubt regarding there adding of the prescription (i.e.name of the medicines or directions, or if it appears that an error has been made by the prescriber), should be examined closely and, if necessary discussed/ consulted with other pharmacists or the prescriber himself/herself without arousing doubts or fears in the patient.

- Hand written names of patients and medicines are often difficult to read. In case of illegibility of name, age, etc. ask the patient for the correct spelling tactfully.

- Every prescription should be read and under stood thoroughly before attempting to dispense it. Every word, abbreviation, has a meaning. To assume that an illegible or confusing word is unimportant inviting a costly mistake. In case of doubt, consult another pharmacy professional or the prescriber.

- Legibility is a problem requiring alertness and critical judgment on the part of the pharmacy professional. Careless handwriting and similarity in spelling of names of different medicines add to the difficulty. For example, consider a reading error for Medoprazole and Mebendazole.   Due to illegible handwriting of prescribers, Medoprazole could be read as Mebendazole. Medoprazole is a brand containing omeprazole whereas Mebendazole is an anthelmintic two different medicines used for two different conditions.

- When handwriting is illegible, the best thing to do is to contact the prescriber over the phone and confirm. Remember, you are dealing with medicines and thus, the lives of patients. So be sure of what you are dispensing.

- The dosage form, the dosage and the quantity to be dispensed must be legible so that dispensing becomes easier for the pharmacy professional. The instructions written for administration should state clearly what the prescriber expects from the patient so that the pharmacy professionals can counsel the patients efficiently. All terminology, including

units of measures and Latin abbreviations should be properly interpreted and checked.

- Certain medicines have names that may appear similar when carelessly written or when not read carefully. Others may lead to confusion for other reasons. Problems are particularly likely if the strengths and doses of the two preparations are similar. Doubts should always be resolved by checking with the prescriber. Sadly, in most cases where mistakes have occurred, it has been because the item was dispensed without a second thought. Example of similar names that illustrate the pit falls are:
  - Folic acid versus Folinic acid
  - Dexamethasone versus Desoximetasone
- Although widely used in prescription writing, abbreviations can kill!! This is because in health care there are no recognized standards for abbreviations and most of the time, prescribers invent their own. Secondly, different individuals/pharmacy professionals may assume or interpret abbreviations differently. Examples:
  - 'HCT' 25mg was intended to mean Hydrocortisone 25mg, but Hydrochlorothiazide was dispensed.
  - 'CPZ' may refer to Chlorpromazine, an anti psychoticorto Carbamazepine, which is an anti-convulsant.
  - 'CPM' can mean Chlorpromazine or Chlorpheniramine

So, never hint on abbreviations. Be sure to confirm with the prescriber!

- Check for over writing. Over writing can be done by the patient to buy extra medicines (especially habit-forming medicines or medicines of abuse).

3. **Check for completeness of prescriptions**

A prescription is complete when all parts on it are filled. But in real time, prescriptions are observed to suffer from incompleteness. This makes it difficult for the dispensers to make decisions in correctly interpreting diagnosis with the type of drug or its dose and duration. When important parameters like age or weight are not written, obviously, dose determination would be challenging especially for children. Regarding diagnosis, its mere presence is not enough. Diagnosis written specifically (say pneumonia instead of community acquired or hospital acquired pneumonia etc.) radically affect the type of drug selected or its dose and duration. The parts indicated in the standard prescription like the one shown below must therefore be filled correctly, completely and consistently. As treatment outcome is the

combined effort of all the actors in the care of a patient, all must do its part in writing prescriptions.

Note: *Refere the APTS standard prescription in the annex*

4. Taking patient past medication history

Taking past medication history can have a central role in the decisions needed for the selection of current medications. Since patients may visit several health facilities, asking them for any drug (prescription or OTC) they have been taking can help much to identify and prevent duplication of therapy. Example –If a patient has been prescribed diclofenac for fever, and if a dentist has prescribed other NSAIDs for the same patient to relief pain, it could lead to overdosing of NSAIDs, and increase the risk of GI bleeding and may aggravate hypertension. It is also very important to identify drug allergy or adverse effect previously from similar medications by asking patients if they never took the prescribed medication and face any trouble by showing the medicine or telling its name.

Regarding drugs given for chronic diseases or for antibiotics, asking adherence history has a paramount importance to address potential adherence barriers and hence to tailored the current counseling for a better treatment outcome. It is also important to remember that adherence can be affected by patient specific factors such as fasting and try to bring optimum solution through discussion with patient and/or prescriber. Beyond these, some contraindicated medications might be identified by the dispenser during asking medication histories. For instance, an ACE inhibitor prescribed for chronic hypertension or warfarin prescribed for hypercoagulable states before 3 months might be identified in a patient who recently got pregnant during this process.

5. Checking for correctness of prescriptions

Correctness of a prescription refers to appropriateness of the medicine for individual patient in terms of   indication, dosage, duration, effectiveness and safety of the medicines in reference to the current national treatment guideline or any appropriate available, reliable and acceptable source or evidence.

One must note that a complete prescription may not necessarily mean correct in terms of indication, dose, duration, frequency and safety. For example, a drug which is written legibly in a complete prescription may be contraindicated or infective when it is evaluated against the

patient's condition or diagnosis. For instance, in the introductory case mentioned earlier, Ampicillin is not effective for osteomyelitis nor is the dose of clotrimazole for vaginal candidiasis for a mother who is 2 months pregnant. Known allergies should be checked, particularly for an antibiotic prescription, where prescribers may fail to consider cross sensitivities within groups of medicines e.g. penicillin. So, it is vital that dispensers need to be vigilant in making sure that drugs are correct in terms of indication, dosage, duration, effectiveness and safety. Off course adherence should be given the attention it deserves.

Checking for drug interaction is also a major activity of a pharmacy professional during prescription evaluation. Many medicines are known to interact with other medicines, food, diseases, herbal medicines, and laboratory results. Ideally, all multiple item prescriptions should be checked for medicine interactions. Unfortunately, checking for medicine interactions is a major problem in Ethiopia because of poly pharmacy and lack of easily accessible standard interaction checker. If a prescribed item is known to interact with many medicines it is imperative that the pharmacy professionals check that whether the patient is taking other medicines. Any medicine interactions likely to render the therapy ineffective or cause undesirable effects to the patient, or affect the treatment in any way, should be brought to the notice of the prescriber (without unduly alarming the patient). While interactions should be considered when dispensing all prescriptions, some groups of patients are particularly vulnerable, and extra vigilance is required (Pregnant women, children, elderly, and those with kidney or liver malfunction).

Since there are thousands of drug interactions on the literature, always focus on clinically significant drug interactions.

Example:
- Acetylsalicylic acid taken can increase the risk of bleeding in a patient who is taking an anticoagulant (warfarin).
- Patients taking ciprofloxacin should avoid taking antacid within 2-3 hours because the antacid can drastically reduce the absorption of ciprofloxacin.

Finally, while evaluating prescriptions, care must be taken for potent medicines and medicines with a narrow therapeutic index, as slight changes in systemic concentration lead to marked

changes in pharmacodynamics responses. Examples of narrow therapeutic index medicines are Digoxin, Lithium, Phenytoin, and Warfarin.

6. Communicating issues with prescriptions to prescribers

It is mandatory and a professional obligation that dispensers need to communicate with prescribers when in doubt, about the possible problems of legality, legibility, completeness and correctness of prescription with suggestions of evidence based interventions. Updated and latest national guidelines like Standard Treatment Guideline (STG), ART guideline, malaria guideline, TB guideline, STI guideline, Ethiopian medicine formulary, and other reliable resources available in the health facilities' DIS or else should be sited as evidence when there is a need to communicate for discussion and/or intervention.

When communicating with prescribers, strict adherence to the requirements of a professional ethics should be a culture. Dispensers should not alarm the patient about the discussion with his physicians. It is highly recommended that when prescribers want to change prescription by accepting recommendations of dispensers, they must use the same prescription than writing it on a new prescription. They can cross once on the part of the prescription they want to make change, paraph it if necessary, and send/give back to the dispenser.

7. Documentation of DTPs identified

The national SOP on the provision of clinical pharmacy recommends the detection, documentation and reporting of DTPs. Based on this, dispensers need to document any problems identified on the "Prescription Evaluation and Intervention Register" shown below. Once they are documented; the data must be presented for the DTC and medical community to discuss on the root causes of the DTPs and the need to prevent them through concerted team effort. The details and causes of DTPs are described in a table below.

Prescription Evaluation, Intervention and Documentation Register Page # _____

Prescription evaluation, intervention and documentation register   Ser # _____

Date	Card #	Age	sex	weight	Legal? (√ if not)	Legible? (√ if not)	Complete? (√ if not)	Specific diagnosis	Code of DTP identified and its justification with reference	Intervention proposed	Fully	Partially	Rejected	Cost of drug with DTP	Cost of Drug after intervention	Initial & sign
					Prescription						Acceptance of Intervention (√)					
Total count/sum																

Page Summary	1. # unnecessary drug therapy (DTP 1) = _____ 2. # needs additional drug therapy (DTP 2) = _____ 3. # ineffective drugs (DTP 3) = _____ 4. # dosage too low (DTP 4) = _____ 5. # adverse drug event (DTP 5) =_____ 6. # dosage too high (DTP 6) = _____ 7. # noncompliance (DTP 7) =_____
	# DTPs involving antibiotics = _____, # DTPs involving antimalarial = _____, # of females (≥ 15yr) = _____, # of child (< 5yr) = _____
	Code for: Rx with legality problems = RxL1, Rx with legibility problems = RxL2, Rx with completeness problems = RxC

Note: *Code of DTPs described in bracket, all are completed and summarized by prescription evaluators. Use new page for a new month (use EC). The pharmacy accountant should incorporate summarized DTPs from this register when they prepare monthly service reports.*

Note: *Prescription Evaluation and Intervention Register must be prepared as a register to ensure its durability.*

Daily summary for DTP

	DTP Types	Number of DTP identified by type
1	DTP1	
2	DTP2	
3	DTP3	
4	DTP4	
5	DTP5	
6	DTP6	
7	DTP7	
8	DTP8	
	TOTAL	

8. Announcement of prices to the patients

Prices should not be announced to patients before prescriptions are evaluated. Announce price to the patient and confirm payment and if the patient cannot afford, try to help the patient through generic substitution based on evidence and patient consent.

9. Sign on the space provided in the prescription for evaluator:

Rx evaluation is a responsibility and accountability. Therefore, the evaluator should sign on the space provided after completing all steps of Rx evaluation.

Table: Reference for interpretation of DTPs: Categories and Common Causes of Drug Therapy Problems. Taken from Clinical pharmacy SOP, 2015

Assessment	Drug Therapy Problem	Causes
Indication	***Unnecessary Drug Therapy***	▪ No valid medication indication for the drug at this time
		▪ Multiple drugs are used when only single-drug is required
		▪ The condition is better treated with nondrug therapy
		▪ Drug therapy is used to treat an avoidable ADR associated with another medication
		▪ The medical problem is caused by drug abuse, alcohol, or smoking
	Needs Additional Drug Therapy	▪ A medical condition exists that requires initiation of new drug
		▪ Preventive therapy is needed to reduce the risk of developing a new condition
		▪ A medical condition requires combination therapy to achieve synergism or additive effects
Effectiveness	***Ineffective Drug***	▪ The drug is not the most effective one for treating the disease
		▪ The drug product is not effective for the medical condition
		▪ The condition is refractory to the drug product being used
		▪ The dosage form is inappropriate
	Dosage too Low	▪ The dose is too low to give the desired outcome
		▪ The dosage interval is too infrequent
		▪ The duration of therapy is too short
		▪ A drug interaction reduces the amount of active drug available
Safety	***Adverse Drug Reaction***	▪ A drug causes an undesirable reaction that is not dose-related
		▪ A safer drug is needed because of patient risk factors
		▪ A drug interaction causes an undesirable reaction
		▪ The regimen was administered or changed too rapidly
		▪ The product causes an allergic reaction
		▪ The drug is contraindicated because of patient risk factors

		▪ The dose is too high for the patient
	Dosage too High	▪ The dosing frequency is too short.
		▪ The duration of therapy is too long
		▪ A drug interaction causes a toxic reaction to the drug.
		▪ The dose was administered too rapidly
Compliance/ Adherence	*Noncompliance*	▪ The patient does not understand the instructions
		▪ The patient prefers not to take the medication
		▪ The patient forgets to take the medication
		▪ Drug product is too expensive
		▪ The patient cannot swallow/self-administer the drug properly
		▪ The drug product is not available for the patient

Using the prescription evaluation checklist

To effectively and easily use evaluation step of dispensing and minimize the burden of memorization, the use of a checklist (prescription evaluation checklist) is important. Usage of the checklist can help dispensers play key role in executing their professional duty. The checklist shall be prepared as a job aid and distributed to all outpatient dispensaries.

Prescription evaluation checklist				
Prescription evaluation parameters	Availability of required information on the prescription			Remark
1. Check for legibility	• Standard prescription of the hospital that fits with APTS workflow • Rx signed by an authorized prescriber • Name of authorized prescriber titled or written • Date of the prescription written Right medicines on the right type of prescription is written (standard, NPS and ART)			
2. Check for legibility	• Legibly written that do not encourage guess work			
	• Non-standard abbreviations are not used			
3. Check for completeness	• All parts of the prescription have been written completely			
	• If not complete at least these are recorded	• Card # • Patient name • Sex	• Age • Weight • Specific diagnosis	
4. Medication history	• Asked for allergy, any ADR, compliant • Asked liver diseases or renal diseases • Asked for pregnancy or breast feeding • Asked for current medications including OTC, COC,			

	medicines for chronic illness	
	• Asked for use of alcohol, CHAT, or any other substances	
	• Asked for any adherence problem identified	

5. Check for correctness	• Is indication perfect?
	      o Is there unnecessary drug therapy?
	      o Is there a need for additional drug therapy?
	 • Is effectiveness problem present?
	      o Ineffective drug?
	      o Dose too low?
	 • Is there any safety problem?
	      o Adverse drug reaction
	      o Dosage too low
	      o Any contra indication	

6. Affordability	Asked for ability to pay for the medication; if not affordable any action taken to change the prescribed medicines like discussion with prescriber and giving alternative products	
7. DTP	Have you communicated the possible DTP to prescriber	
8. Recording	Have you recorded and document any DTP identified	

Step 2: Billing and recording transactions

Once prescription evaluators have proved that the prescription has fulfilled all the requirements enumerated under step 1 of dispensing above, they need to bill using cash sales tickets for those paying out of pocket or using APTS register for credit/insurance or free clients in manual or softcopy.

During billing please note the following key instructions.

- Before billing, make sure that the item prescribed is available in the pharmacy
- Please file the copy of model 22 in the dispensary systematically, chronologically with monthly inventories.
- Do not share/borrow cash sales tickets issued in your name. Do not also use cash sales ticket you started to use in dispensary unit in another dispensary even if the cash sales tickets are yours? If you do use the sales ticket for other dispensary too, please make sure the daily summary and monthly reports of the two dispensing units are the same.
- Write all parts of the cash sales tickets and APTS registers legibly and sign.
- To help you write the correct code and price, please always use an update version of

price control sheet.

- Please give maximum care for the APTS registers so that their pages are not torn, lost or damaged

- Use carbon paper of the right quality that can show all information on the 3rd pad remaining with you.

- After filling the cash sales tickets, follow and make sure the copy arrived at the cashier

- Please note that the cashers have the right to refuse cash sales tickets that is incorrectly written

- If you happen to be a counselor, please make sure that the cashers have written serial number of the receipt on the part of APTS prescription and also put their signature

Step 3: Selection and Manipulation

This includes: -

1. Select stock container of pre-pack reading the label and cross matching the medicine name and strength against the prescription.

2. Read the container label at least twice during the dispensing process.

3. Do not select the prescribed medicine according to the color or location of container.

4. Do not open many stock containers at the same time. This trend will lead to errors and/or expose the medicines to air and eventually leads to deterioration in quality.

5. Open and close containers once at a time.

6. While counting, pouring or measuring, the following points should be noted:

   - Short and/or over counting should be avoided

   - Clean counting tray and/or spoon used

   - Graduated measuring cylinder and/or flask must be used for measuring liquid reduction. If small volume is to be measured, small measuring cylinder/flask has to be used (if compounding is performed in the pharmacy).

7. Appropriate balance should be used (if compounding is performed in the pharmacy)

8. In dispensing liquids (if compounding is performed in the pharmacy):

   - Must be measured in a clean vessel and should be poured from the stock bottle with the label kept up ward. This avoids damage to the label by any spilled or dripping liquid.

   - Pour the measured liquid preparation into the container/bottle and label it Provide

appropriate bottles with caps for repackaging liquid preparations

- Dispense liquid preparations in suitable containers

- Do not use patient's own bottle

- Dispense each medicine in a different bottle

9.   In dispensing tablets and capsules:

- Do not use fingers to count tablets as this can lead to contamination of medicines

- Use a spoon to put tablets and capsules onto a counting tray

- Count and put them in a labeled medicine container or pack

- Close stock containers tightly after dispensing

- Keep the spoon clean always

- Do not keep the spoon inside the container

Use separate plastic boxes for different patient's requirements of medicines. To avoid mix-ups of medicines of different patients, it is a good practice to assemble medicines of different patients in separate/different boxes, till they are billed and packed.

Step 4: Packaging and labeling of the medicine

Medicines must be suitably contained, protected and labeled from the time of manufacture until they are used by the patient. The packaging materials for dispensing must maintain quality, safety, stability and potency of medicines. It should provide protection from moisture, light, and contamination.

Original containers used by manufacturers are expected to protect medicines for their specified shelf-life. Because original containers may contain large amount of medicines, repackaging of medicines in to another container may be necessary to dispense medicines for patients. Such repackaging procedure can be done at-the –spot or in advance. Prepackaging is the process by which the pharmacy professional transfers a medication manually from a manufacturer's original commercial container to another type of container in advance (before clients come to pharmacy).

The main advantages of prepackaging medicines are that it allows enough time for patient counseling and minimizes dispensing errors resulting from hectic operation due to heavy patient load. Unfortunately, the materials commonly used for repackaging in many medicine retail outlets of Ethiopia are ordinary papers and the labeling is incomplete. In such cases, repackaging of medicines is likely to have many disadvantages than advantages. The materials

used for repackaging include: glass bottles, plastic bottles, collapsible tubes, paper envelops, plastic envelops, etc. Capped bottles are preferred over plastic and paper bags. Paper has the least value as the primary packaging material in terms of maintaining the quality, safety and stability of packaged medicine.

The following guidelines are recommended in prepackaging of medicines:
- Prepackaging procedures must comply with laws and regulations.
- The prepackaging operations and area must be clean.
- Only one medicine product at a time should be prepackaged in a specific work area.
- Before beginning prepackaging, a physical evaluation (color, odor, appearance, and markings) of the medicine should be made. To assure product integrity.
- The bulk container should also be examined for evidence of damage, contamination, and other deleterious effects.
- All prepackaging materials, equipment and systems should be stored, operated and used in accordance with the manufacturers or other established instructions.

Upon completion of prepackaging, all unused medicine stock, unused labels and finished packages should be removed from the prepackaging area. The packaging equipment should then be completely emptied, cleaned, and inspected before commencing the next prepackaging operation. All prepackaged medicines should be stored in appropriate temperature and humidity.

All medicines to be dispensed should be labeled and the labels should be unambiguous, clear, legible and indelible. Printed labels are advisable for patient safety. Each dispensed medicine must be appropriately labeled to comply with legal and professional requirements. The purposes of a label for medicines dispensed are to describe its identity, to provide patients with clear and concise information about the use of the medicine. It contributes to optimal therapeutic outcome and avoid medication errors, achieve appropriate handling and storage, and allow the product to be traced if there are problems. The direction for drug use and other information which the prescribers indicate on the prescription and which the pharmacists transfer to medicine labels are critical to safe and effective drug therapy.

The following information must be indicated on the label of a dispensed medicine:
- Patient name

- The generic name of the product or (including active ingredients for compounding) with strength and dosage form
- Dose, route, frequency of administration, duration of treatment and total quantity
- The directions for use and special precautions as applicable
- Expiry date/Beyond use date
- If it is prepared extemporaneously, a batch number may be included.
- Storage condition
- Auxiliary labels such as 'keep out of reach of children'

Labeling practice:

The labeling of medicines in pharmacies/drug retail outlets of Ethiopia is not up to the requirements and/or standard. It is common to see the dispensed medicines without a label, incomplete label, or illegible label. The size of the commonly used paper envelops may not even allow to write the required information on it. Label of the kind demonstrated below can be prepared and given out to patients with the language they understand. The labels have to be attached to the container/strip of each medicines using elastic band or scotch tape, as appropriate.

XYZ *Hospital pharmacy*   *Tel: 047362…… Date: 11/03/17*
      Medicine use Instruction
  Cloxacillin 500 mg ; # 112 caps
           take 1 cap at 7am in the morning
           take 1 cap at 1pm at noon
           take 1 cap at 7mp in the evening
           take 1 cap at 1am in the night for 4 weeks

Precautions
1. *Do not take more/less than recommended*
2. *Take at the recommended time of the day always at regular intervals.*
3. *Do not share with any other person*
4. *Do not take medicines without prescription and tell the professional if you have done so.*
5. *Report any unusual symptoms after taking this medicine.*
6. *Do not use medicines which have shown symptoms of damage or those that have expired*
7. *Medicines must be always stored closed in their original container at dry and cool places away from reach of light*
8. *Do not take alcohol*
9. **Take this medicine 2 hours before or after meal in an empty stomach**
10. ***Unless otherwise directed, complete the prescribed course even if your symptoms go***

Name of client: ***Bizunesh Tesema***
Expiry date : Jan 2018

Keep out of reach of children!

Figure 19: Example of label in English:

XYXT ሆስፒታል መ/ቤት፡ ሰቁ 047362...

የመድኃኒት አጠቃቀም መረጃ

Clotrimazole 100mg, = 7 tabs

1 ፍሬ ማታ በ 3 ሰዓት ማስገቢያወን በመጠቀም ለ 7 ቀናት በማህጸንዎት ያስገቡ!!

ሊደረጉ የሚገባቸው አስፈላጊ ጥንቃቄዎች፡-
1. ከታዘዘው አስበልጠው ወይንም አሳንሰው አይውሰዱ!!
2. ሰዓቱን ጠብቀው ይውሰዱ!!
3. ከሌላ ሰው ጋር አይጋሩ!!
4. ከላ ዓለሙ-ያ ተአዛዝ ላይ መድኃኒት አይውሰዱ፤ እየወሰዱ ከሆነም ያሳውቁ!!
5. መድኃኒቱ ወሰደዉ ያለተሰማዉ ምልከቶች ካጋጠሞት ለሰዉሰ-ያዉ ፈሉ-ያማክሩ!!
6. ጊዜ ያለፈበትን ወይንም የባከነት ምልከት ያላፉ መድኃኒት አይጠቀሙ!!
7. መድኃኒት ሁ-ላጊዜ በራሱ-መያዣ በደረቅ ተከድኖ ብርሃን በማይደርሰበት በሪፈና ተዘጋቶ ቦታ ያስቀምጡ!!
8. ባአፍ የሚወሰድ አይደለም!!
9. የሆነም ምልከት ስሰጤ ብቻ ተሟ ብሎ □□ረጥ ያለብዎትም!!

የአጠቃቀም ቅድምተከተል
1. መጀመሪያ እጆዎትን ይታጠቡ !!
2. ከማሸጊያዉ አንዱን ፍሬ ክኒን በጆ ያዉጡ !!
3. ያማጡትን አንድ ፍሬ ክኒን በማስገቢያዉ ጫፍ ላይ ያስገቡ!!
4. ጉልበቶትን በማጠፍ እግሮትን በመከፈት በጀርባዎ ይጋደሙ !!
5. ቀስ በማለት ማስገቢያዉን በመጠቀም ክኒኑን በማህጸንዎት ያስገቡ!!
6. ማስገቢያዉ በደንብ መግባቱን ሃረጋገጡ በኋላ የጌላ ጫፉን ይጎትቱ!!
7. የመድሃኒት ማስገቢያዉን ከማህጸንዎት ያዉጡ!!
8. የመድሃኒት ማስገቢያዉን በሳሙና ለብ ጋ ዉሃ በመጠቀም በደንብ ይጠቡት !!
9. እጆዎትን በሳሙና ይታጠቡ !!

ማሳሰቢያ:
መድሃኒቱን ከማስገባትዎ በፊት ሽንት ቤት መጠቀም ከስፈለገት አስቀድሞ ሽንት ቤቱን ከተጠቀሙ በጋ ኳዲ የተዘረዘረዉን ቅድምተከተል በመከተል መድሃኒቱን ማገባት አይዘንጉ!! በሌላ መንገድ መድኃኒቱን ክገቡ በጋ በእንደ ሰዓት ጊዜ ዉስጥ የሽንት ስሜት ከተሰሟዎት መድሃኒቱ ገብቶ አንድ ሰዓት እስኪያልፍ ሽንት ቤት አይጠቀሙ!!

የታዘዘት ስዉ ስም፡ ወ/ሮ ቤዛሽ ተሰግ
ቀን ፡ የኅትት 27 ፣ 2005   Expiry date: Jan 2014

ሕጻናት በማይደርሰብት ቦታ ይቀመጥ!!

Figure 20:Example of label in Amharic

Step 5:Provision of medicines to the patient with counseling

Drugs should be dispensed with adequate and appropriate counseling. Lack or improper counseling by dispensers leads to incorrect use of medicines by patients which in turn results in loss of efficacy or occurrence of adverse effects. Hence, professionals who are engaged in dispensing practice should be able to equip themselves with up-to-date medicine information to provide medicine use counseling. They need also communication skills to effectively convey relevant medicine information to patients and healthcare providers. All information provided to patients should be in a language that the patient and care givers can understand. Dispensers should check whether the information is understood by patients or their caregivers and correct any misunderstanding before they leave the dispensary. When necessary the verbal counseling

should be augmented by written information. For the details of counseling points, the following medicine use counseling guide shall be used as a job aid in dispensaries. This guide shall be laminated and available in dispensaries.

Table 13: Medicines Use counseling guide (MUCG)

Medicine Use Counseling Guide (MUCG)

1. Check for any allergies in general and this medicine in particular
   - Ask for any allergies
   - Obtain past medicines use history
2. Tell name and indication of the medicine:
   - Name is important in case of emergency and visit to more than one provider
   - Indication reinforces diagnosis and creates confidence
3. Tell route and frequency of administration:
   - Prevents taking by the wrong route
   - Inform if first time or reinforce what they know
   - Note: 'take one tablet after meals" may not work since not everyone eats three meals a day
4. Discuss on what to do if clients miss a dose or if the dose is vomited
5. Tell the client how long to take the medicine:
   - Helps to eliminate unrealistic expectations
   - Ensures reaching treatment goals
   - Prevents emergence of microbial resistance (for antibiotics)
6. Tailor medicine regimen to daily routine:
   - Ask the daily routine before suggesting a plan
   - Link taking a dose with regular daily task and effect of the medicine
   - Should not assume a common routine (e. g. eating three meals a day, sleeping night times, etc. which do not have fixed times)
7. Ask if the client has problem taking this medicine:
   - Complexity to the dosage regimen affects adherence:
   - Is there special preference for a dosage form when for example there is swallowing difficulty due to esophageal ulcers
   - Consider total cost of care not just the cost of the drug alone
8. Tell how long it will take for the medicine to show an effect:
   - If not told, the client may believe the medicine is not working and may stop taking or increase dose with subsequent toxicity
9. Tell how many times and when to refill:
   - Number of refills: Check if there is incontinence
10. Emphasize benefits of the medicine:
    - Discuss benefits before potential side – effects
11. Discuss major side effects of the medicine:
    - Side effects that are common and how long they will stay; those that disappear with time using reassurance can help to cope with them.
    - Measures to recognize, prevent, or manage side effects and adverse effects:

- Tell what to do if side effects don't go away or become intolerable
- Encourage the patient to report side effects or adverse effects of the drugs

12. Discuss drug – drug, drug –food, drug- disease, drug – herb interactions
- Ask if client is taking other medicines, discuss interference of other drugs, food or medical conditions with current medicine and /or condition being treated

13. Inform clients of devices that can assist them in taking their medications regularly and thereby improve adherence
- Alarm devices (wrist watch or cell phone alarms), pill boxes, associating doses with daily activities, leaving medications out where they can see them, etc.

14. Discuss precaution and measures to improve treatment outcome
- Decreased salt intake, dietary requirement, self-monitoring, exercise, activities to be avoided-
- Don't assume the client may have prior information. It is good to repeat and discuss precautions

15. Discuss storage recommendation supplementary instructions:
- Shake well, refrigerate, avoid heat and humidity, etc.
- Duration of use after opining container

16. Discuss religious and cultural issue that may affect medicines use
- Fasting and holy water,
- Dosage forms preferences,
- The ill consequences of hoarding medicines at home and sharing of such medicines with other people, etc.

17. Demonstrate and provide adequate information about special dosage forms:
- Metered dose inhalers, suppositories, eye drops, ear drops, topical, transdermal patches, injections, sublingual tables, nasal sprays, sustained-release tablets/capsules, etc.

18. Educate techniques for self – monitoring; Examples:
- Diabetes signs and symptoms of hypo- and hyper – glycaemia or use of blood glucose monitoring devices
- Watch for excessive bleeding in warfarin therapy
- Hypertension: use of blood pressure meters

19. Ask if there are any additional concerns or questions; listen respectfully and carefully

20. Ask client to repeat key information to check how instructions are understood:
- Could you tell me how you are going to take your medicine?
- Praise good medication taking behavior to reinforce adherence

21. Provide your telephone number and encourage to contact you, if the need arises

Minimum dispensing guide/resources needed

    a.   Distribute for participants these at least in soft copy: - STG, EMF, dispensing manual, etc.

    b.   Emphatically speak that drug information is vast for which one cannot memorize all needed information but has to always use guides, information resources, checklists, guidelines, etc.

    c.   Explain briefly on the list of resources needed for routine dispensing depending on the level of the facility

    d.   Underline the fact that using information resources can contribute to safer and better patient services and increment of professional image. It is also a means of learning oneself continuously.

    e.   Encourage them to keep copies of those resources in the dispensary and properly use them at each moment of dispensing and counseling as appropriate and as needed.

    f.   Ask participants to tell you 1st line and alternative agents for atypical pneumonia, community acquired pneumonia and PF malaria in a mother with pregnancy in first trimester by checking resources.

11.4. Wordings used for cautionary/advisory labels when counseling and labeling

When advising the patients using the counseling checklist mentioned above, care need to be exercised regarding the content of wordings used with patients? For example, to advice patients about the need to take on an empty stomach for a better absorption, the better term to use is "take 2 hours after or before meal" than say "take in an empty stomach" because patients may assume, for example, "30 minutes before meal" as an empty stomach which is not the case physiologically. Therefore, it is advisable to use underlined standardized wordings for advisory/cautionary labels when counseling patients or give them written instructions. The cautionary/advisory labels can be of 2 types depending if they are drug specific or common for most medicines/dosage forms. See the examples below for details.

- Examples of advisory/cautionary labels common to most medicines/dosage forms

1. *'Shake the bottle',*

2. *Use freshly boiled and cooled water*

3. *'For external use only',*

4. *'Discard days after opening' (applied to eye preparations dispensed in multiple dose containers)*

5. 'Do not use after' (apply particularly   to antibiotic mixtures, diluted liquid   and topical preparations, and to eye-drops)

6. 'Keep out of the reach and sight of children'

7. "Stains cloths or the skin"

8. "Take the tablets with water or other liquid"

9. "Do not share with any other person"

10. Do not take more/ less than recommended

11. "Do not use medicines not given you by an authorized health professional

12. "Do not transfer into another container"

13. Store tightly closed in a cool and dark place 'Store in a cool place',

14. "Do not use medications which have become damaged or shown signs of damage or expiration"

15. inform the provider medications you bought from pharmacy by yourself or another doctor has prescribed you or you completed before sometimes"

- Examples of advisory/cautionary labels specific to a drug or its family /dosage form

1. Take this medicine with _____ hrs. gap separated from other medicines

2. Take this medicine with _____ hrs. gap separated from milk.

3. Take with or after food

4. Take   half to one hour before food.

5.   Take 2 hours before or after food or on an empty stomach

6. To be   sucked

7. To be   chewed

8.   Swallowed whole, not chewed

9. Dissolved under the tongue

10. With plenty of water

11. Do not take more than 2 at any one time. Do not take more than 8 in 24 hours

12. Do not take more than . . . in 24 hours

13. Do not take more than . . . in 24 hours or . . . in any one week

14. This medicine may color the urine

15. Dissolve or mix with water before taking

16. Avoid exposure of skin to direct sunlight or sun lamps

17. *Take at regular intervals. Complete the prescribed course unless otherwise directed.*

18. *Warning. Avoid alcoholic drink*

19. *Warning. May cause drowsiness. If affected do not drive or operate machinery. Avoid alcoholic drink.*

11.5. Counseling Points for Selected Dosage Forms

There are multitudes of factors affecting counseling. Age, background of the patient, literacy level and the like are to be mentioned. Another important factor that can influence the medicine use counseling use we provide is the type of dosage form. Just because of the type of dosage form, not necessarily because of the active ingredient, some dosage forms require specialized counseling. Some of the commonest are listed below: -

A. Tips for Proper Dispensing of Pediatric Powder for Suspension for Oral Use

1. Use freshly boiled and cooled water (FBC)
2. Add the FBC gently bit by bit shaking each time after each bit and finally exactly to the mark on the bottle
3. FBC is added only once to each bottle
4. Do not add water (FBC) to all bottle sat the same time, meaning this has
5. to be only after the first reconstituted bottle is completed
6. Shake each time before use
7. Use only volume measuring device recommended by the dispenser to dispense the accurate dose
8. "Do not use after recommended days of each product!"
9. Provide the general warnings and find recommended warning label wordings that apply to a specific drug
10. Praise your child for becoming willing to take the dose and the fact syrups are not candies but harmful medications if taken inappropriately

B. Counseling Points for Administration of Eye Drops

1. Wash your hands.

    ▪ Emphatically advice the need for thorough hand washing before application and importance of eye hygiene in prevention of contamination of there maining doses and avoidance of re-infection and relapse of the problem

2. Open the closure. Do not touch the dropper opening.

3. Look upward.
4. Pull the lower eyelid down to make a 'gutter'.
5. Bring the dropper as close to the `gutter' as possible without touching it or the eye.
6. Apply the prescribed number of drops in the 'gutter'.

   ▪ Be vigilant on the issue of systemic side effects after application into the eye Educating the patient on the needs to close the tubes immediately after each use

7. Close the eye for about two minutes. Do not shut the eye too tight; excess fluid can be removed with a tissue.

8. Eye-drops may cause a burning feeling but this should not last for more than a few minutes. If it does last longer consult a doctor or dispenser.

9. If more than one kind of eye-drop is used wait at least five minutes before applying the next drops.

10. When giving eye-drops to children:

    ▪ Let the child lie back with head straight.
    ▪ The child's eyes should be closed.
    ▪ Drip the amount of drops prescribed into the corner of the eye.
    ▪ Keep the head straight.

Important!

• Identify the type of eye preparation (lotion, solution, ointment, etc.)

• Eye drops are generally instilled into the pocket formed by gently pulling down the lower eyelid and keeping the eye closed for as long as possible after application;

• One drop is all that is needed. A small amount of eye ointment is applied similarly; the ointment melts rapidly and blinking helps to spread it.

• When two different eye-drop preparations are used at the same time of day, dilution and overflow may occur when one immediately follows the other. The patient should therefore leave an interval of at least 5 minutes between the two.

C. **Counseling Points for Administration of Eye ointment**

1. Wash your hands.

2. Tilt the head backwards a little.

3. Take the tube in one hand, and pull down the lower eye lid with the other hand, to make a 'gutter'. Do not touch anything with the tip of the tube.

4. Bring the tip of the tube as close to the 'gutter 'as possible.

5. Apply the amount of ointment prescribed.

6. Close the eye for two minutes.

7. Remove excess ointment with a tissue.

8. Clean the tip of the tube and close it.

D. Counseling Points for Administration of Eardrops

1. Warm the ear-drops by keeping them in the hand or the armpit for several minutes. Do not use hot water tap, no temperature control!

2. Tilt head sideways or lie on one side with the ear upward.

3. Gently pull the lobe to expose the ear canal.

4. Apply the number of drops prescribed.

5. Wait five minutes before turning to the other ear.

6. Use cotton wool to close the ear canal after applying the drops ONLY if the manufacturer explicitly recommends this.

7. Ear-drops should not burn or sting longer than a few minutes. If it does last longer consult a doctor or dispenser.

E. Counseling Points for Administration of Nasal drops

1. Blow the nose.

2. Sit down and tilt head backward strongly or lie down with a pillow under the shoulders; keep head straight.

3. Insert the dropper one centimeter into the nostril.

4. Apply the number of drops prescribed.

5. Immediately afterward tilt head forward strongly (head between knees).

6. Sit up after a few seconds; the drops will then drip into the pharynx.

7. Repeat the procedure for the other nostril, if necessary.

8. Rinse the dropper with boiled water.

F. Counseling Points for Administration of Nasal spray

1. Blow the nose.

2. Sit with the head slightly tilted forward.

3. Shake the spray.

4. Insert the tip in one nostril.

5. Close the other nostril and mouth.

6. Spray by squeezing the vial (flask, container) and sniff slowly.

7. Remove the tip from the nose and bend the head forward strongly

8. Sit up after a few seconds; the spray will drip down the pharynx.

9. Breathe through the mouth.

10. Repeat the procedure for the other nostril, if necessary.

11. Rinse the tip with boiled water.

G. Counseling Points for Administration of Aerosol

1. Cough up as much sputum as possible.

2. Shake the aerosol before use.

3. Hold the aerosol as indicated in the manufacturer's instructions (this is usually upside down).

4. Place the lips tightly around the mouthpiece.

5. Tilt the head backward slightly.

6. Breathe out slowly, emptying the lungs of as much air as possible.

7. Breathe in deeply and activate the aerosol, keeping the tongue down.

8. Hold the breath for ten to fifteen seconds.

9. Breathe out through the nose.

10. Rinse the mouth with warm water.

H. Counseling Points for Administration of Suppositories

1. Defecate and wash your hands.

2. Remove the covering (unless too soft).

3. If the suppository is too soft let it harden first by cooling it (fridge or hold under cold running water, still packed!) then remove covering.

4. Remove possible sharp rims by warming in the hand.

5. Moisten the suppository with cold water.

6. Lie on your side and pull up your knees.

7. Gently insert the suppository, rounded end first, into the back passage.

8. Remain lying down for several minutes.

9. Wash your hands.

10. Try not to have a bowel movement during the first hour.

I. Counseling Points for Administration of Vaginal tablet with Applicator

1. Wash your hands.
2. Remove the wrapper from the tablet.
3. Place the tablet into the open end of the applicator.
4. Lie on your back, draw your knees up a little and spread them apart.
5. Gently insert the applicator with the tablet into the vagina far as possible, do NOT use force!
6. Depress the plunger so that the tablet is released.
7. Withdraw the applicator.
8. Discard the applicator (if disposable).
9. Clean both parts of the applicator thoroughly with soap and boiled, lukewarm water (if not disposable).
10. Wash your hands.

J. For vaginal tablets without applicator

1. Wash your hands.
2. Remove the wrapper from the tablet.
3. Dip the tablet in lukewarm water just to moisten it.
4. Lie on your back, draw your knees up and spread them apart.
5. Gently insert the tablet into the vagina as high as possible, do NOT use force!
6. Wash your hands.

K. Counseling Points for Applying vaginal creams ointments and gels
   (Most of these drugs come with an applicator)

1. Wash your hands.
2. Remove the cap from the tube containing the drug.
3. Screw the applicator to the tube.
4. Squeeze the tube until the required amount is in the applicator.
5. Remove the applicator from the tube (hold the cylinder).
6. Apply a small amount of cream to the outside of the applicator.
7. Lie on your back, draw your knees up and spread them apart.
8. Gently insert the applicator in to the vagina as far as possible, do not use force.
9. Hold the cylinder and with the other hand insert the drug into the vagina.
10. Withdraw the applicator from the vagina.

11. Discard the applicator if disposable or clean thoroughly (boiled water) if not.

12. Wash your hands.

Step 6: Filing the prescription and transaction documents

Each prescription (signed by evaluator and counselor), sales tickets and registers should be filed. All registers and prescriptions, patient and medication related records should be documented and kept in a secured place that is accessible only to authorized personnel. Filing will include:

- The receipts for requisition, receiving and prescription movement control should be kept properly.
- Blank prescription should be kept carefully. Only permitted individuals have access to them.
- At the close of each day all dispensed prescriptions should be organized into normal or special prescriptions (e.g. Narcotic drugs) and filed separately.
- Prescriptions should be filed sequentially by date in a single container/carton for each month. The container should be labeled with the month and year.
- Containers should be arranged on a monthly basis.
- Normal prescriptions should be filed securely for two years and special prescriptions for five years. Thereafter, they should be disposed carefully in the presence of appropriate body.
- Free and credit registers should be filed for at least two years:

Chapter Summary

Good dispensing practice is a key step in the medicine use process to ensure the rational use of medicines thereby contributing to better health outcomes.

Good dispensing process include the following six steps:

Step 1: Receiving, validation, interpretation and evaluation of a prescription

Step 2: Billing and recording transactions

Step 3: Selection, manipulation or compounding of the medicine

Step 4: Packaging and labeling of the medicine

Step 5: Provision of medicines to the patient with counseling

Step 6: Filing the prescription and transaction documents

It is critical that the pharmacy professional follow this step when dispensing medicines to all types of patients as appropriateness of therapy by evaluating prescription. Finally, counsel patients on the rational use of dispersed medicines.

Chapter 12: Pharmaceutical Stock and Consumption Analysis Methods

Chapter Description

This chapter describes pharmaceutical stock and consumption analyses methods. It will provide a brief review of stock turnover ratio (STR), stock consumption ratio (SCR), and stock status analysis (SSA). It is also called stock analysis methods of APTS. It assists participants to practice the necessary steps to conduct each of these analysis methods.

Primary Objective:

By the end of this, chapter participants will be able to, practice pharmaceutical stock and consumption analysis for informed decisions making.

Enabling Objectives:

By the end of this chapter, participants will be able to:

- Describe stock and consumption analysis methods
- Conduct Stock Turnover Ratio (STR),
- Perform Stock Consumption Ratio (SCR)
- Apply Stock Status Analysis (SSA)

Chapter Outline: -

- Introduction
- Stock Turnover Ratio (STR)
- Consumption to Stock Ratio (CSR)
- Stock Status Analysis (SSA)
- Summary

12.1. Introduction

> **Individual reflection - Give 2 minutes**
> What do you understand about pharmaceutical stock and consumption analysis?
> What are your experiences about such analysis
> **Reflection**: Individual reflection

Pharmaceutical stocks at the facility should be analyzed periodically to see whether the stock is being sold or consumed at the expected levels. The results of the analyses help relevant professionals at health facilities to take appropriate action on current stocks of medicines or on future procurements. The stock is analyzed in terms of cost or volume of medicines sold/consumed during the specific time-period using the following analysis methods:

- Stock turnover ratio (STR)
- Stock consumption ratio (SCR)
- Stock status analysis (SSA)

STR and SCR use aggregate data and are used as some general consumption indicators whereas SSA indicates the movement of a specific product.

12.2. Stock Turnover Ratio (STR)

Stock turnover ratio or inventory turnover ratio is a relationship between the cost of medicines sold during a period and the cost of average inventory during that period. It is also called inventory turnover ratio. It indicates the number of time the stock has been turned over during the period and evaluates the efficiency with which the health facility can manage its stock of medicines. STR measures the rate of conversion of stock into sales (cash, credit, sales). In other words, it measures the number of times stock is sold or used during a specified time. It indicates profitability of the business.

It is calculated as:

$$STR = \frac{\text{The cost of medicines dispensed or sold during the month}}{\text{Average inventory at cost during the month}}$$

$$\text{Average Inventory} = \frac{\text{Beginning Inventory} + \text{Ending Inventory}}{2}$$

Ending Inventory = (Beginning stock + Stock received during the month)-Stock sold or dispensed + wasted during the month

A low STR indicates an inefficient management of stock. A low STR implies: over investment in medicines stock, stock accumulation, accumulation of obsolete and slow-moving medicines and low profit as compared to total investment.

Note: STR is used when there is continuous supply and not for being closing organizations

12.3. Consumption to Stock Ratio (CSR)

Consumption to stock ratio indicates the value of pharmaceuticals sold against the stock available for sale. In other words, it is an indicator of the stock at hand versus stock sold during the period. It simply measures the amount of dispensed medicines in relation to the stock available for sale during the period. However, it doesn't indicate that whether the stock movement is profitable or not.

It is calculated as:

CSR= Total cost of stock sold during the month X 100

                Stock availed for sale

Stock available for sale=beginning + received during the month

Example: If CSR is 25 percent in a certain period, it indicates that the pharmacy dispensed a quarter of the stock available for sale during the period. The pharmacy remains with 3/4th of the stock available for sale.

The information from CSR is used to show the stock movement is within the period of refill.

Note: Both stock turnover ratio and consumption to stock ratio analysis can be generated automatically from the APTS monthly report while we use excel sheet or other modern software.

12.4. Stock Status Analysis (SSA)

Stock status analysis is a method used to analyze the consumption pattern of a product in the past and predict utilization of available stock. It identifies whether products are fast moving, slow moving, or non-moving. This information in APTS principle is used to get readiness, take action before pharmaceuticals are near expiry, expired or stocked out ahead of time. The principle doesn't necessarily need near expiry products for analysis. The principles advise to do analysis both for short expiry and long expiry products. Any product with long expiry can also be found

overstock but would be easier to take actions like to transfer and use somewhere else. The analysis allows evidence based decision making on utilization of current stock and future procurements. This process enables the health facility to minimize wastages and ensure effective and efficient utilization of budget and continuous availability of essential medicines. The main purpose of assessing stock status is to determine how long the pharmaceuticals we have on hand will last and how much of it can be used.

To conduct effective stock status analysis, pharmacy personnel in charge should understand the concept of maximum stock level, reorder level, minimum stock level, lead time, average monthly consumption, and safety stock (emergency order level) and morbidity data. For details on these data elements, refer to refer to SOP manual for IPLS, Managing Drug Supply (MSH/WHO-2012) and logistics handbook.

Stock status analysis can be performed by the pharmaceuticals supply management officer or chief pharmacist of the health facility as follows:

Step1: Identify medicines that are candidates for the stock status analysis (SSA).

- By conducting ABC/VEN analysis identify:
    - Those that fall in A category in the ABC analysis
    - Those that are non-essential and fall in A category in ABC/VEN reconciliation
- Medicines with near expiry regardless of its category
- Form stock turn over analysis, if the turnover is very slow, those products with highest cost or bulk volume
- During a quarterly physical inventory, if a product is found to have very high total cost or those with the highest volume
- Use expert opinion specially store managers and bin managers
- From software that are reported as over stock

Step 2: Calculate average monthly consumption of all medicines subjected to SSA. Average monthly consumption (AMC) is calculated as:

$$AMC = \frac{Consumption\ of\ a\ Recent\ Quarter}{3 - Days\ out\ of\ stock\ (in\ months)}$$

Step 3: Calculate the months of stock for these medicines. Month of stock is the number of months that can be covered by the stock at hand and add stock on order provided that the consumption pattern remains constant.

$$\text{Months of stock} = \frac{\text{Total stock on hand} *}{\text{Average monthly consumption}}$$

* Note: If another stock is being coming but not yet arrived at the facility, it is suggested to be included in the numerator of the above equation.

Additionally, for medicines used for seasonal diseases such as malaria, it is advisable to take consumption data of the season in preceding years.

In situations where the monthly consumption is increasing with time, use last month's consumption instead of average monthly consumption as a denominator to calculate months of stock. This calculation is valid only when the remaining shelf life of the product is greater than the months of stock.

Step 4: Calculate the amount of stock that can be consumed before the product expires. This is calculated by multiplying the average monthly consumption with the remaining shelf life in months.

Step 5: Calculate the presence of over stock of a product. Over stock is calculated by subtracting the amount of stock that could be consumed until expiry from the total stock.

Step 6: Calculate the additional stock needed to reach the maximum stock (i.e. for the 4 months). This is calculated as:

Additional stock needed to reach to the maximum = AMC x (4 - Months of usable stock).

If the result is negative, it indicates the presence of over 4 months of stock

Step 7: Covert the additional months of stock in months; This is calculated as: -

$$\text{Additional months of stock to reach max} = \frac{\text{Additional stock needed to reach max}}{\text{Average monthly consumption}}$$

If the result is negative, the interpretation is the same as above.

Step 8: Take measures based on the findings. That is, if under stock, immediately refill the product

However, if over stock: -

- Present to the management for decision making
- Discuss with prescribers to identify any opportunity to use the medicines
- Reverse to the suppliers if possible
- Sell, transferor donate to other health facilities

Chapter Summary

To ensure continuous availability of medicines and effectively manage pharmaceutical budgets, health facilities need to carryout pharmaceutical stock and consumption analysis for informed decisions making namely: - stock turnover ratio, consumption to stock ratio, and stock status analyses. The first two (STR and CSR) are using aggregate data of various products since they are general indicators. These two indicators can be automatically produced from APTS monthly reports; whereas the last – stock status analysis uses individual product data and is a specific indicator

Chapter 13   VEN and ABC Analysis, and ABC-VEN Reconciliation

Chapter Description

This chapter has three sessions that deal about important analysis methods used to optimize medicine budget utilization. The first session discusses about VEN analysis that prioritizes medicines based on their clinical importance. The second session is on ABC analysis that focuses on pharmaceutical cost analysis. The third session addresses reconciling ABC and VEN analyses and how to interpret findings of these analyses. This exercise provides crucial information on the appropriateness of the expenditure on medicines in relation to healthcare needs of the population.

Primary Objective:

At the end of this chapter participants will be able to prioritize and select medicines that address predominant health problems of the population based on ABC and VEN Analysis.

Enabling Objectives:

At the end of this session, participants will be able to:

- Practice how medicines are prioritizing into Vital, Essential and Non-essential
- Classify medicines by using ABC analysis methodologies
- Reconcile the ABC/VEN analysis
- Use the analysis for procurement

Chapter Outline: -

- Introduction
- VEN Analysis
- ABC Analysis
- ABC/VEN Reconciliation
- Interpretation of Findings
- Summary

13.1. Introduction

VEN analysis is a method that is used to classify medicines into Vital (V), essential (E) or nonessential/less essential (N) per their clinical importance. Medicines can be categorized in to VEN according the catchment areas or disease morbidity.

ABC analysis is a method for determining and comparing pharmaceutical costs within a health facility. It follows the Pareto principle "separating the vital few from the trivial many" in terms of budget consumption.

ABC-VEN Reconciliation involves categorizing the class of medicines generated from ABC analysis by VEN to identify if there is relatively high expenditure on low priority medicines (N category items in Class "A").

13.2. VEN Analysis

VEN analysis is a method that is used to classify medicines into Vital (V), essential (E) or nonessential/less essential (N) per their clinical importance. It is important that the health facility DTC should classify the pharmaceuticals list by VEN. This categorization should guide the forecasting, procurement, and inventory management decisions of the health facility. Medicines can be categorized in to VEN according the catchment areas or disease morbidity. Vital medicines are critically needed for the health facility to save lives.

The criteria for prioritization of medicines into VEN are as follows:

Vital (V)

Vital medicines are very essential medicines that fulfil one or more of the following criteria:

- Potentially life-saving,
    - without which it is impossible to save patient's life, and
    - patient may die or may be harmed or disabled due to lack of these medicines
- Crucial to provide basic health services, without which it is **impossible** to deliver the basic services in the specific catchment area (in its absence service may be discontinued).

- It is mandatory for these medicines to be available 24 hours of a day, 7 days of a week, and 12 months of a year.

Essential (E)

Essential medicines are those that fulfil one or more of the following criteria:

- Effective against less severe but significant illnesses (it is between vital and less essential)

- Important to provide basic health services without which patients can face difficulty

- May be somehow substituted

- Essential to the service without which it is difficult to provide health service

- It is mandatory at least once a day, or at least once in a week, or at least once in a month or once in a quarter of the year, but not as highly mandatory as vitals.

Nonessential (N)

Non-essential medicines are less essential medicines that are:

- Effective for minor illnesses and have low therapeutic advantage

- Important to patients; however, patients will not die due to the absence of such medicines

- Necessary to give the health service; however, health service delivery will not be discontinued in the absence of these medicines

Note: *Assignment to the non-essential/less essential category does not mean that the medicine is no longer on the health facility's medicine list. But low priority*

During medicines procurement, priority should be given for vital and essential medicines. In situations of budget limitation, less-essential medicines are the first to be adjusted in reconciling requirements with the budget/fund the following table presents various patient and medicine-related criteria used to classify medicines by VEN.

13.2.1. Criteria for VEN Analysis

Characteristic of Drug or Target Condition	(V) Vital, Crucial	(E) Essential	(N) Non-Essential or Less Essential
Persons affected (% of population) in case of drugs used for disease of infrequent prevalence but may cause severe infections	Over 5%	1-5%	Less than 1%
Persons treated (number of patients per year at an average level of health facility) in case of drugs used for disease of infrequent prevalence but may cause severe infections	Over 5%	1-5%	Less than 1%
Severity of the disease condition			

Life-threatening condition and or disability may be occurred in the absence of the item	Yes	Occasionally	Rarely
Difficult to treat the disease condition in the absence of the item; however, can be tackled by a substitute	Rarely	Yes	Rarely
Therapeutic significance			
Effective against less severe but significant illness	Rarely	Yes	Rarely
Treats minor, self-limited Symptoms and conditions	No	Possibly	Yes
Crucial to the service			
Health service will be discontinued in the absence of the item	Yes	Rarely	Not at all

13.2.2. Steps in VEN Analysis

For the VEN analysis to takes place, facility specific medicines list should be available and the categorization should be done by the health facility's Drug and Therapeutics Committee (DTC) as part of the medicines list preparation process. Each medicine, medical supplies, laboratory chemicals and reagents included in the list should then be categorized as V, E or N by the DTC.

Summary of steps in VEN Analysis

1. The DTC should agree on the criteria for VEN categorization
2. Each DTC member should classify all the medicines as V, E, or N
3. The results of each member's classification should be compiled and an overall classification agreed in the DTC based on sound clinical evidence

The DTC should then:

4. Identify and limit therapeutic duplication
5. Examine all the N items and where possible decrease the quantities purchased or eliminate them
6. Reconsider proposed purchase quantities, buying V and E items before N items and ensuring that safety stocks are higher for V and E items
7. Monitor drug ordering and stock levels for V and E items more closely than for N items.

Example: Assuming a general hospital, categorize the following pharmaceuticals into V, E or N and indicate the criteria why you put that specific pharmaceutical in that category.

Drugs	VEN	Remark
INH for IPT	V	Lifesaving and crucial to give the service
Vitamin E capsules	N	Not lifesaving and not crucial
Ampicillin 500mg capsules	E	Lifesaving and may not be crucial to deliver the service
Intra ocular lens (IOL) PC/AC	V	Crucial to give the service
Diazepam injection	V	Life saving
Tetracycline capsule	N	Less Essential
Praziquantel	??	?? Bahirdar , Addis Ababa
Diethylcarbamazine	?	Arbaminch , Ras Dashen
Pentamidine	?	Humera ? Addis Ababa

13.3. ABC Analysis

ABC analysis is a method for determining and comparing pharmaceutical costs within a health facility. It follows the Pareto principle *"separating the vital few from the trivial many"* in terms of budget consumption/allocation. ABC Analysis can be explained in terms of budget consumed and number of medicines in the budget list as follows:

Category	Percentage of Budget	Percentage of Drugs Orders
"A" Drugs	70-80%	10-20%
"B" Drugs	15-20%	10-20%
"C" Drugs	5-10%	60-80%

"A" medicines:

- High percentage of funds spent on large-volume or high-cost items
- Greatest potential for savings
- Greatest potential for identifying expensive medicines that are overused

"B" medicines:

- Moderate cost and moderate number of items; important items

"C" medicines:

- Small amount of funds spent on most of the inventory

13.3.1. Steps for Conducting ABC Analysis

Note the following points before conducting ABC value analysis.

- Exclude medicines received by donations and capital goods like medical equipment from ABC analysis.
- If a single medicine is supplied both by donation and purchase in a particular year and the donation is not continuous, then this donation may have impact on medicines budget allocation by the facility. In this case, donated medicines have to be accounted together with purchased medicines during ABC analysis.
- ABC analysis can be conducted separately for donated medicines, if necessary.
- Received data for ABC analysis can be obtained from receiving/ bin card if it has cost/stock cards, or databases (if available)
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A	B	C	D	E	F	G	H	G
Ser N	Item	Unit	Quantit	Unit cost	Total cost	Receiving Date	Source	Gi
1	Acyclovir 200mg of 10	pk	50	6.71	335.50	28/10/2002	PFSA	4
2	Acyclovir 200mg of 10	pk	50	5.70	285.00	30/10/2002	PFSA	4
3	Acyclovir eye oint 4.5gm	tube	95	6.12	581.40	14/12/2001	PFSA	5
4	Acydovir 200mg/ml	bottle	200	49.76	9,952.00	20/5/2002	PFSA	
5	Adhensiv plaster 5cm x10	roll	59	38.57	2,275.63	25/3/2002	PFSA	5
6	Adhensiv plaster 5cm x10yd	roll	59	38.57	2,275.63	18/3/2002	PFSA	
7	Adhesive Tape 50m*10	Roll	108	38.57	4,165.56	29/9/2002	PFSA	
8	Adhessive plaster 7 1/2 *10CM	Roll	96	16.55	1,588.80	22/5/2002	PFSA	4
9	Adhessive plaster 7 1/2 *10CM	Roll	100	15.50	1,550.00	2002	PFSA	4
10	Aluminium hydroxide+ Magnesium Hydroxide susp	BOTTLE	230	12.63	2,904.90	28/10/2002	PFSA	4
11	Aluminium Hydroxide +Magnesium bicilicate 100*10	BOX	20	70.47	1,409.40	02/9/2002	PFSA	

- Note: Consumption data for ABC analysis can be obtained from issuing vouchers, bin/stock cards, and databases (if available) and can be used for forecasting purpose specially to see prescribing pattern. But this analysis does not show budget consumption.

- When performing ABC value analysis for the first time, it is advisable to analyze three years' data from receiving voucher. For the subsequent years, the facility should conduct ABC value analysis on annual basis. Then, the health facility must conduct trend analysis of the present year by including the analysis done during the previous two years.

- The necessary data for ABC analysis should be recorded and analyzed using Excel sheet.

- While conducting ABC Analysis, follow the steps below:

Step 1: List all items purchased/consumed during the year and their respective units on Excel sheet using the template shown under Step 3.

    Note: when record the list, agree to consistently use same name (generic name or common name) for each product (with correct spelling) throughout the record. E.g. Disposable glove vs examination glove; cotrimoxazole vs Sulfamethoxazole + Trimethoprim, etc. and record the brand (if there) in bracket as per the record in the receiving voucher.…

Step 2: Write the total quantity and unit cost of each item purchased or received, and the receiving date, receiving voucher number and expiry date.

Step 3: Check the calculation and or calculate the total cost of each item purchased or received by multiplying the total quantity by the unit cost. See the data collection tool below

This is the formula to calculate the total cost of each item. Once you calculate for the first item, then the rest can be filled by dragging down the "+" sign that appears when you click at the first cell and move the cursor to the right bottom corner of the cell.

Note: This data source, which is received items with costs (from model 19) is designed to be used for ABC analysis for APTS concepts only. That is to evaluate efficient budget utilization. However, if one wants to use the ABC analysis information for quantification for example; the records of dispensed items will be better data source than received items. The reason is, all received items may not be utilized, rather may be expired or transferred; So, to use such data for quantification may lead to repeat the same mistake of the previous year. However, to check efficient budget utilization, model 19/health is the best source. That is why this data have been used since the year 2009 GC when ABC analysis was conducted at ALERT hospital for the first time in this country. For supplier organization like PFSA, the data source for ABC analysis can be model 19 to get budget utilization, or ending physical inventory (Note: in this case the ABC analysis renamed as XYZ analysis) to decide on the stock at hand.

Step 4: Sort the list alphabetically. Before sorting, make sure that all entries are left aligned in the column. Check whether all medicines are sorted alphabetically.

S/N	Description (Drug name in generic, strength, dosage form, pack size and brand	Unit	Quantity	Unit Cost	Total Cost,
1	Acyclovir 400mg of 25*10	Pack	960	9.72	9,331.20
2	Ceftriaxone injection 1 gm	Vial	20000	4.48	89600.00
3	Norfloxacin 400 mg of 100	Pack	8	45	360.00
4	Prednisolone 5 mg of 1000	Box	1000	125.34	125340.00
5	Surgical glove 7.5 of 50	Box	20	225	4500.00

Step 5: Aggregate same medicines and add their total costs under the total cost column (if purchased more than once). Same medicines are those with the same generic name, strength and dosage form but may have different brands, pack sizes, period of purchases, sources and unit prices using excel sheet. To do so, follow Pivot table or Subtotal calculation steps of spreadsheet.

Note: ABC value analysis can also be performed for therapeutic category. Aggregating drugs by therapeutic category involves aggregating antibiotics, non-steroidal anti-inflammatory drugs, anti-diabetics, antihypertensive etc. as a group and make analysis.

Aggregating same medicines by collecting same items is so cumbersome.

Therefore, using spreadsheet, same medicine aggregation follows the following steps.

Step 5.1.1Pivot table method (option): click "Insert, then Pivot table" see below

Step 5.1.2. Click pivot and say ok.
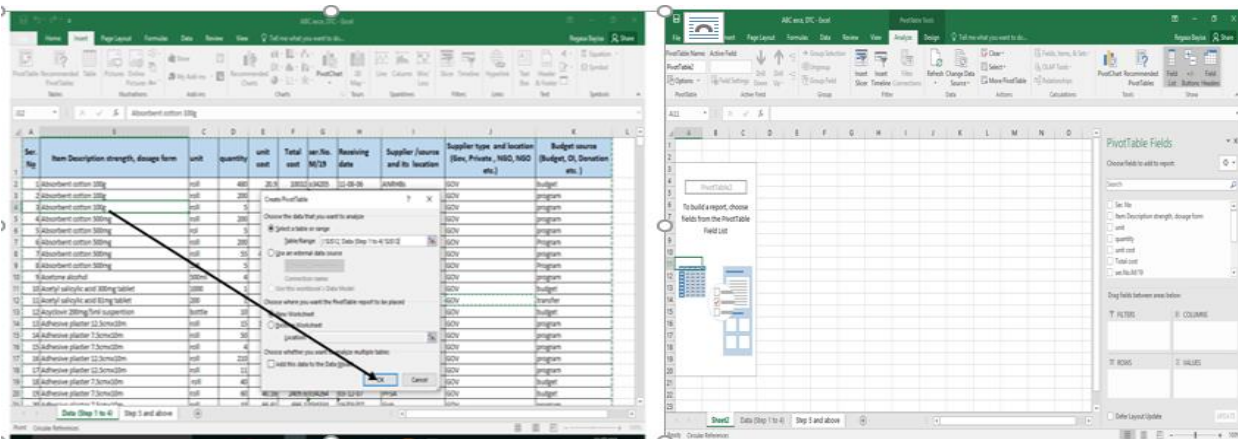
Step 5.1.3. Then select "item description or whatever name you gave for the item list column" and "total cost"; if not automatically inserted, take the item description to row and total value to values by dragging. See below. The advantage of pivot table than other methods is that one can go back and forth to clear the data whenever repeated or unclear data is available. One can exercise this by looking video on line too.

Step 5.1.4. If any reputation is observed, due to either spacing or spelling errors, please go back to the original data and fix the problem. Then click, "Refresh", Repeat this until unique list of pharmaceutical items with it's total cost is achieved.
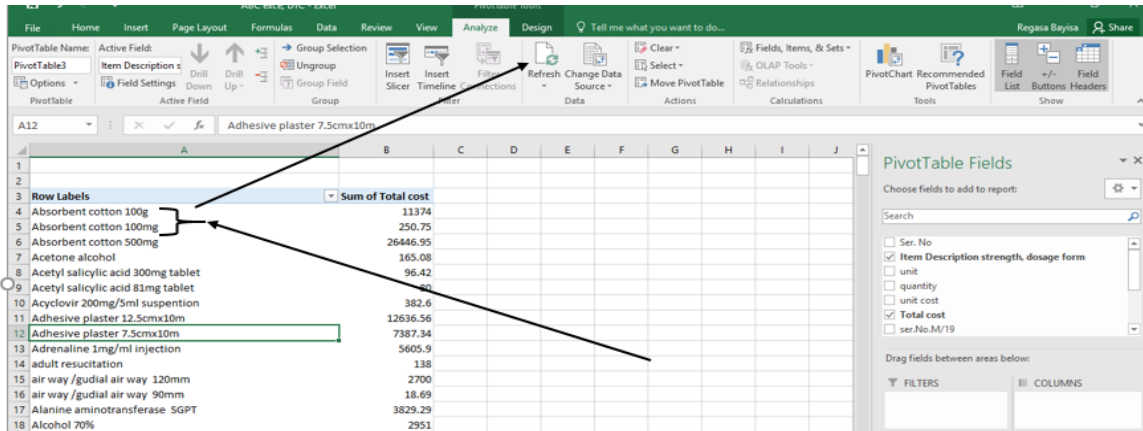
Step 5.1.5. Finally, before moving to next step, 'Copy' and 'Paste' all pivoted unique list data by 'Value' to remove formula.

Step 5.2.1. Subtotal method (option two): Click "Data, then Subtotal"
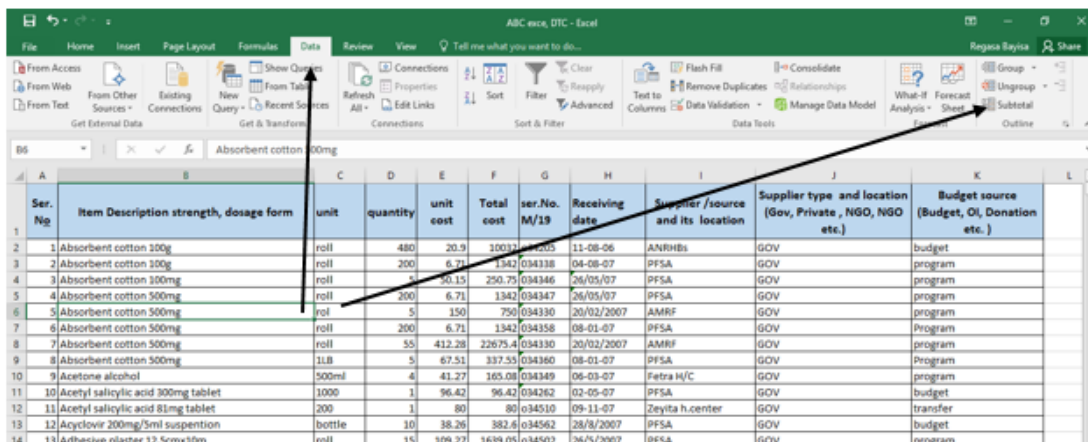
Step 5.2.2. Select item description, sum and total cost from new drop down box. Then click ok. See below
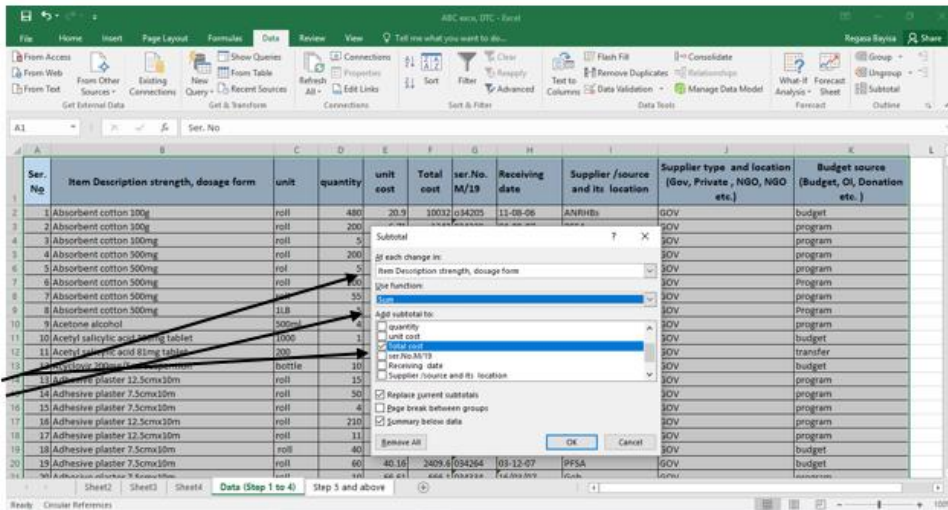
Step 5.2.3. The list of items with subtotal will be visible, and then click number two as below. You will get aggregated subtotal. You will get the following.
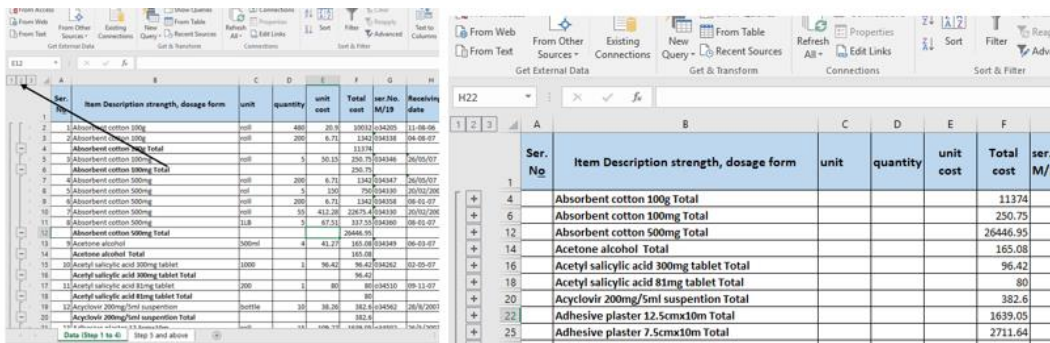
Step 5.2.4; Cleaning. If any reputation is observed, due to either spacing or spelling errors, please go back to the original data (number 3) and fix the problem. Then click subtotal again, repeat this until unique list of pharmaceutical items with it's total cost is achieved.
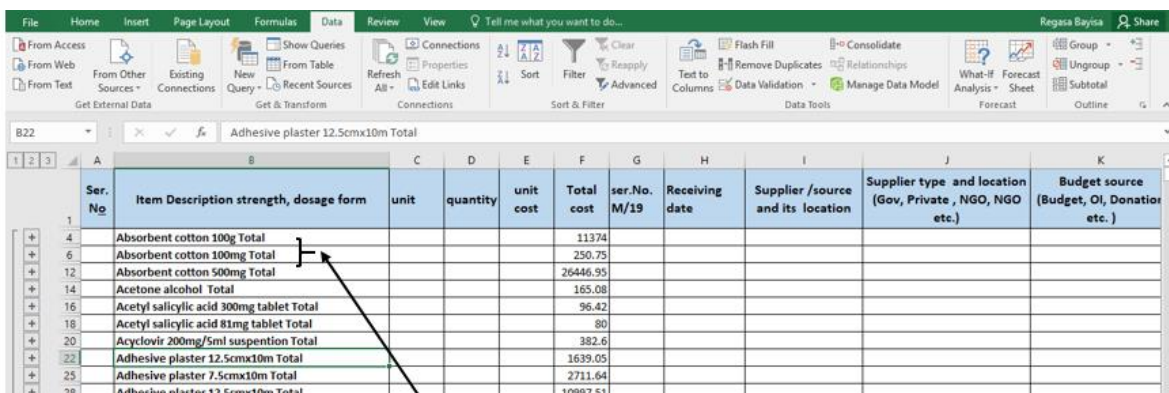
Step 5.2.5. Copy and paste the final unique list by value to remove the formula on the side of the excel sheet. Remove the word total from the item list by find and replace with

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noting. Note: check if an item is there with the name total like bilirubin total and adjust accordingly.

Step 6: Sort the list by 'Total Cost' in a descending order so that the largest cost or value item will be on the top and the lowest at the bottom.

S/N	Description (Drug name in generic, strength, dosage form, pack size and brand	Unit	Quantity	Unit Cost	Total Cost,
4	Prednisolone 5 mg of 1000	Box	1000	125.34	125,340.00
2	Ceftriaxone injection 1 gm	Vial	20000	4.48	89,600.00
1	Acyclovir 400mg of 25*10	Pack	960	9.72	9,331.20
5	Surgical glove 7.5 of 50	Box	20	225	4500.00
3	Norfloxacin 400 mg of 100	Pack	8	45	360.00

While sorting, each item is rearranged along with all the data in that raw. That is why all the data including the S/N are rearranged following the item.

Step 7: Calculate the overall cost of all items purchased or consumed by adding the total cost of the products.

	F9		f_x	=SUM(F4:F8)		
A	B		C	D	E	F
S/N	Description (Drug name in generic, strength, dosage form, pack size)		Unit	Quantity	Unit Cost	Total Cost
3	Prednisolone 5 mg of 1000		Box	1000	125.34	125,340.00
2	Ceftriaxone injection 1 gm		vial	20000	4.48	89,600.00
1	Acyclovir 400mg of 25*10		Pack	960	9.72	9,331.20
5	Surgical glove 7.5 of 50		Box	20	225	4,500.00
4	Norfloxacine 400 mg of 100		Pack	8	45	360.00
		Total				229,131.20

This is the formula to calculate the overall total cost of all the items.

Step 8: Calculate percent total cost of each item by dividing the total cost of each item by the overall cost of all items and multiplying the result by 100.

G4					f_x	=F4/$F$9*100	
A	B		C	D	E	F	G

S/N	Description (Drug name in generic, strength, dosage form, pack size)	Unit	Quantity	Unit Cost	Total Cost	% Total Cost
3	Prednisolone 5 mg of 1000	Box	1000	125.34	125,340.00	54.7
2	Ceftriaxone injection 1 gm	vial	20000	4.48	89,600.00	39.1
1	Acyclovir 400mg of 25*10	Pack	960	9.72	9,331.20	4.1
5	Surgical glove 7.5 of 50	Box	20	225	4,500.00	2.0
4	Norfloxacine 400 mg of 100	Pack	8	45	360.00	0.2
	Total				229,131.20	

This is the formula to calculate the % total cost for each item. Once you calculate for the first item, then the rest can be filled by dragging down the "+" sign that appears when you click at the first cell and move the cursor to the right bottom corner of the cell.

Step 9: Calculate the cumulative percent total cost of each medicine. In completing the cumulative percentage, take the first entry (medicine with the largest percentage value) as it is and add the percentage of the second entry to the percentage of the first entry to get the cumulative percentage of the second entry and continue doing the same for the rest. Make sure that the cumulative percentage of the last entry is 100%.

H5				f_x	=H4+G5			
A	B		C	D	E	F	G	H

S/N	Description (Drug name in generic, strength, dosage form, pack size)	Unit	Quantity	Unit Cost	Total Cost	% Total Cost	Cumulative % Total cost
3	Prednisolone 5 mg of 1000	Box	1000	125.34	125,340.00	54.7	54.7
2	Ceftriaxone injection 1 gm	vial	20000	4.48	89,600.00	39.1	93.8

This is the formula to calculate the cumulative % total cost. The cumulative % total cost is equal to the % total cost for the first item. Then, cumulative % of successive items is determined by

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adding up % total costs of all the previous item(s) to each item in a row. Click on the second cell and do the same as you did above to fill the rest of the cells along the column.

Step 10: Calculate percent order by dividing the number of items for each row by the total number of items.

fx =B4/$B$8*100

S/N	Description (Drug name in generic, strength, dosage form, pack size)	Unit	Quantity	Unit Cost	Total Cost	% Total Cost	Cumulative % Total cost	% order
1	Prednisolone 5 mg of 1000	Box	1000	125.34	125,340.00	54.7	54.7	20
2	Ceftriaxone injection 1 gm	vial	20000	4.48	89,600.00	39.1	93.8	40
3	Acyclovir 400mg of 25*10	Pack	960	9.72	9,331.20	4.1	97.9	60
4	Surgical glove 7.5 of 50	Box	20	225	4,500.00	2.0	99.8	80
5	Norfloxacine 400 mg of 100	Pack	8	45	360.00	0.2	100.0	100
	Total				229,131.20			

Formula to calculate % order by dividing the item number by the total number of items and then multiplying by 100. Once you do for the first item, the rest can be filled using the technique you used in the previous steps.

Step 11: Determine the cut-off points for A, B and C classes based on the cumulative % total cost and % order and categorize the list of items accordingly. The cut-off point should be determined in such a way that both the cumulative percent and % order ranges are taken into consideration and reconciled.

- "A" class – 10 to 20 % of items that takes 70-80% of the overall total cost
- "B" class – 10 to 20 % of items that takes 10-20% of the overall total cost
- "C" class – 60-80% of items that takes 5-10% of the overall total cost

S/N	Description (Drug name in generic, strength, dosage form, pack size)	Unit	Quantity	Unit Cost	Total Cost	% Total Cost	Cumulative % Total cost	% order	ABC Category
1	Prednisolone 5 mg of 1000	Box	1000	125.34	125,340.00	54.7	54.7	20	A
2	Ceftriaxone injection 1 gm	vial	20000	4.48	89,600.00	39.1	93.8	40	B
3	Acyclovir 400mg of 25*10	Pack	960	9.72	9,331.20	4.1	97.9	60	C
4	Surgical glove 7.5 of 50	Box	20	225	4,500.00	2.0	99.8	80	C
5	Norfloxacine 400 mg of 100	Pack	8	45	360.00	0.2	100.0	100	C
	Total				229,131.20				

Step 12: Insert the VEN category of each item and reconcile the results (refer the section on ABC/VEN reconciliation below).

	C	D	E	F	G	H	I	J	K	L
1	Total %	Total Comm. %	Order %	Class	Class comm%	Order	ABC/VEN			
2	9.4776	9.478	0.45	A	9.4776	1	V			
3	7.0704	16.548	0.90	A	16.5480	2	V			
4	6.2486	22.797	1.35	A	22.7966	3	E			
5	5.6341	28.431	1.79	A	28.4307	4	V			
6	4.2333	32.664	2.24	A	32.6640	5	V			
7	3.7382	36.402	2.69	A	36.4023	6	E			
8	3.6933	40.096	3.14	A	40.0955	7	V			
9	3.4432	43.539	3.59	A	43.5387	8	V			
10	3.4329	46.972	4.04	A	46.9716	9	V			
11	2.4951	49.467	4.48	A	49.4667	10	V			
12	2.3176	51.784	4.93	A	51.7843	11	V			
13	1.9756	53.760	5.38	A	53.7600	12	V			
14	1.9179	55.678	5.83	A	55.6778	13	N			
15	1.8292	57.507	6.28	A	57.5071	14	V			
16	1.5699	59.075	6.73	A	59.0750	15	V			

Step 13: Make analysis and classify the percentage of each reconciled ABC/VEN categories as: AV, AE, AN, BV, BE, CN, CA, CE and CN products using concatenate. In the ABC/VEN reconciliation column, write is equal to; =concatenate (Class, VEN). Look below

=concatenate(F2,I2)

C	D	E	F	G	H	I	J	K
Total %	Total Comm. %	Order %	Class	Class comm%	Order	VEN	ABC/VEN	
9.4776	9.478	0.45	A	9.4776	1	V	=concatenate(F2,I2)	
7.0704	16.548	0.90	A	16.5480	2	V		
6.2486	22.797	1.35	A	22.7966	3	E		
5.6341	28.431	1.79	A	28.4307	4	V		
4.2333	32.664	2.24	A	32.6640	5	V		

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The ABC and VEN will be automatically reconciled as below

	C	D	E	F	G	H	I	J	K
	Total %	Total Comm. %	Order %	Class	Class comm%	Order	VEN	ABC/VEN	
2	9.4776	9.478	0.45	A	9.4776	1	V	AV	
3	7.0704	16.548	0.90	A	16.5480	2	V	AV	
4	6.2486	22.797	1.35	A	22.7966	3	E	AE	
5	5.6341	28.431	1.79	A	28.4307	4	V	AV	
6	4.2333	32.664	2.24	A	32.6640	5	V	AV	
7	3.7382	36.402	2.69	A	36.4023	6	E	AE	
8	3.6933	40.096	3.14	A	40.0955	7	V	AV	
9	3.4432	43.539	3.59	A	43.5387	8	V	AV	
10	3.4329	46.972	4.04	A	46.9716	9	V	AV	
11	2.4951	49.467	4.48	A	49.4667	10	V	AV	
12	2.3176	51.784	4.93	A	51.7843	11	V	AV	

Step 14: Calculate and segregated subtotal percentage of AV, AE, AN, BV, BE, CN, CA, CE and CN by value**.** To do so, use either the method applied on step 5.1.1 (pevote table method) or 5.2.1 (subtotal method); first copy and paste by value and then sort all items by ABC/VEN. Then data filter and click sub total, ABC/VEN and, Total%. replace current subtotal and summary below data. Then click ok. See below

When you clic ok, you will get all ABC abd VEN reconilled data (AV, AE, AN, BV, BE, CN, CA, CE and CN) sumuped by total%. Look below

Step: 15; Once you get the % of all ABC /VEN reconcilled, click number 2 as indicated and you will get the below results.

Total cost	Total %	Total Comm. %	Order %	Class	Class comm%	Orde	VEN	ABC/VEN
242,911.97	6.2486	22.797	1.35	A	22.7966	3	E	AE
45,323.50	3.7382	36.402	2.69	A	36.4023	6	E	AE
52,666.50	1.3548	61.965	7.62	A	61.9647	17	E	AE
47,560.00	1.2234	63.188	8.07	A	63.1881	18	E	AE
44,198.90	1.1370	64.325	8.52	A	64.3251	19	E	AE
	13.7020							AE Total
74,557.23	1.9179	55.678	5.83	A	55.6778	13	N	AN
	1.9179							AN Total
368,441.04	9.4776	9.478	0.45	A	9.4776	1	V	AV
274,859.90	7.0704	16.548	0.90	A	16.5480	2	V	AV
219,022.56	5.6341	28.431	1.79	A	28.4307	4	V	AV

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	Total cost	Total %	Total Comm. %	Order %	Class	Class comm%	Orde	VEN
7		13.7020						AE Total
9		1.9179						AN Total
45		64.2329						AV Total
92		13.0407						BE Total
229		7.1065						CN Total
230	3,887,474.09							
231		100.0000						Grand Total
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Then prepare graph using the total % of AV, AE, AN, BV, BE, CN, CA, CE and CN.

Using the same step mentioned above for ABC/VEN reconciliation, do reconcilation for sub theraeutic category against A, B and C. and again, do reconcilaitaion of the list of top ten diseases against A, B and C. Finally prepare graph for ABC/VEN, ABC/theraeutic category, and ABC/top ten diseases. Evaluate your results and write reports.

13.4. ABC/VEN Reconciliation and Interpretation of Findings

ABC/VEN Reconciliation

ABC/VEN reconciliation is made from ABC and VEN analyses. It involves categorizing the class of medicines generated from ABC analysis by VEN to identify if there is relatively high expenditure on low priority medicines (N category items in Class "A"). Medicines in Class A should be further analyzed in relation to their importance in the management of top ten diseases/conditions in the health facility. Follow the steps below to take the necessary action based on ABC-VEN reconciliation:

- Present results of the reconciliation to DTC to discuss whether products in Class "A" reflects public health problem of the area.

- Undertake drug use evaluation (DUE) on medicines suspected to be overused that fall under class "A".

- Determine the % of drugs purchased according to the medicines list of the facility

- Take appropriate measure on N items that fall in A class.

The table below shows characteristics of medicines that fall into each ABC category and the actions that should be taken (Table 13).

Table 14: ABC Value Analysis table and its Applications

S/N	Class "A" items (High value)	Class "B" items (Moderate value)	Class "C" items (Low value)
1	Needs strict control /purchasing	Needs moderate control	Needs lose control
2	High percentage of funds (70%-80%) spent on few type (10%-20%) due to large-volume or high cost of each items	Either moderate cost or moderate number of items; important items	Small amount of funds (5%-10%) spent on majority of the inventory (60%-80%)
3	No or very low safety stock (small amount purchase)	Low safety stock	High safety stock
4	Greatest potential for identifying expensive medicine and greatest potential for negotiation during purchasing	Moderate potential for negotiations and saving of budgets	Very less potential for saving of budget (all 5%-10%) up on negotiation
5	Can be either vital or essential when reconciled with VEN Once proven the class is V, then follow its continuous supply and take as a focus area	May be either vital or Essential when reconciled with VEN	Except for stock out if they are V and C, it means continuous supply with few cost.
6	If it becomes N in VEN analysis, it should be subjected to stock status analysis to prove whether it will be consumed within the limit of expiry date	It can be either E, V, or N. conditions can determine its value and consumptions. Ideally it should be E	If V or E in VEN analysis, it should be subjected to SSA to prove its continuity in supply. Ideally it should be N

S/N	Class "A" items (High value)	Class "B" items (Moderate value)	Class "C" items (Low value)
7	Maximum follow-up	Periodic follow-up	Follow-up and expediting in exceptional cases
8	Rigorous value analysis	Moderate value analysis	Low value analysis
9	Should be subjected to stock status analysis (SSA)	If E in VEN analysis, it may be subjected to SSA	If N in VEN analysis, it may not need to subject to SSA
10	Purchase Carefully handled	Purchase can be handled by middle management	Purchase can be fully delegated (petty cash)
11	Frequent ordering or weekly delivery	Once in three months	Bulk ordering once in 6 months
12	Weekly control statements relate with the daily sales audit report	Monthly control reports	Quarterly control reports
13	Accurate forecasts	Estimates based on past date	Rough estimate for planning

Note: It is very important that ABC-VEN reconciliation should be conducted not only for medicines purchased or consumed but also for medicines that are about to be purchased. This should be done on both the annual forecast data as well as prior to each procurement to ensure appropriate utilization of budget by focusing on the priority medicines as per the analysis. Always give priority to "Vital' medicines and then go for "Essential" medicines. "Nonessential" medicines are considered as a last resort if and only if adequate budget is still available. This is very important to ensure continuous availability of most needed medicines for the service. Summary results of ABC-VEN reconciliation of Debre Markos Referral Hospital is presented below in the form of table and graph.

Table 15: ABC/VEN analysis (DMRH Hospital -July 1, 2010 – June 30, 2011

Relevant factors	%Total cost	% class A in ABC	% class B in ABC	% Class C In ABC
Total Vital Drugs	67.4	52.23	11.01	3.15
Total Essentials Drugs	28.9	21.15	4.11	4.5
Total Nonessential Drugs	5.02	0.81	0.28	0.8
Vital and Essential drugs	73.42	73.4	15.11	7.65
Nonformulary drugs	2.47	0	0.68	1.5
% Classpurchased	100	74.24	15.81	9.95
% Formulary Drugs	97.52	100	93.73	84.96
% Drug orders by volume	Not Applicable	19.8	19.7	60.5
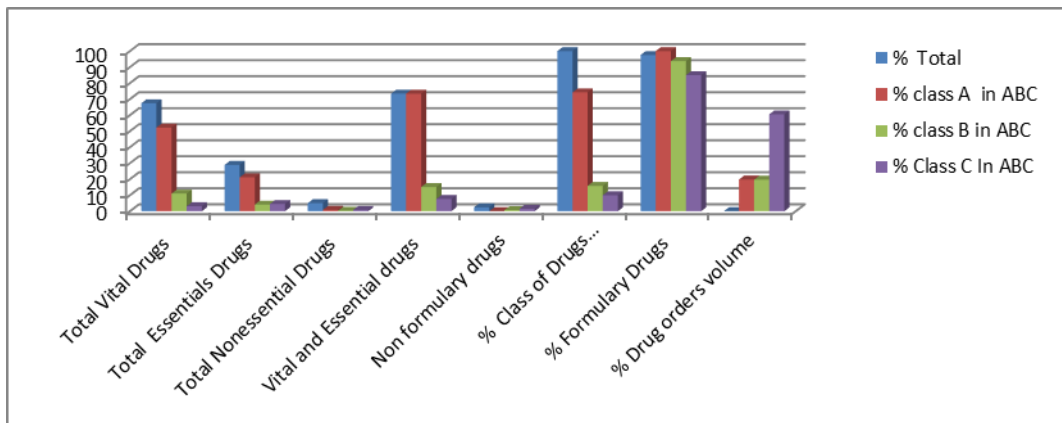
Figure 21: Graphical presentation of results of ABC/VEN reconciliation

13.4.1. Interpretation of Findings

Findings of the above analyses can be interpreted as follows:

- Class A, B and C medicines consumed 74.24%, 15.81% and 9.95% of the budget, respectively.

- The ABC analysis revealed that 73.42% of the drug budget was spent on either essential or vital medicines indicating the presence of optimal budget utilization. This is partly due to the availability of facility specific medicine list which is segregated by VEN

- Out of the total 177 items purchased/received by the Hospital, 35 items (19.8%) fall in class "A". Similarly, 35 (19.7%) and 107 (60.5%) of the items fall in class B and C, respectively.

- All class "A" items of this Hospital, except one item, others were essential (E) or vital (V)

- From class B of the ABC value analysis, most products were found to be either vital or essential.

- The percentage of budget spent on medicines that are not part of the facility medicines list was found to be 2.47 %. In other words, 97.52 % of the medicines budget was spent on medicines that are in the list. Most importantly, 100% of class A medicines were found to be from the facility's medicines list.

- Only 5.02% of the total drug budget was spent on non-essentials/less essential medicines. The recommended range of budget expenditure for these classes of medicines is 5-10% indicating that the utilization of budget was appropriate.

- Surgical glove was the top product in Class A accounting for 11.2% of the total cost of medicines. Further evaluation of the use of surgical glove revealed presence of misuse of the product by internship students for procedures which do not require use of surgical gloves. The hospital DTC has taken appropriate measure to ensure the proper use of surgical glove.

Chapter Summary:

VEN analysis is a method that is used to classify medicines into Vital (V), essential (E) or nonessential/less essential (N) per their clinical importance. It is important that the health facility DTC should classify the pharmaceuticals list by VEN. This categorization should guide the forecasting, procurement and inventory management decisions of the health facility. Medicines can be categorized in to VEN according the catchment areas or disease morbidity. Vital medicines are critically needed for the health facility to save lives.

ABC value analysis is a method that used to categorize purchased medicines based on their total cost. It is used to monitor and optimize utilization of medicines budget. Data for ABC analysis can be obtained from receiving vouchers, bin/stock cards and databases. Undertaking ABC analysis requires series of steps. For ABC analysis to be more useful, it should be reconciled with VEN Analysis.

ABC-VEN Reconciliation involves categorizing the class of medicines generated from ABC analysis by VEN to identify if there is relatively high expenditure on low priority medicines (N category items in Class "A"). Medicines in Class A should be further analyzed by the DTC in relation to their importance in the management of top ten diseases/conditions in the health facility. The DTC should take the necessary action based on the information generated from the reconciliation.

Chapter 14: Auditing for Product, Finance and Services

Chapter Description:

This chapter is designed for participant to understand, the principles, steps, and periods of product, financial, and service auditing will be discussed. The chapter also discusses about data sources for auditing. Furthermore, random and periodic auditing methods are explained. The roles and responsibilities of auditors and DTC members will also be listed.

Primary Objectives

At the end of this chapter, participants will be able to describe steps and apply financial, product, and service auditing at respective health facilities.

Enabling Objectives

To attain the primary objective, the trainees will be able to;

- Define product, finance, and service auditing
- List data source for auditing
- Explain random and periodical auditing
- Apply product, finance, and service auditing using random and periodic auditing methods

Chapter Outline

- Introduction
- Types of Auditing:
- Data source and steps for finance and product auditing
- Data Source and steps for Services Auditing
- Chapter Summary

14.1. Introduction

Auditing is a systematic, independent examination and evaluation of data, statements, records, a person, an organization, a system, a process, an enterprise, project or product operations and performances.

The inventory management, accounting, and information system must provide comprehensive evidence on medicine transactions and service delivery for effective auditing. Auditing provides reasonable assurance that reported statements of transactions and services are free from error.

In practice, because of lack of transparent system, auditing of the pharmacy transactions and services in Ethiopia was found to be difficult. This is due to lack of clear responsibility and accountability, lack of documentation, incomplete and unreliable information, and nontransparent transactions. The implementation of APTS facilitates the practice of effective auditing system in health facilities. This is because, APTS institutes transparent transactions that enable the tracking of information on items with their costs received to the health facility, items issued to dispensing outlets and service units, items dispensed to end users/patients (with appropriate counseling), losses and wastages. APTS provides three types of reliable information; financial, product and services rendered in the health facilities. Auditing related to pharmaceuticals at health facilities covers both transactions and services. The auditing of pharmaceutical transactions and services may be performed in the form of either random or scheduled auditing methods.

There are three major types of auditing in APTS. They are financial, product and service /performance auditing.

14.2. Types of Auditing

14.2.1 Financial auditing

It is a formal examination, correction, and official endorsing of financial accounts, especially those of a business, undertaken by an accountant. It is endorsing that the statement or report is true. In this regard, auditing pharmaceutical transactions with respect to finance is used to check and endorse the daily and monthly financial transactions reports. The daily financial auditing includes; - the amount of cash collected, submitted to main cashier /or deposited in bank, the cashier's delivery note recording, the cash sales ticket pad (ticket flow) etc.
The monthly financial includes; - evaluation of the received items by vouchers with costs, issued items with costs, dispensed items with prices

14.2.2. Service/Performance Auditing:

It is a systematic check or assessment, especially of the efficiency or effectiveness of an organization, a process, an activity, or a person's mission, when typically carried out by an independent assessor. When service is audited, quality of service, performance of individuals and the health facility will be evaluated. Service auditing includes; measuring workload and analysis with the APTS standards, the patient served, the number of counseling, the DTP identified etc.

14.2.3. Product Auditing

It is a systematic, independent examination of data, statements and records of products in quality and quantity. It is endorsing of the statement concerning the quality status and quantity of the physical inventory of items is true by checking the actual items physically. The product auditing includes: checking of products received with expiry dates and batch number, the number of expired items with records; the stock on hand, received, issued, dispensed against the ending stock of specific products.

14.3. Data Source and Steps for Financial & Product Auditing

The following table summarizes Pharmaceutical Transaction Processes and Sources of Information for Auditing. In order for transactions to be audited properly, the health facility should ensure the availability of organized and complete data sources and information on all forms of pharmaceutical transactions at different locations. The most important types and sources of information for conducting effective transactions auditing are included in the following table.

Table 16: Processes and data sources for auditing of (product and finance)

Units to be audited for product or financial	Data sources for auditing	Steps of Auditing
Auditing Store	▪ Beginning physical inventory of store with completed monetary value of items ▪ Receiving voucher (Model 19Health filled with complete information accompanied by delivery invoice/donation list ▪ Updated bin card ▪ Updated stock card ▪ Issuing voucher (Model 22/Health) filled with complete information accompanied by approved requisition (Model 20/Health) ▪ Updated bin card (is a plus) ▪ Updated stock card	▪ Start from the beginning stock (physical inventory) at the store. *Note: Before the beginning inventory is conducted, the auditor should sign cutoff on model 19 /Health and 22/Health and the store manager should sign confirmation.* ▪ Add received stock in the store. ▪ Subtract issued products from the store. ▪ Then the calculated ending stock should be equal to physical inventory at the end of the period both with costs and counts of products. *Note:* *-The damaged and expired items will be considered in both the beginning and ending*

	▪ Ending physical Inventory of store with completed monetary value of items	*stock*
Dispensaries and service delivery units.	▪ Physical Inventory of dispensary/service delivery unit ▪ Issuing voucher (Model 22Health filled with complete information ▪ Cash/Credit sales ticket pad register ▪ Cash sales ticket filled with complete information ▪ Credit sales ticket filled with complete information ▪ Credit/Free sales dispensing register ▪ Cashiers delivery note ▪ Daily cash sales summary ▪ Daily credit sales summary ▪ Daily for free dispensed summary	▪ Start from the beginning stock (physical inventory) at the dispensaries and service delivery units. *Note: Before the beginning inventory is conducted, the auditor should sign cutoff on model 22/Health, sales tickets, registers.* *Each dispenser and cashiers should sign for confirmation.* ▪ Add issued stock from the store to dispensing units/service delivery units or products transferred from the other dispensing outlets. ▪ Subtract dispensed products from the dispensary. ▪ Then the calculated ending stock should be equal to physical inventory at the end of the period both with costs and counts of products. *Note: The damaged and expired items will be considered in both the beginning and ending stock*
Auditing health facility (both dispensaries, service delivery units and stores)	▪ Monthly financial report ▪ Quarterly financial report ▪ Quarterly physical inventory result ***Note:** All the sources of information mentioned in store auditing and dispensary auditing above may be needed during verification when there is discrepancy between report and physical inventory*	▪ Take the beginning stock at the store plus dispensary ▪ Add the total received stock in the store ▪ Subtract dispensed stock transferred stock ▪ Then the calculated ending inventory should be equal to physical inventory at the store and dispensary ▪ If there is discrepancy in the monthly report, check store and dispensaries as mentioned above.

14.4. Data Source and Steps for Services Auditing

	Group Discussion
	
	Time allowed: 20 minutes
	Group: 4 groups
	
	• Discuss on data source & how the given healthcare (pharmacy service) /performance of various professionals is audited
	    o Pharmacy professionals
	    o Accountants
	    o Cashiers
	    o Auditors
	    o Store managers
	    o DSM professionals
	Reflection: 2 minutes for each group

To audit pharmaceutical services, the health facility should ensure the availability of organized information and reports on the key activities that are needed critical in the provision of quality services. Pharmaceutical service auditing must be considered as part of the overall health facility performance audit. To carry out such auditing, the process should involve a team of technical experts (preferably DTC members), led by the internal auditor of the health facility. The findings of this performance audit should be presented to the management of the health facility. The most important types of information to be checked for conducting effective pharmaceutical service auditing are:

Table 17: Pharmacy Service Units and Data Sources for Pharmaceutical Services Auditing

Area to be audited	Data Source for Service Auditing	Steps for Service Auditing

1. **DSM unit**
  • **For Selection**
  • **For Quantification**
  • **Procurement**
  • **Storage**
	▪ Facility specific medicines list
	▪ ABC/VEN reconciliation report
	▪ Purchase order
		▪ Identify Class A, B, C in ABC and VEN of procured/received items.
		▪ Reconcile, A class items in ABC analysis with Vital items in VEN analysis
		▪ Check absence of non-essential items (N) in class A
		▪ Give report as per the findings to the CEO

	▪ Percentage availability of indicator/ key medicines	▪ Check availability of top ten diseases posted at the CEO office, pharmacy head office and store ▪ Check list of medicines (at least 35 medicines, supplies and reagents) used to treat 10 top diseases) posted as above ▪ Check availability of medicines (at least 35 medicines, supplies and reagents) used to treat 10 top diseases)
	▪ APTS monthly report ▪ Consumption to stock ratio analysis from the monthly report ▪ Report of stock	▪ Check whether the consumption to stock ratio analysis results from the monthly report is within acceptable range *(example: if the duration of supply is every two months and the maximum months of stock is four, then the average consumption in a month will be 25%. However, it may range from 15% to 35%).*

Area to be audited	Data Source for Service Auditing	Steps for Service Auditing
	status analysis ▪ Stock-available for sale during the month	▪ Check whether the wastage and expiry is less than 2% (Target of HSTP)
	▪ Bin cards and stock cards	▪ Check quality of records in vouchers and bin cards and stock cards are updated
	▪ Store	▪ Check quality of storages; shelving, and arrangement e.g. either alphabetically or pharmacologically by observation ▪ Separation of supplies, drugs, expired items
2. **Bin Management**	▪ Bin ▪ Reports of bin owners	▪ All available drugs in the store are also available in the dispensary ▪ Selling prices are labeled ▪ Near expiry are reported by Bin owners ○ *Note: near expiry is measured based on consumption rate as indicated in the stock status analysis sheet* ▪ Expired items are separated and reported by Bin owners ▪ Expiry dates are being tracked
Dispensary ▪ Prescription evaluation and billing services ▪ Prescription processing	▪ Monthly service and Financial Reports	▪ Average number of counseling made per dispenser per day ▪ Patient's satisfaction survey ▪ Patient knowledge survey
	▪ Evaluated prescriptions	▪ Quality of used sales tickets ▪ Quality of service: correctness of prices, and codes, correctness of prescriptions, absence of DTP ▪ Quantity of services: # of patient served per month per person is near 1000 ($\pm$200)
	▪ picked medicines	▪ Correct drug / dosage is picked up, retrieved from/to the right place and container
3. **Cashier services**	▪ Sales ticket; cashier's delivery note	▪ No shortages and overages collected ▪ Absence of complaining of clients due to long queue
4. **Counseling services**	▪ Daily summary and monthly report, ▪ Exit interview report ▪ Patient satisfaction survey report ▪ Patient care indicator	▪ Patient knowledge on correct dosage (see the questionnaire) ▪ Patient satisfaction or absence of complaining of clients ▪ Number of counseling made per month: quantity of services is measured using number of counseling; 1500 counseling per month per dispenser ▪ Percentage of correct labeling
5. **Pharmacy accounting services**	▪ Vouchers, daily summary, monthly report and inventory	▪ Absence of errors in setting unit prices, calculating retail prices ▪ Absence of errors in daily summary and monthly reports

Area to be audited	Data Source for Service Auditing	Steps for Service Auditing
6. Health Facility: Quantity and quality of service	▪ Medicines list ▪ Patient satisfaction survey report ▪ Monthly financial and service report ▪ Patient care indicators ▪ Store and Dispensaries ▪ Manpower	▪ Dispensing counseling is number of patients/counseling per pharmacy personnel, per person➜1000 patients (±200) or 1500 (±300) medicine-counseling per pharmacy personnel o If not report to deploy additional staff or transfer to other units ▪ Presence of facility specific medicines list approved by the DTC, national formulary, standard treatment guideline, ▪ well organized store and dispensary and quantified man power ▪ Affordability of medicines in the health facility ▪ Number of drugs per prescription compared to WHO recommendation

Template for data collection of pharmacy service in the health facility

Description	Yes (1)	No (0)
1. National formulary, national standard treatment guidelines are available in the dispensaries and prescribing offices		
2. Facility specific medicines list updated within three years is available		
3. % availability of medicines measured on at least 35 medicines used to treat 10 top disease		
4. Wastage and expiry is reduced (less than 2%)		
5. Shelving, and arrangement e.g. either alphabetically or pharmacologically		
6. Drugs, supplies and expired items are separated		
7. Average number of patient served per dispenser per month is approximately is estimated based on APTS principles		
8. Average number of counseling made per counselor is approximately is estimated based on APTS principles		
9. Patient satisfaction for pharmacy services is measured regularly		
10. Patient satisfaction for pharmacy services is above 95%		
11. All available drugs in the store are available in the dispensary too		
12. DTPs are identified		
13. Solutions for DTPs are given		
14. Waiting time is reduced in dispensaries		
15. Care time is increased in dispensaries		

16. Patient knowledge on correct dosage is measured two times per year		
17. Patient knowledge on correct dosage is above 95%		229
18. Affordability is measured every month		
19. Number of drugs per prescription in the month are measured and interventions is taken		
20. Intervention for unacceptable range of number of drugs per prescription		

Chapter Summary

Auditing is a systematic, independent examination and evaluation of data, statements, records, a person, an organization, a system, a process, an enterprise, project or product operations and performances. There are three major types of auditing in APTS:

     ᘓ Financial auditing

     ᘓ Product auditing and

     ᘓ Service/performance auditing

Financial auditing is a formal examination, correction, and official endorsing of financial accounts, especially those of a business, undertaken by an accountant.

Product Auditing is a systematic, independent examination of data, statements and records of products in quality and quantity

Service/Performance Auditing is a systematic check or assessment, especially of the efficiency or effectiveness of an organization, a process, an activity, or a person's mission, when typically carried out by an independent assessor.

There are various steps and data sources for each types of auditing. Auditing should be conducted both randomly and periodically. Auditors should report the findings

Chapter 15: Monitoring and Evaluation

Chapter Description:

In this chapter, the principles and concepts of monitoring and evaluation, follow up of the implementation status of APTS and reviewing of outcomes will be described. In addition, selected indicators will also be discussed

Primary Objectives

At the end of this chapter, participants will be able to perform the monitoring and evaluation for APTS implementation

Enabling Objectives

To attain the primary objective, the trainees will;

- Explain concepts of Monitoring and Evaluation
- Apply methods and process of supportive supervision
- Identify evaluation tools of APTS implementation
- Apply routine reporting of APTS implementation
- Practice M&E indicators to measure APTS

Chapter Outline:

- Introduction
- Monitoring of APTS implementation
- Evaluation of APTS
- Pre-during and after implementation measurement checklist
- Summary

15.1. Introduction

Monitoring and evaluation are an integral part of the management cycle, providing a link between planning and implementation.

Monitoring refers to reviewing, on a continuous basis, the degree to which program activities are completed and targets are being met. This allows corrective action to be taken during program implementation.

Evaluation refers to analyzing progress toward meeting established objectives and goals. It provides feedback on whether plans had been met and the reasons for success or failure. It should also provide directions for plans.

Baseline Assessment of APTS: refers to basic information gathering before implementation of APTS; it is used later as a comparison for assessing the APTS out comes.

Feedback: refers to presentation of information for decision makers or lower-level personnel, based on information received. In APTS, Feedback is given based on Monthly reports collected and during supportive supervision.

Goals of APTS in five result areas: to a statement, usually general and abstract, of a desired state toward which a program is directed (usually not measurable)

15.2. Monitoring of APTS implementation

15.2.1. Supportive Supervision

Supportive supervision is a process that individuals or groups of people from relevant stake holders conduct site visit to facility to promotes quality at all levels of the health system by strengthening relationships within the system, focusing on the identification and resolution of problems and helping to optimize the allocation of resources, promotion of high standards, team work and facilitation of two way communications.

Purpose of supportive supervision

The Health facility, FMOH/RHB/ZHD/WoHO supervises APTS sites to: -

- To provide guidance and technical assistance to improve APTS implementation

- To assure data reported by the hospital to the respective body is accurate

- To identify, recognize and learn from good practice, which can then be shared to other sites

- To identify areas for improvement

- To identify areas where additional support from the RHB or other partners is required, and to plan with the hospital for the provision of that support

Supervisors from outside of Health Facility: The regional health bureau/Federal Ministry of Health including lower level health administration offices, should have clearly defined objective and timeline for providing supportive supervision to health facilities.

Supervisors from Health Facility: The health facility management and senior experts should also provide an ongoing coaching and supportive supervision to practitioners implementing APTS. The supervisors may include pharmacy head, CEO, finance head, HR and auditors.

Process of supportive supervision

Step 1: Selection of the site visit team

- RHB/FMOH and stockholders assign site visit Team Leader
- Team Leader identifies additional team members

Step 2: Pre-visit preparation

- Team collects prior information on hospital performance
- Team leader prepares draft site visit briefing document/checklist and sends to team members
- Site visit team reviews and finalizes site visit briefing document
- Agree on roles and responsibilities for the duration of site visit
- Finalize site visit agenda
- Site visit briefing document and agenda sent to hospital CEO
- Dates of site visit meeting agreed and confirmed with hospital CEO

Step 3: Conducting the site visit

- Opening meeting with CEO and Senior Management Team or DTC
- Evidence gathering
- Site visit team collects information as per the checklist and agrees findings
- Closing meeting with CEO and Senior Management Team or DTC

Step 4: Post Visit Follow up

- Site Visit Report prepared and sent to hospital CEO
- Hospital sends Hospital Response & Action Plan to RHB/FMOH
- Site Visit Report & Hospital Response & Action Plan are distributed to relevant stockholders

Supportive supervision at all levels should be conducted based on a predefined checklist developed to assess the progress of key aspects of APTS implementation. FMOH/RHB including lower level health administration offices, should

have clearly defined objective and timeline for providing supportive supervision to health facilities. Please refer *table 17*.

Table 18: Areas to be addressed during Supportive Supervision

SN	Key Areas	Performance Indicators
1	**Recording and Documentation**	• Availability of vouchers, sales tickets, dispensing registers and other relevant tools • Proper recording, use and filing of vouchers, sales tickets and registers • Availability of filled daily summary and monthly financial & service reports • Availability of product and service audit reports
2	**Selection and Quantification**	• Availability of facility specific medicines list approved by the DTC • The facility specific medicines list is prioritized by VEN • % of medicines procured/received that are from the facility specific medicines list • Availability ABC/VEN reconciliation report for the previous budget year
3	**Storage**	• Availability of stock status analysis reports of the year • % availability of indicator/key medicines (measured on at least 35 medicines used to treat 10 top diseases) • Wastage rate (in percent) of the year • Adequacy and appropriateness of the pharmacy store (space, shelving, cleanliness, ventilation, cold chain facility, etc.…)
4	**Dispensing/ Counseling**	• Availability of report of drug use indicators study for the year • Average dispensing/counseling time • % prescribed medicines dispensed • % dispensed medicines that are adequately labeled • % patient's knowledge of correct dosage • Average number of patients served per dispenser • Average number of counseling made per dispenser • % patients satisfied with the service • Proper organization and adequacy of the dispensing/counseling room (space, shelving, flow, waiting area, privacy, dispensing counter, cashier counter, etc.…) • Availability of basic equipment and/or facilities (tablet counting tray, refrigerator, cash register, etc.…)
5	**Medicines Use**	• Average number of drugs per encounter • % medicines prescribed by generic name • % encounters with an antibiotic prescribed • % encounters with an injection prescribed • % drugs prescribed according to STG
6	**Pharmacy Human Resources and Organization**	• Adequacy of pharmacy staff (Pharmacy coordinator/director, dispensers, medicines supply management officer, store manager, etc.…) as per the workload analysis • Adequacy of finance staff (Pharmacy accountants, stock card clerks and cashiers) • Adequacy of support staff (cleaners, laborer, guards) • The pharmacy unit of the health institution is organized as per the guideline
7	**Premises design**	• Pharmacy has two doors (entrance and exit)

SN	Key Areas	Performance Indicators
		• The cubicles for dispensaries are convenient for patients
		• The cubicles for dispensaries are convenient for staffs

15.2.2. Review and Feedback the monthly reports

The monthly reports of APTS should be evaluated by the pharmacy unit every month and solve problems by themselves before shared to outsiders. Secondly the findings of the report should be presented to the management of the health facility and get feedback on various activities including the product consumption, key medicines availability, patient service, DTP identified, the wastage rate, drug per prescription, affordability, gross profit, audit findings, shortages and overages and so on. Furthermore, the report should be shared to respective woredas, zones, regional health Bureaus and FMOH and relevant partners so that they all will give feedback on accomplishment and areas of improvement. The feedback given should be discussed to continue based on best experiences and to solve problems.

15.3. Evaluation

15.3.1. Reviewing APTS implementation

Reviewing is a process of identifying best practices and area for improvement in specific project/program implementation and it is a key element of program management. APTS implementation can be reviewed at different level of the health sector as follows; -

Analysis: At pharmacy unit level analyzing the monthly report on quarterly basis

Review meetings:

- At facility level as performance review meeting (quarterly or bi annually), at regional level, as Regional Review Meeting annually and at national level as Performance Review Meeting annually

Purpose of review meeting at different levels: It is to share best experiences and find solutions

Table 19: Summary table for organizing review meetings at different levels

No	Meeting Activities	Pharmacy unit level	Facility level	Regional level	National level
1	**Meeting name/tool**	Health development army meeting	Performance monitoring meeting	Regional review meeting	National program evaluation meeting
3	**Frequency of meeting**	Weekly	Every month	Every quarter	Biannually
3	**Length of meeting**	2-3 hours	1 day	2 days	3 days
4	**Participant of meeting**	All pharmacy unit staff, accountants and cashiers	Service unit coordinators, Hospital SMT, CEO and CCO Board members when necessary	Hospital CEO, Hospital Pharmacy head, Regional Curative unit, Regional pharmacy unit, partners and FMOH staff if necessary	Hospital CEO, Regional Curative unit, Regional pharmacy unit, PFSA, FMHACA, FMOH officials, MSD and partners
5	**Venue for the meeting**	Pharmacy unit meeting place	Hospital Meeting hall	Hospital compound or town selected by the host RHB	Hospital compound or town selected by FMOH
6	**Who chairs the meeting**	Pharmacy head or delegate	CEO or delegate	RHB head or delegate	Minister or Delegate

15.3.2. Program evaluation

Evaluation requires a systematic process of data collection, analysis and interpretation about interventions and their effects about a program or any of its components in pursuit of looking answers to evaluation questions.

Purpose of evaluation

- Determine the value or worth of a specific program, intervention or project or any of its components to be able to link an output or outcome directly to a intervention.
- Indicate any policy or program change about the program/project implementation
- Identifies any new findings related to the project implementation

Program evaluations types

- Process evaluation, which examines the appropriate execution of program components, or
- Outcome evaluation, which examines the worth of implementing an intervention or any of its components.

Data collection and utilization

It is technically impossible to obtain all APTS related data exclusively through regular reporting system. Hence, regular demand side and supply side surveys will be conducted to capture selected set of data and triangulate various sources to improve the accuracy of outcomes and impacts of APTS interventions.

The major principles that underpin this activity are:

- The data set needs to be mutually agreed between stakeholders
- The surveys will be conducted by/under the leadership of the regional health bureau in defined frequency
- Timing of the surveys will be designed to align with the Government calendar
- Partners will be encouraged to provide technical and financial support

Assessments could also be conducted to measure the performance of a certain component of APTS or to verify results. In general, unless and otherwise demanded by stakeholders or pressing need, overall evaluation of APTS across the region should be conducted every two years.

15.3.3. Reporting Requirements

Monthly Financial Report:

The monthly financial report of each section (pharmacy store, outpatient pharmacy, inpatient pharmacy, emergency pharmacy, laboratory, radiology, wards and OPD clinics) should be prepared by the pharmacy accountant and reconciled with the result of physical inventory (taken at least quarterly). The report should be prepared using the monthly financial reporting template as indicated under the topic: *Monthly Transactions and Service Report*.

Monthly Pharmaceutical Service Report:

The pharmacy section of the health facility should prepare and submit a monthly report on indicators that shows the key aspects of pharmaceutical services using the **monthly pharmacy** Services Reporting Form.

The compiled financial and service reports should consistently be sent to the respective government body on monthly basis. At the level of health facilities, the management of the health facility should make appropriate evaluation of the contents of the monthly reports and take timely decisions on matters that require interventions. Those issues that might require the involvement of the FMOH/RHB/ZHB/WHO should also be communicated through the report and the hospital management should follow-up receipt of feedback.

The reports from different health facilities will be aggregated and a summary report be generated by the Pharmaceutical Supply and Services core process at the federal, regional, zonal and woreda levels.

The FMOH/ RHB/ZHB/WHO will utilize the result of the aggregate report for review of the progress of APTS implementation, streamlining supportive supervision, systematizing capacity building and resource allocation decisions, sharing of experiences and best practices, etc.… as appropriate.

15.4. Pre-during and after implementation measurement

The preparatory phase of APTS before its implementation, the actual implementation status and achievements after implementation should be monitored and evaluated. The following table will help to measure the status in the three phases of APTS implementation.

Table 20: Check list for the pre-during and after APTS implementation status evaluation

Pre-during and after implementation measurement	Yes, or No
Baseline assessment was taken using standard tools	
Pictures of the before patient flow and dispensary layouts was captured	
Training was given separately for pharmacy staffs and induction for the whole staffs of the hospital	
Dispensary was renovated Cubicles was divided as per the patient load patient flow directions and service types (evaluator, cashier, counselor) was labeled	
Vouchers (Model 19/heath, Model 20 (IFRR), and model 22/health), sales tickets, registers (Pad register, credit /free registers and DTP register) inpatient free/credit dispensing register, and formats (MFRF, MSRF, cashiers' delivery note, daily summary, physical inventory formats (for store and dispensaries) were prepared Stock Status analysis form, price control sheet), standard prescription, credit sales invoice was made available	
The necessary human resources based on the gap identified was deployed including (pharmacy personnel, cashiers, accountants, auditors)	
Facilities & equipment was fulfilled • Office for accountant, (office for pharmacy coordinator, mini meeting room, toilet	

Pre-during and after implementation measurement	Yes, or No
for male and female, shower, dressing room, compounding room for pharmacy staffs and accountant) • Dispensing unit coordinators with furniture • Cubicles for cashiers, evaluators and counselors) • Computers for accountants and (if possible for evaluators and counselors) • Calculators for cashiers and dispensers • Swivel chair for dispensers and cashiers • lockable cabinet for dispensers and for accountant responsible to handle sales tickets and pad registers • Safe-box for cashiers • Filing cabinet for accountants	
During	

Preparatory for physical inventory both for store and dispensaries were conducted
 • De-junking of expired /obsolete and damaged items,
 • Rearrange for physical inventory
     o Gather the same items together
     o Arrange them from bottom up
     o Record in before parts of the APTS physical inventory format
     o Sign on prepared by part of the physical inventory form
     o Code the registered items
     o Record in soft copy using excel sheet
      Note: issuing and dispensing is still possible until the during part of physical inventory started	

Prescribers were informed Pharmacy service flow was changed (Rx evaluator➔cashier➔counselor)	
Reference materials were prepared Car only for pharmacy service were allocated Drug supply manager was allocated	
Cutoff was made • On existing vouchers (Model 19, Model 22, sales tickets, bin cards, stock cards) were signed by auditors and changed by new ones	
Conduct actual physical inventory was taken with efficient methodology (conducting twice but within short hours by participating almost all staffs with bin management system • Count and fill in the during part of the format • sign on appropriate spaces • Recount the already counted • Sign on the appropriate spaces	
price control sheet with base code and price code was prepared	
Bin owners were assigned	
Model 19/H and Model 22/H were issued from property store	
Sales ticket pad registers, sales tickets, and credit/free registers were issued from property store	

Pre-during and after implementation measurement	Yes, or No
sales ticket and credit/free registers were received from pharmacy accountant (individually)	
Distribute standard Rx compatible for APTS to prescribers with orientation	
Dedicate patient assistant to show the exit and entrance of pharmacy (If the hospital is complex)	
Conduct familiarization session for all concerned staffs (HR, nurses and physicians) on APTS implementation	
Start issuing of products using new vouchers from store	
Start dispensing using the new prescription, sales tickets and registers	
Start dispensing using the new counters for Rx evaluation, billing, paying, and counseling	
Start producing daily summary and sample monthly reports	
Prioritization; • Identify Top ten diseases • Identify medicines reagents and suppliers used to treat top ten diseases and all these are posted in CEO office, pharmacy head office and accountant office • Prepare facility specific procurement list (medicines, supplies and reagents, consumable equipment) prioritized by VEN category	
Conduct ABC/VEN matrix reconciliation analysis (sample)	

Conduct -analysis (**sample**)
• Identify candidate for stock status analysis (SSA) using physical inventory, ABC analysis data, expert opinion, short expiry, Stock analysis (CSA, STA and SSA)
• Find solutions for analyzed over stocks/understocks/
   o exchange,
   o transfer,
   o donation,
   o reverse logistics,
   o promote prescribers
   o refill understocks	

Produce sample monthly financial/products and service reports	
Conduct sample • Product auditing • Service auditing • Financial auditing	
Conduct official launching of APTS	
Conduct monthly physical inventory in all dispensing outlets	
Conduct quarterly physical inventory in all stores	

Conduct -analysis continuously at least twice a yearregularly
Identify candidate for stock status analysis (SSA) using physical inventory, ABC analysis data, expert opinion, short expiry, two general indicators from stock analyses (CSA and STA)
• Find solutions for analyzed over stocks/understocks/
   o exchange,
   o transfer,	

Pre-during and after implementation measurement	Yes, or No

o selling to another HF
    o donation,
    o reverse logistics,
    o promote prescribers
    o refill understocks	

Conduct monthly financial/products and service reports	
Provide feedback on the subsequent monthly reports	
Provide feedback by onsite visiting the store, accountant offices and dispensaries using the implementation status measurement checklist (*Note: the management should visit on monthly basis*)	
Use the key information produced from monthly reports for decision making (including but not limited to) availability of products for top ten disease, consumption to stock ratio, number of patient service, workload, drug therapy problem identified, gross profit, wastage rate, drug per prescription and affordability etc.	
Follow the stock status of vouchers, sales tickets and forms and print ahead of time	
Evaluate the performance monthly and present to hospital management	
Generate organized half year or yearly reports form the monthly report in graphs,	
Organize facility based/cluster based/regional based review meetings	
Graduate best performing health facilities with appropriate reward	

15.5. Indicators for monitoring and evaluation

Indicators are vital to monitor and evaluate the implementation status and results of APTS. The following are selected indicators to monitor and evaluate the pharmacy department performance at the health facility. For more information about indicators pleases refer to the monthly report of APTS. Below listed are few selected indicators from the monthly reports.

Table 21: Indicators for Monitoring and Evaluations selected from APTS monthly reports

1. Percentage availability of pharmaceuticals selected for top 10 diseases at the facility
Definition
Percentage of products selected for top 10 diseases available in a health facility on a month. This indicator is calculated as (Sum of the number of days that each drug for top 10 diseases are available) divide by (total number of drugs multiplied by days of review) x 100
Formula $\dfrac{\sum Sum\ of\ number\ of\ days\ on\ which\ each\ drug\ was\ available}{(Review\ period\ in\ day\ x\ number\ of\ drugs\ review)} \ x\ 100$
Interpretation
Medicines for top 10 diseases should be available fully without a stock out at any time of the review period. These products are the one by default the essential medicines for the health facility. However, essential medicines in the facility also include program medicines as essential. This indicator will help to identify a stock-out of one or more required medicines to treat top ten diseases in the health facility. Since the number of Rx per day depends on top ten diseases, this indicator has very good relationship with the % of availability of prescribed medicines calculated as:
Formula $\dfrac{\sum Number\ of\ drugs\ dispensed}{(Total\ number\ of\ drugs\ prescribed\ )} \ x\ 100$ number of drugs dispensed divided by drugs prescribed x100.
Data Source   • List of top ten diseases   • List of drugs for top 10 diseases   • HMIS   • Morbidity data   • APTS monthly report
Frequency: Monthly   **Target:** 100 %   **Responsible:** Pharmacy Head & supply manager
2. Percentage of Stock Wastage due to expiry and Damage

Definition

The percentage of the budget of stock of products that are unusable because of expiration or damage during a quarter to the total budget of the products received during the quarter plus the quantity of the products found during the beginning of the quarter.

| Formula | $\dfrac{\text{Unusable stock of products during a quarter by financial value}}{\text{Beginning stock plus quantity received of products during the quarter by financial value}} \times 100$ |

Interpretation

This indicator can be calculated for any facility that manages pharmaceutical of interest. It can be measured over any period but it is preferable to be calculated for unusable stock with in a quarter. It is usually calculated whenever a physical inventory is taken.

Unusable stock that has been accumulated for long period and were not disposed previously (expired and damaged items that were transferred from previous quarter) should not be included during calculation of this indicator. In addition, Items that were unusable during the quarter reviewed but were disposed with in the quarter should be taken in to consideration during calculation.

This indicator is one of the performance indicator to have efficiency gain and one of the HSTP indicators to measure reduction of wastage from 8% to 2%.

Data Source

- Bin card, stock card, HCMIS

- Physical inventory sheet (for beginning stock and wasted rate)

- Model 19/Health (for beginning stock)

- APTS monthly report (for aggregated wastage rate)

Data Requirement

- Beginning quantities of usable stocks and quantities of stock received during a budget year.

- Total quantities of unusable items with in one budget year • Automated system, stock ledger, bin card, or other recording instrument on which stock balances are maintained

Frequency: monthly

Target: ≤2%

Responsible: Pharmacy Head, Store Manager, DSM unit, HMIS focal person

3. Consumption to Stock Ratio

Definition

The monetary values of pharmaceuticals sold against the stock available for sale

Formula	$$\frac{Cost\ of\ despensed\ medicines\ during\ the\ month}{Stock\ avaialble\ for\ sale\ at\ cost\ during\ the\ month} \times 100$$
Interpretation	
It is an indicator of the stock at hand versus stock sold during the period; it used whether the stock movement is in line with the period of refill. It measures the amount of dispensed medicines in relation to the stock available. It is a general indicator of stock movement for the management therefor doesn't indicate whether the stock movement is profitable or not. If the result extremely increases (>30%) or extremely decrease (<20%) then the facility should assess the stock status of those drugs at risk of stock out and expiry respectively by using additional indicators like Months of stock	
Data Source	
- Vouchers - Physical inventory report - Monthly report	

Frequency: Monthly

Target: 25%

Responsible: Pharmacy Head & Store manager

4. Stock Turnover Rate

Definition
The number of inventory cycles or turnovers for a given product for a defined period of time, usually calculated annually. The total value of items distributed or sold during a specified time period (e.g., one year) is divided by the average value of inventory for that item during the same time period (i.e., average of beginning and ending inventory value).

Formula	$$\frac{Total\ Value\ of\ items\ consumed\ at\ HF}{Average\ Value\ of\ inventory}$$
Interpretation	
that have been functioning for long periods and have streamlined their procurement processes, the values calculated for this indicator should range from six to 12. In general, the higher the ratio, the lower the average inventory level (and average holding cost). Average unit prices and average inventory levels for the period in question should be used in the calculation. Low inventory turnover rates could indicate that the product has been overstocked and/or undersold. On the other hand, higher turnover rates can indicate insufficient stock levels, which could eventually lead to stock outs and a loss in sales. Increasing inventory turns can help reduce the inventory holding costs, which helps to increase profit	
Data Source	

- Vouchers (received and issued)

- Month report

- Inventory records.

Frequency: Annual;

Target: 1.5

Responsible: Pharmacy Head, DSM unit, Store manager

5. Affordability of medicines

Definition

Average prices of medicines dispensed for a single patient of those who spend outof -pocket compared with wage days of the smallest salary of unskilled government employee

Formula:

$$\frac{Average\ price\ of\ medicines\ dispensed\ per\ patients\ on\ cash\ (P)\ X\ 30\ days}{Smallest\ salary\ of\ unskilled\ government\ worker}$$

Interpretation

If ≤ 1 affordable; If >1 to ≤ 3 = some-how affordable   If > 3= unaffordable

Data Source

- Monthly report (contains cash sale, total number of patients served in cash)

- Finance department payroll

Frequency: Biannual

Target: ≤ 1

Responsible: Pharmacy Head

6. Percentage of Clients with 100% prescribed drugs filled

Definition

Percentage of clients who get all of the prescribed drugs (100%) from dispensary among all the clients who received prescriptions in a given time period.

Formula $\frac{Number\ of\ clients\ who\ received\ 100\%\ of\ prescribed\ drugs}{Total\ number\ of\ clients\ who\ received\ prescriptions} \times 100$

Interpretation:

Percentage of clients who get all the prescribed drugs (100%) from dispensary is an indicator of access to quality and affordable medicines. Proportion of clients who get all the prescribed drugs is one of the indicators that tell about the continuous availability of drugs and quality pharmaceutical care in the health facility. Getting prescribed drugs within the facility pharmacy improves patient satisfaction and overall trust and confidence in the health sector. Percentages of clients who get all the prescribed drugs (100%) from dispensary is expected to be 100 percent.

Data Source

- Prescription register,

- Tally sheet

Frequency: Monthly

Target: 100 %

Responsible: Pharmacy Head

7. Percentage of drug therapy problem accepted versus identified at OPD

Definition

Percentage of drug therapy problem accepted is the total number of DTP solution accepted compared to the DTP identified during the period

Formula $\dfrac{Number\ of\ DTP\ solution\ accepted}{Total\ number\ of\ DTP\ identified}\ x\ 100$

Interpretation:

Solutions for the drug therapy problems are very crucial for the patient safety and to improve health outcomes. Therefore, it is critical to measure the identified DTPs and solutions accepted by the prescribers.

Data source: daily summary of the DTP and monthly report

Frequency: monthly

Target: 100%

Responsible person: RX evaluators at dispensing outlets

8. Number of patient served per health facility

Definition

Number of patient served in a pharmacy is the number of visits.

Formula: $Number\ of\ visists\ of\ patients\ served\ on\ cash + credit +\ for\ free$

Interpretation: The total number of patients Number of patient served in a pharmacy is the number of visits counted daily with reference including sales tickets and register serial numbers. It does not show who repeatedly comes to pharmacy, but adds total visits. It helps to compare the workload amongst health facilities. It also helps to further calculate patient load per pharmacy professional

Data source: APTS monthly report
Frequency; Monthly

9. Mothers and children share of budget

Definition
Mothers and children share of medicines budget is the total amount of budget consumed by ANC, Delivery and PNC

Formula	$\dfrac{Budget\ consued\ by\ of\ ANC+delivery+PNC\ (with\ under\ 5\ years\ of\ children)\ for\ medicines\ supplies\ and\ reagenets}{Total\ consumption\ by\ all\ patients} \times 100$

Interpretation: Mothers and children share of medicines budget is the total amount of medicines budget consumed by ANT, Delivery and PNC. This doesn't show the volume of procured items, rather it show the consumed. This helps to compare the patient load concerning mothers and children and the focus areas of the health facility

Data source: APTS monthly report
Frequency: Monthly

10. Availability if adequate human resource for dispensing activities

Definition: Percentage of health facilities that have adequate human resource requirements

Formula	$\dfrac{Number\ of\ facilities\ that\ fulfilled\ human\ resource\ requirements\ in\ their\ dispensaries}{Total\ number\ of\ facilities\ assessed} \times 100$
Interpretation	The quality of dispensing activities is closely linked to the availability of appropriately trained pharmacy workforce. Without such workforce, the technical requirements of dispensing activities including interpretation and evaluation of appropriateness of prescriptions; preparation, labelling, and packaging of medicines; and medicine use counseling will not be properly conducted. As a result, patients will not attain treatment outcome goals. Human resource requirements should be calculated based on actual workload. Accordingly, 48 patients per day or 68 counseling services (medicines) per day per dispenser is taken as a standard for workload analysis
Disaggregation	By each dispensing unit, by level of health facility
Sources	*Survey, HR records, APTS records*

Frequency of Reporting	WorHO	ZHD/ ScHO	RHB	FMOH
	Yearly	Yearly	Yearly	Yearly

11. Number of patients who receive program medicines

Definition	Total number of patients who receive program medicines
Formula	Number of patients who received ART, OI, TB, malaria, nutrition and other programs
Interpretation	Health facilities manage a number of program items including, ART, OI, TB, malaria, nutrition and others. These services add to the patient load and strain resources,

	especially the human resource of the pharmacy. Accordingly, this indicator measures the number of patients served in each program and helps in better planning and allocation of resources.					
Disaggregation	By program area, by medicine regimen, by level of health facility					
Sources	APTS monthly report, registers for TB/Malaria/ART/nutrition (SAM/MAM)					
Frequency of Reporting	HC	Hospital	WoHO	ZHD/ ScHO	RHB	FMOH
	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly

12. Average number of medicines per prescription

Definition	Average, calculated by dividing the total number of different medicines prescribed, by the number of encounters surveyed. It is not relevant whether the patient actually received the medicines.
Formula	$$\frac{Total\ number\ of\ medicines\ prescribed}{number\ of\ prescriptions} \times 100$$
Interpretation	To purpose of this indicator is to measure the degree of poly pharmacy. Known combination drugs are counted as one. Guidelines are needed on how to count certain ambiguous prescribing practices (e.g. some standardized sequential therapies). The target is <2 per encounter.
Disaggregation	
Sources	Prescription register, prescription paper, tally sheet

Frequency of Reporting	HP	HC	Hospital	WorHO	ZHD/ ScHO	RHB	FMOH
		Biannually	Biannually				

13. Percentage of injection prescribed

Definition	Average, calculated by dividing the total number of different medicines prescribed, by the number of encounters surveyed.
Formula	$$\frac{Total\ number\ of\ prescriptions\ with\ injection\ (coded\ from\ 30-39)}{number\ of\ prescriptions\ (all\ codes)} \times 100$$
Interpretation	To purpose of this indicator is to measure the overall level of use of injections. A list of all the medicines which are to be counted as injections must be available; investigators must be instructed on medicines which are not considered as an injection like, immunizations, injectable family planning. The target is <25%.
Disaggregation	
Sources	APTS monthly report

Frequency of Reporting	HP	HC	Hospital	WorHO	ZHD/ ScHO	RHB	FMOH
	Every month			Bi annually			

Session Summary

Monitoring and evaluation of APTS is a two way of communication to get feedback and solve problems. **Monitoring** refers to reviewing, on a continuous basis, the degree to which program activities are completed and targets are being met.

Evaluation refers to analyzing progress toward meeting established objectives and goals.

Two monitoring types are selected for APTS: they are supportive supervision and feedback on monthly reports. The evaluation method selected for APTS is reviewing and analysis of the routine monthly reports, sharing best experiences by conducting various levels of review meeting.

The detailed checklist for monitoring of APTS before implementation, during and after are very important tools for monitoring of the system. The selected monitoring and evaluation indicators that measures performance of APTS are very important for higher level decision makers

Chapter 16: Practical Training by Onsite Visit

Chapter Description

In this chapter, the practical training through onsite visiting, observation and identifying gaps of the new pharmacy operation i.e. Auditable Pharmaceuticals Transactions and Services (APTS) implementation will be explained.

Primary Objectives

At the end of this session, participants will be able to analyze the existing-implementation status of APTS by onsite visit.

Enabling Objectives

At the end of this chapter participants will be able to:

- Assess the implementation status of APTS in five result areas
- Evaluate the existing gaps
- Recommend the solutions for the identified gap

Chapter Outline

- Introduction
- Site visits of various units
- Identifying gaps
- Post visit-recommendation-report
- Summary

16.1. Introduction

Individual reflection

Have you visited APTS implementing hospital pharmacies from hospitals? Non-implementing ones?
Which types of pharmacy structure and workflow of pharmacies have you seen?
What kinds of gaps you identified?

Note: The first hospital in Addis Ababa in 1920s

The best methods of learning are observation and doing (seeing something once is better than hearing about it a hundred times and doing something once is better than seeing it a hundred times.") *[quotation of Lisa See].* As to that end, the APTS training includes the onsite visit, observation, discussion, and doing the actual activities.

Assessment findings of ministry, regional health bureaus and individual studies in APTS showed that the implementation status of health facilities varies from one to another—ranging from 56% to 90%. Therefore, it is better to see the real implementation status of APTS in health facilities, identifying gaps and learn from the challenges that the health facility encounter and best experiences

16.2. Site visits of various units

1. **Visiting the dispensing area**

While visiting the dispensing area of the health facility, the focus areas of the visitor, who is a pharmacy professional should include:

- The premises design of the dispensaries and facilities including; cubicles, offices, shelves and equipment
- Dispensing flow
- Patient service trends including caring behavior
- Fillings of formats, sales tickets, and registers
- Coding of products
- Bin management
- Price controlling mechanisms
- Transactions of documents and medicines between staffs and staffs with patients
- Learn those implemented perfectly
- After the learning, the trainee should conduct patient service by using various tools needed for the services.

Note: The trainee should also identify those implemented perfectly, poorly or unimplemented parts of APTS and then should organize a report based on the check list. The report should be delivered to the hospital as a feedback and should be presented to the large group at the end of the visit

2. **Visiting the accountants' office and cashiers' cubicles**

A. **Cashiers cubicles:** While visiting the cashiers' cubicles, the focus areas of the visitor (cashiers and accountants) should include:

- Customer services

- Retail price calculation confirmation

- The way of filling of cash sales tickets in cashier's cubicles

- Follow up of the dispensers on cash sales ticket movement

- Cashiers delivery note handling

- Safe box usage

- At the end, the trainee should apply the actual practice by using various tools needed for the activity

B. **accountants', office:** While visiting the pharmacy accountant office, the focus areas of the visitor (accountant and cashiers) should include:

- Pad registers handling

- Cash sales ticket handling

- Credit/free registers handling

- Daily summary

    o Adjusted sales preparation

- Price control sheet management

- Voucher copies management

- Filling

- Monthly report preparation

- The way how they update to the decision makers

- At the end, the trainee should apply the actual practice by using various tools needed for the activity

B. **Auditors' office:** While visiting the auditor's office, the focus areas of the visitor (auditors) should include:

- Filled physical inventory sheet documentation

- Random physical inventory sheet documentation

- Cutoff in sales tickets, cutoff in vouchers and registers

- Sample product auditing

- Financial auditing

- Service auditing

- Filing
- Findings of the auditing
- At the end, the trainee should apply the actual practice by using various tools needed for the activity

3. **Visiting the store managers, drug supply managers' office and pharmacy head**

A. **Pharmacy head**: While visiting the pharmacy head, the focus areas of the visitor (pharmacy professionals) should include:

- Use of monthly report for decision making
    - o Patient load versus human resource adjustment
    - o Wastage rate versus bin management
    - o Availability of medicines and supplies for top ten diseases of the catchment area (are top ten diseases listed and posted?), are medicines and supplies identified for them? who are the bin owners for each medicines N≥35
    - o Findings of the stock analysis; stock turnover ratio, consumption to stock ratio, and stock status analysis used for decision making
    - o Findings of affordability versus procurement source is compared
    - o Findings of the monthly (revenue)
    - o Findings of beginning and ending stock
    - o Findings of DTP and solutions at OPD
    - o Findings of the product audit and another service audit etc.
- At the end, the trainee should apply the actual practice by using various tools needed for the activity

B. **Store manager and Drug supply managers:** While visiting the store manager the main points that the visitor (pharmacy professionals) should include:*(Note: pharmacy head may also share some responsibilities of these activities)*

- List prioritized by VEN
- ABC for the last there years
- ABC/VEN reconciliation
- Stock Management
    - o Conduct physical inventory regularly
    - o Updated bin card
    - o Filling mechanism of Model 19/health and 22 health
    - o Sharing mechanism of copies of model 19/H and 22/Health to accountant, finance office etc.
    - o Method of physical inventory and number of days it takes (do you follow APTS principles)
    - o Conducted SSA based on: -
        - ▪ Physical Inventory,

- Expert opinion,
- Data from software,
- CSA and STA

- Management of over and under stocks
  - Transferred
  - Promoted to prescribers
  - Reversed to suppliers
  - Sold on cash to another HF
  - Exchanged with other products
  - Used emergency order (in case of under stock)
- At the end, the trainee should apply the actual practice by using various tools needed for the activity

16.3. Identify gaps and proposing solution

Since APTS implementation requires lots of financial and human resource, it shall be implemented over time. Due to this fact, the health facilities' implementation status may vary. The health facilities shall identify their gaps and propose solutions. In addition to learning from onsite visit, the training participants' can help by identifying the implementation status of the health facility. Therefore, the site visitor participants should evaluate the existing APTS implementation status and then identify gaps, propose recommendation for the identified gaps.

Session Summary:

The onsite visit and experience sharing training is learning by observing and then implementing the actual practices of APTS at various sites including; pharmacy coordinator office, drug supply management office, store, dispensaries, accounting office, cashiers, and auditor's office. Based on the site visit, participants will learn experiences, identify gaps and propose solutions for the identified gaps.

Checklist for site visit

This checklist is developed to assist trainees to capture major APTS implementation related information during site visit as part of the training. This question can be used as a guide in addition the trainees can ask more questions that can help to understand the implementation status of APTS in the visited hospital.

Trainees can also use information from before-during and after checklist

Service Areas	Implementation status	Finding Yes (1) or No (0)	Remark
1. Dispensing area	The premises design is appropriate as per the APTS standard		
	Availability of basic equipment's and/or facilities (tablet		

Service Areas	Implementation status	Finding Yes (1) or No (0)	Remark
	counting tray, refrigerator, cash register, etc…)		
	Proper organization and adequacy of the dispensing/counseling room (space, shelving, waiting area, privacy, dispensing counter, placement of cashier, etc…		
	Dispensing flow: Patient gates Rx evaluator/biller➔cashier➔counselor		
	Recording: Formats, sales tickets, and registers are properly recorded and documented		
	Products are coded		
	Bin managers are allocated		
	Bin managers know the status of their bin, label price, follow expiry, record in inventory sheet		
	Price control sheet or other mechanism of price controlling is available		
	What are the main activities performed by the evaluator		
	What procedures are performed when Medication error is observed		
	Is the counseling area comfortable		
	There is DTP report		
	Average number of patient /counseling made per dispenser is known		
	The maximum No of patient served is known		

2. Accounting, sales and auditing service	Availability of vouchers, sales tickets, dispensing registers and other relevant tools		
	Proper recording, use and filing of • Vouchers, • Sales tickets and • Registers (free and credit)		
	Proper service of cashiers as per APTS standards		

		Availability of safe box		
		Availability of filled daily summary and monthly financial & service reports with process		
		Pad register handling is accurate		
		Cash sales ticket handling by accountants is perfect		
		Credit/free registers handling is perfect		
		Filling for copy vouchers and cash sales tickets		
		Availability of product audit report and process		
		Random physical inventory sheet documentation		
		Cutoff in sales tickets, cutoff in vouchers and registers (before physical inventory and auditing)		
		Evidence signature (METEMAMEGNA) sheet for store, dispensaries		
		Availabilities service audit reports and process		
		Price setting and cost variation announcement and process		
		Filing of the audit results		

3.	Supply management	Availability of facility specific medicines list approved by the DTC and the facility specific medicines list is prioritized by VEN		
4.	and store	Availability ABC/VEN reconciliation report for the previous budget year		
		Availabilities of selection and quantification policy		
		Availability of stock status analysis reports of the year month, Quarter or year		
		Adequacy and appropriateness of the pharmacy store (space, shelving, cleanliness, ventilation, cold chain facility, etc…)		
		Bin card update and crosscheck with stock cards		
		Does coding done properly		
		Physical inventory with APTS principles		
		Medication, Equipment and supplies arrangement		
5.	Pharmacy Head	Patient load versus human resource adjustment		
		Wastage rate versus bin management		

	Availability of medicines and supplies for top ten diseases of the catchment area (are top ten diseases listed and posted?), are medicines and supplies identified for them? N$\geq$35 are identified		
	Findings of the stock analysis; stock turnover ratio, consumption to stock ratio, and other general indicators		
	Conducted SSA (specific) based on APTS principles		
	Measures taken as per the findings of SSA; for overstocks; exchange, transfer, donation, reverse logistics, promote prescriber • For understocks; Refill understocks		
	Findings of affordability versus procurement source is compared		
	Findings of the monthly (revenue)		
	Findings of beginning and ending stock		
	Findings of DTP and solutions at OPD		
	Findings of the product audit and another service audit etc.		

Annexes

Annex 1: APTS Vouchers and Formats

The major formats and templates for implementation, monitoring and evaluation of APTS are presented in the following pages.

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The Federal Democratic Republic of Ethiopia, Ministryof Finance and Economic Development

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Receiving Voucher for Drugs, Reagents, Medical Supplies and Equipment

□…………………………………………………………□□□………/…..…./20……..□.□ □□□□□ □□□………………..………

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Asperinvoice no ……..…….…..…Dated……./…...20………hereby certifythat I …………………………………………………………have counted correctlyand received itemsenumeratedbelow for……………………………….

□□ □□□□ S/No	□□□□□□ □□ □□ Drug Base Code	□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□- □□□ □□□□□ □□□□□ □□□□□ (□□□□ □□ □□ □□□□)	□□□□ Unit	□□□□ □□□ Quantity Receive	□□□□ □□□□□ □□ Unit Cost	□□□□ □ □□	□□□□ □□□ □□□□ Batch No/	□□□□□ □□ Expir y date	□□□□ Remark
		□□□□ □□□/ Sum-Total								

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Delivered by Name_____Signature_____Received by: Name_____Signature_____

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Note: OriginaltotheAccount,SecondCopytoDeliverer,ThirdCopytoStockcardclerkand4ᵗʰcopytoPad.Whenreceiverinstitutiondoesn'twanttheoriginalforsettlement,itcanbegiven tothedelivererandcopytoaccount.

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□□□□□□□□□□□□□□□□Drugsandmedicalsupplieswhicharenotinfromthesamecategoryandbudgetsourceshouldnotbepreparedonthesamepageofvoucher.Drugsandmedicals supplies whichdon't have costshouldbeestimated by expertsin the facility.

Note: ESN: Equipment Serial Number □ □□□ □□□ □□□□□□□□□□□□□ □□□□□□□□□□□□□□

የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ የገንዘብና ኢኮኖሚ ልማት ሚኒስቴር
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□ _____ □□

Internal Facility Stock Status Report and Requisition Form

□□ □□ □ S/N	□□□□□□ □□ □□ Drug Base Code	□□□□□ (□□□□□□/□□□□/□□□□□□□□ □□□□□□□□□□□□□□□□ □□□□□□) **Description:** (Drug/Reagent/ Supplies/ Name Strength, Dosage Form, (Brand, if any)	Completed by Dispensing Units					Completed By Store			Qty to be Approved	Remark
			Beg Stock	QTY Received	Loss /Adj.	End stock	Expiry date if drugs will expire in ≤15 days	Calculated Consumption E=A+B±C-D	Max F=E*2	Qty to Max G=F-D		
			A	B	C	D		E	F	G	H	I

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Reported/Requested by Name ………………………………… Signature & date: …………… Approved by Name …………………………Signature & Date: _____store man sig.
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Remark: Ending stock /reorder level should be set for every drug

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Issuing Voucher for Drugs,Reagents, Medical Supplies and
Equipment

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As perrequisition dated……..…./…....20………hereby certify that I …………………………………………..…………………….……have counted correctlyand
receiveditems enumerated below for……………………………….

ኡኡ □□□ S/No	□□□□□□ □□ DrugCode	□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□- □□□ □□□□□ □□□□□ □□□□□ (□□□□ □□ □□ □□□□) Description of Drugs, Reagents, Medical Supplies, and	□□□□ Unit	□□□□□ □□□ Quantity Issued	□□□□ □□□□ □□ □□ Birr	□□□□ □ C	□□□□ □□□□ □ □□ Birr	□□□□ □ C	□□□□ □□□□ □□ □□ Birr	□□□□ □ C	Retail Unit	Retail Price Birr /cents
			□□□□ □□□/ Sum-Total									

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Issued by: Name_____ Signature_____ **Received by**: Name_____ Signature_____
Witnessed by:Name_____ Signature _____Name
_____Signature_____

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Note:Original totheAccount,Second CopytoDeliverer, ThirdCopytoStockcardclerkand4ᵗʰcopytoPad. Witness should sign on the space provided to confirm product are issued

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supplies with the samereceiverwill be preparedin a similar page of voucher. Drugs and medicalsupplieswhich don't have costwill be estimated by experts inthe facility

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S/N	Date	Name of the Receiver/Returnee(Dispenser, Lab Tech,Radiologist, Nurse)	Serial Number Issued		Signature of Receiver	Ser. No. of Used pad returned		Date	Ser Number of Lost, Void, Damaged	Signature of accountant for returned pads	Signature for lost/ damaged /void
			From	To		From	To				
Total number of Ticket/pads		□□□□ □□□□□□									

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የመድኃኒቶች የህክምና ቁሳቁሶች የላብራቶሪ ኬሚካሎች የራጂ አገልግሎቶች የእጅ በእጅ ሽያጭ ደረሰኝ

Cash Sales Ticket for Drugs, Medical Supplies and Laboratory Reagents/X-rays

የደንበኛው ሙሉ ስም ስም ስም ስም **Full Name of Client**			ፆታ Sex………	ዕድሜ Age.....		
የደንበኛ **Client Address**	ወረዳ **Woreda..................**	ቀበሌ **Kebele……………… …**	ካርድ ቁጥር **Card No…………….…….**			
የመድኃኒት ኮድ DrugCode/ service code	ዝርዝር (የመድኃኒት/ኬሚካል/የህክምና ቁሳቁስ መጠሪያ ስም ጥንካሬ) **Description:** (Drug/Reagent/ Supplies/ Name Strength, Dosage Form, (Brand, if any)	የችርቻሮ መለኪያ **Retail Unit**	የችርቻሮ ብዛት **Retail QTY**	የችርቻሮ ዋጋ **Retail price**		ጠቅላላ የችርቻሮ ዋጋ **Total R. Price**

ጠቅላላ ድምር በፊደል የተጻፈ ገንዘብ /**Sum Total**Amount In Words

የአደላዩ ፊርማና ቀንና ቀን
Signature of Dispenser and Date ……………………………………………………………………………..

የመጀመሪያው ቅጅ ለደንበኛ ሁለተኛው ቅጅ ለገንዘብ ተቀባይ ሶስተኛው 2ኛው ቅጂ ለተመዘገበ ይህ ደረሰኝ እንደ ደረሰኝ

Note: The original shall be given to the client, second copy to Cashier, the third to pad. This ticket serves also as a legal receipt of the, pharmacy, laboratory/x-ray. የዚህ ፋርማሲ/ለላብራቶሪ/ እንደ ህጋዊ ደረሰኝ ሆኖ ያገለግላል

ለሂሳብ ስራ ማስያዣ ብቻ/ **Only for accounting purpose**

የበጀት ምድብ/ *Budget Category*	የሂሳብ ኮድ/ *Account code*	ዴቢት/*Debit*	ክሬዲት/ *Credit*
	4101		
	1436		
	1437	*10*	
ጠቅላላ ድምር /**Sum Total**			

የገንዘብ ተቀባይ ፊርማ ቀንና ቀን   የጤና ተቋም ማህተም

Signature of Cashier and Date…………………………………………….   Unit of the health facility stamp

የዱቤ ሽያጭ ደረሰኝ
Credit Sales Ticket

 የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ የፋይናንስና ኢኮኖሚ ልማት ሚኒስቴር
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የመድኃኒቶች የዱቤ ሽያጭ የሒሳብ ደረሰኝ መመለሻ

Credit Sales Ticket for Pharmaceuticals

የደንበኛው ሙሉ ስም አድራሻ **Full Name of Client**			ጾታ ዕድሜ Sex……… Age.....
አድራሻ **Client Address**	ወረዳ Woreda...................	ቀበሌ Kebele…...…..……… …	ካርድ ቁጥር Card No……………..……..

የመድኃኒት ኮድ Drug Code/ service code	መግለጫ (የመድኃኒት/ሪኤጀንት/አቅርቦት ስም ጥንካሬ የመድኃኒት ቅርጽ (ብራንድ ካለ) **Description:** (Drug/Reagent/ Supplies/ Name Strength, Dosage Form, (Brand, if any)	የችርቻሮ መለኪያ **Retail Unit**	የችርቻሮ መጠን **Retail QTY**	የችርቻሮ ዋጋ **Retail price**	አጠቃላይ ዋጋ **Total Price**

አጠቃላይ ድምር በቃላት	ጠቅላላ ድምር /**Sum Total**Amount In Words		

የገንዘብ ተቀባይ ፊርማና ቀንና
Signature of Cashier and Date…………………………………….……….

ማስታወሻ ይህ ደረሰኝ ዋናው ለደንበኛ የመጀመሪያ ቅጂ ለገንዘብ ተቀባይ 2ኛ ቅጂ ለመዝገብ ይሆናል ይህ ደረሰኝ እንደ
Note: The original shall be given to the client, Second copy to Cashier, the third to pad. This ticket serves also as a legal receipt of the pharmacy.
ህጋዊ የሒሳብ ደረሰኝነት ሆኖ ያገለግላል መድኃኒት ቤቱ ይህ ሊሆን ይችላል

ለሒሳብ ስራ አገልግሎት ብቻ/**only for accounting purpose**

ባጀት ምድብ/ *Budget Category*	ሒሳብ ኮድ/ *Account code*	ዴቢት/ *Debit*	ክሬዲት/*Credit*
	4211		
	1436		
	1437		
	ጠቅላላ ድምር /**Sum Total**		

የገንዘብ ተቀባይ ፊርማና የዱቤ ሽያጭ ደረሰኝ ቅጂ ለመቀበል
Signature of cashier and Date for receiving the credit sales ticket copy ………..

የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ የገንዘብና ኢኮኖሚ ልማት ሚኒስቴር
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የመድኃኒት/የህክምና ቁሳቁስ የብድር ሽያጭ ፍጆታ ምዝገባ/መደብ መዝገብ
Drugs & Medical Supplies Credit Sales/Consumption Registration Book

ተራ ቁ S/N	የታካሚው ስምና የአልጋ ቁጥር (ለውስጥ ለሚተኛ) Name of Patient and Bed Number (for inpatient)	የካርድ ቁጥር Card Number	(እድሜ እና ጾታ) Age & Sex		የአባል ድርጅት ስም Name of Sponsor Organization	የመድኃኒት ኮድ/የአገልግሎት DrugCode Service code	የመድኃኒት(ስም ጥንካሬ የአሰጣጥ ሁኔታ) እና አገልግሎት Description: Medicines Name Strength, Dosage Form) and Services	Unit	ጠቅላላ ብዛት Total QTY	የችርቻሮ ዋጋ Retail price	ጠቅላላ ዋጋ Total Retail Price	የታካሚው ወይም አስታማሚው ፊርማPatient /care giver Sig
			ጾ/Sex	እድሜAge								
	Page Summary የገጽ ድምር								ጠቅላላ ድምር Sum Total			

የመድኃኒት/የላቦራቶሪ/የራጅ ባለሙያ ነርስ ስም ፊርማና ቀን
Dispensers/Lab Tech, X-ray tech, Nurse,Name and Signature and Date _____
የሂሳብ ሠራተኛ ስም ፊርማና ቀን
Accountant's Name, Signature and Date _____ **Note: credit and free patients should be registered in a separate pad of this register. At least two pads of register should be made available always at each dispensaries and service delivery units for each transaction type. If one pharmacist is replaced by another before the page is completed, he/she should sign on the middle of the page and do half page summary and close with hand written line. Then the second pharmacist should continue. Serial number should be continuous for a month in both active registers. Note: Each register shall have a code on its cover page (example: Code: - ANC/delivery PNC (from 1 to 10), OI (from 11 to 20), Anti Malaria (from 21 to 30), Anti TB (from 31 to 40), credit CHI (50 to 60) and so on). Code should be hand written and not printed.**

Inpatient Credit/Free /Sales Dispensing Register/

ᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠ ᚠᚠᚠ ᚠᚠᚠᚠᚠ
The Federal Democratic Republic of Ethiopia, Ministry of Finance and Economic Development
ᚠᚠᚠ ᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠ/ᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠ/ᚠᚠᚠ ᚠᚠᚠᚠᚠᚠ ᚠᚠ
Drugs &Medical Supplies Credit Sales/Consumption Registration Bookfor inpatient

ᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠ ᚠᚠ
Name of Patient _____**Name of Sponsor Organization** _____**Bed No** _____**Card No**_____

(ᚠᚠᚠ) **Age** _____**Sex/**ᚠᚠ_____**Dx/**ᚠᚠᚠᚠ_____**Others if any**_____

ᚠᚠ S/N	Date ᚠᚠ	ᚠᚠᚠᚠᚠ/ᚠᚠᚠᚠ ᚠᚠᚠ ᚠᚠᚠ Drug/Servicecode	ᚠᚠᚠᚠᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠᚠᚠᚠᚠᚠ) ᚠᚠ ᚠᚠᚠᚠᚠ Description: (Medicines Name Strength, Dosage Form) brand if any and Services	ᚠᚠᚠᚠ ᚠᚠᚠ Total QTY	ᚠᚠᚠᚠᚠ Retail price	ᚠᚠᚠ ᚠᚠ Total Retail Price	ᚠᚠᚠᚠᚠ ᚠᚠᚠᚠᚠᚠ ᚠᚠᚠPatient /care giver Sig
					Total		

ᚠᚠᚠᚠᚠᚠ/ᚠᚠᚠᚠᚠᚠᚠᚠᚠᚠᚠ/ ᚠᚠᚠ ᚠᚠᚠᚠᚠ ᚠᚠᚠ ᚠᚠᚠᚠ
Dispensers/Lab Tech, X-ray tech, Nurse, Name and Signature _____

Function:This sheet is used to record medicines, supplies and reagents with their financial values consumed by admitted patients.

Location: This registration book will be placed in inpatient pharmacy or in wards

Work process: The nurse or ward pharmacist will record medicines, supplies and reagents with their financial values consumed by the patient during admission. During discharge, the record will be reconciled with actual consumption and approved by the personnel in charge and payment will be effected if the patient must pay at last on cash or will be documentedfor sponsors if sponsors will pay for.Note: This system is very easy when software or excel sheet is used for recording

Used Sales Ticket-Cashier's delivery note -42-2

ሰበሰበሰ ሰበሰበ ሰበበሰበበበ ሰበሰበ ሰበበሰበ ሰበሰበ ሰበ ሰበሰበ
The Federal Democratic Republic of Ethiopia, Ministry of Finance and Economic Development

ሰበበ ሰበ ሰበበ ሰበሰበ ሰበበበበበበበበበበበበበ-42-2
Used Cash /Credit Sales Ticket- delivery note 42-2

ሰበ _____

ሰበበበበሰበ ሰበበ _____

ሰ.ሰ	ሰበበበበበበበበበበበበበ	ሰበበበበበ ሰበበበበበበ ሰበበ Ser No from -----to --------		ሰበበበበበበ ሰበበበበበ ሰበ	ሰበበበበበ ሰበበ (ሰበ)	ሰበበበ ሰበበ	ሰበበበበ ሰበበበበ ሰ	ሰበበበበ ሰበበ	
								ሰበ	ሰ
	ሰበበበ ሰበበ								
	ሰበበበ ሰበበበበበ ሰበበበበ If under collected by cashiers								
	ሰበበበ ሰበበበበበበ ሰበበበበ If over collected by cashiers								

ሰበበበበበ ሰበ ሰበበ_____

ሰበበበበ ሰበበበበበበበበበበበበ_____

Note: Over and under will be summarized after daily summary. Accountant should receive as it is

ሰበበ ሰበ ሰበበ ሰበበ 19 ሰበ 22/ሰበበበበበበበበበበ-42-4

Used Model/19/22 health delivery note -42-4

ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏ ⵏⵏⵏⵏⵏ
The Federal Democratic Republic of Ethiopia, Ministry of Finance and Economic Development
ⵏⵏⵏ ⵏⵏ ⵏⵏⵏ ⵏⵏⵏ 19 ⵏⵏ 22/ⵏⵏⵏⵏⵏⵏⵏⵏⵏ-42-4
Used Model 19/health and 22/health delivery note 42-4

ⵏ.ⵏ SN	ⵏⵏ	ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏ ⵏⵏ Accountant name	ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏ Ser No of models from -----to -----		ⵏⵏⵏⵏⵏⵏⵏⵏ/ⵏⵏⵏⵏ ⵏⵏ (ⵏⵏ) Void/lost/ Damaged	ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏ ⵏⵏ Receiver Name	ⵏⵏⵏ signature

ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏ ⵏⵏ ⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏ ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏ ⵏⵏ ⵏⵏⵏ ⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏ ⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏ ⵏⵏⵏⵏⵏⵏⵏ

የእለትችርቻሮእዕ በእጅ ሽያጭ ማጠቃለያቅጽ
Daily Cash Dispensary Summary Form (DCDS1)

Date _____

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Daily Cash Dispensary Summary Form

S/N □. □	Name of Provider □ □□□□□ □□	Sales ticket Serial Number Used: □□□□□□□ □□□□ □□□ □......□□□......		Total Amount Cash Collected □□□□ □□□□□□□ □□□□□ □□□		From the total collected; Service Fee e.g. Compounding/ □□□□ □□□□□□□ □□□□ □□□□□□	From the total collected; identify Over (+) collected Birr/ □□□□ □□□□□□□ □□□□ □□□ □□□□	From the total collected; identify Under (-) Collected Birr□□□□□ □□□□□□□ □□□□ □□□□ □□□□	No of Ticket Used /* □□□□□□□ □□□□ □□□	No of drug Dispensed by type** □□□□□ □□□□□□ □□□ □□□□□	Signature of responsible person; if only discrepancy □□□□□□ □□□ □□□□ □ □□
□□□□□□□/Sum-Total											
Total over/under collected by cashiers /*Note: please refer details in cashier's delivery note* □□□□□□□□ □□□ □□□□□□ □□□□□□ □□□□□ □□□□ □□□□ □□ □□□□□□											
Total collected as per bank slip/ □□□□□□											
Total adjusted sales /□□□□□□□□□□□□□□ □□□											

□□□□ □□ □□□□□□ □□/only for accounting purpose			
□□□□ □□□/ *Budget Category*	□□□□ □□□/*Account code*	□□□/*Debit*	□□□□/*Credit*
	4101		
	1436		
	1437		
□□□□ □□□ /Sum-Total			

Note: is approximately equals to Total no of patients served. ** isapproximately equal to number of counseling made*
□□□□□□ * □□□□□ □□□□□□□ □□□□ □□□ □□□□□ □□□□□ □□□ □□□□□ □□□□ □□□□□ □□□□□ □□□□□ □□□□ □□□ □□□□□ □□□□□□ □□□□ □□□□ □□□□□□□ □□ □□□ □□□□□

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ዕለታዊ የዱቤ/ነጻ መድሃኒት ማደያ ማጠቃለያ ቅጽ   Date _____

Daily Credit/FreeDispensary Summary Form (DCDS 2)

ዕለታዊ የዱቤ መድሃኒት ማደያ ማጠቃለያ ቅጽ ዱቤ/ነጻ መድሃኒት ማደያ ቅጽ

Daily Credit/Free Dispensary Summary Form

ተ.ቁ S/N	የማደያ ሰራተኛ ስም Name of Dispenser	የተሸጠበት ዱቤ መመዝገቢያ ቁጥር ከ……ቁጥር…… Credit customers entry number from _____ to_____		ጠቅላላ የዱቤ ሽያጭ መጠን Total Credit Sales Amount	ብልጫ ያለው ሽያጭ Over (+) sales In Birr	ጉድለት ያለው ሽያጭ Under (-) Sales in Birr	የተሰረዙ ሰንጠረዦች ቁጥር Seri o of Voided / cancelled rows	የአገልግሎት ተጠቃሚ ቁጥር No of patient served	የተሰጠ መድሃኒት ብዛት በአይነት No of drug Dispensed by type**	የማደያ ሰራተኛ ፊርማ Signature of Dispenser
ድምር ብዛት /Sum-Total										
Adjusted Sales										

ለሂሳብ ስራ አገልግሎት ብቻ/only for accounting purpose			
የበጀት ምድብ/ *Budget Category*	የሂሳብ ኮድ/ *Account code*	ዴቢት/ *Debit*	ክሬዲት/ *Credit*
	4211		
	1436		
	1437		
ጠቅላላ ድምር /**Sum-Total**			

በማንኛውም ሁኔታ የተሰጠ መድሃኒት ብዛት በአይነት የሚመዘገበው ከላይ ባለው ሰንጠረዥ ላይ ነው

በዚህ ቅጽ ላይ የተመዘገበው መረጃ ትክክለኛ መሆኑን በፊርማዬ አረጋግጣለሁ/የተሰጠ መድሃኒት ብዛት በአይነት

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Note: If overage or shortage is found before payment of credit sales is effected, correction can be made. The number of drugs (count of codes) approximately equal to number of counseling made. Credit/ Free Daily Sales Summary pad should be separated for credit and free patients.

Date	Card #	Age	sex	Rx Serial #	Prescription			Specific diagnosis	Code of DTP identified and its justification with reference	Intervention proposed	Acceptance of Intervention (√)			Cost of drug with DTP	Cost of Drug after intervention	Initial & sign
					Legal? (√ if not)	Legible? (√ if not)	Complete? (√ if not)				Fully	Partially	Rejected			
Total count/ sum																

Page Sum	1. # unnecessary drug therapy (DTP 1) = _____ 2. # needs additional drug therapy (DTP 2) = _____ 3. # ineffective drugs (DTP 3) = _____ 4. # dosage too low (DTP 4) = _____ 5. # adverse drug event (DTP 5) =_____ 6. # dosage too high (DTP 6) = _____ 7. # noncompliance (DTP 7) =_____
	# DTPs involving antibiotics = _____, # DTPs involving antimalarial = _____, # of females (≥ 15yr) = _____, # of child (< 5yr) = _____
	Code for: Rx with legality problems = RxL1, Rx with legibility problems = RxL2, Rx with completeness problems = RxC

Prescription Evaluation, Intervention and Documentation Register   **Page # _____**

NB: Code of DTPs described in bracket, all are completed and summarized by prescription evaluators, use new page for a new month (use EC)
Note: The pharmacy accountant should incorporate summarized DTPs from this register when they prepare monthly service reports

Daily summary for DTP

	DTP Types	Number of DTP identified by type
1	DTP1	
2	DTP2	
3	DTP3	
4	DTP4	
5	DTP5	
6	DTP6	
7	DTP7	
8	DTP8	
	TOTAL	

የዱቤ ፍጆታመጠየቂያቅጽ
Credit Sales Invoice

☐☐☐☐☐☐/☐☐☐☐☐☐ ☐☐☐☐☐ ☐☐☐☐☐ ☐☐☐☐☐☐☐ ☐☐☐ ☐☐☐ ☐☐☐☐ ☐☐☐☐☐ ☐☐☐☐
Drugs & Medical Supplies Credit Sales Invoice

☐☐☐☐☐☐ ☐☐☐☐ ☐☐
Name of Sponsor Organization_____

☐☐ S/N	☐☐☐☐☐☐/☐☐☐☐☐ ☐☐ Name of Patient /Client	☐☐☐☐ ☐☐☐ Card Number	☐☐☐☐ Adress		☐☐☐☐☐☐ ☐☐ Cost of Medicines /Reagents, X-ray Films/		☐☐☐☐ ☐☐☐☐ ☐☐☐☐☐☐☐ ☐☐ Cost of Services (all type),		☐☐☐☐ ☐☐ Total	
			☐☐☐ Woreda	☐☐☐ Kebele	Birr	Cents	Birr	Cents	Birr	Cents
☐☐☐☐ ☐☐☐ Sum Total										

☐☐☐☐ ☐☐☐☐☐☐ ☐☐☐ ☐☐☐☐ ☐☐☐☐☐☐ ☐☐
Accountant's Name, Signature and Date _____

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Dispensary/Other Service Units Inventory Form

Name of Health Facility_____ **Section (unit)** _____ **Page number** _____ **Date**_____

S N	የመድኃኒት ኮድ DrugCode	Description (Drug name, dosage form, strength and brand)	Retail Unit	Batch No	Retail price		Expiry date	Physical QTY	Unit Cost	Total cost	Remark
									SUM Total		

Header spans: "To be Filled Before the Physical Inventory" covers DrugCode through Expiry date; "To be Filled During Inventory" covers Physical QTY; "To be Filled After Physical Inventory" covers Unit Cost and Total cost.

Inventory Registered by Name _____**Counted by Name** _____ **Recounted by Name** _____

Signature_____ , **Signature** _____ **Signature** _____

Responsible Persons Name_____,_____,_____

Signature's _____,_____,_____

Store Inventory Form (SIF)

Name of Health facility_____ Section (unit) store   Page number _____ Date_____

SN	To be Filled Before the Physical Inventory						To be Filled During Inventory		To be Filled After Physical Inventory		Remark
	Drug code	Description (Drug name, dosage form, strength and brand)	Unit	Batch No	Expiry date	Unit cost	Physical QTY	Bin/ Stock card Balance	Total cost	Discrepancy	
									Sum-Total			

Inventory Registered by Name _____Counted by Name _____Recounted by Name _____

Signature_____ Signature   _____ Signature _____

Responsible Persons Name_____,_____,_____

Signature's _____,_____,_____

Stock Status Analysis Form (SSA)

□□

Ser. No	**Description:** Name of drug, Dosage form, Strength, bran if any	Unit	Total Stock at hand & ordered	Expiry Date	Average Monthly or last month Consumption if increasing	Months of Stock (MOS) Stock could be enough for months	Until expiry, the amount of stock that could be consumed	Over stock (will expire unless measure is taken)	Additional stock needed for the next 4 months	
									Amount of Stock in unit	months
			A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Key: A = <u>Stock Dispensing Units + Other Service Units + Pharmacy Store +SO</u>			C = <u>Quarter Consumption</u> 3 - DOS in Months		D =A/C ,		E = (C x Shelf life in month), or = (A) when no over stock, Note: *S.L		F= A – E	G = (C x 4) - DC	

Note: -If column 'G 'is negative number, then divide that number by column 'C' ; the result is the amount of stock available that can be used for extra months (more than 4 month), Extra months than the 4th month are indicated as negative H .And out of stock months before the 4th month are indicated as positive '**H**'

When calculating '**D',** the shelf life of a drug is very much important.

*S.L. stands for "shelf **life"** of a drug should be considered in calculating consumption "

SO=stock ordered, DOS=days out of stock in months

When ABC/VEN analysis is performed and when **'A'** class items are in discrepancy with VEN, then A class should be subjected to Stock Status Analysis. When a drug has near expiry, it should be analyzed with this Stock Status Analysis Form

					Price code						
SN	Base code	Description (Product name, dosage form, strength, brand, and batch number)	Expiry Date	Retail Unit	1	2	3	4	5	6	

Name of Hl _____

Price control sheet prepared by; Store Manager's Name; _____Signature_____ Stamp _____

_____Checked by ; pharmacy accountant's Name_____Signature_____

PRESCRIPTION PAPER   Ser No_____

Name of Hospital: _____|

Tel: _____

Patient's full Name: _____

Sex: _ Age: _____ Weight: _____ Card No._____

Region: ___ Town _____ Woreda ____ Kebele _____

House No. _____ Tel. No: _____ ☐ Inpatient ☐ Outpatient

Specific Diagnosis, if not ICD _____

Drug Name, Strength, Dosage Form, Dose, Frequency, Duration, Quantity, Route of Administration & other information	Price (dispensers use only)
℞	
Total Price	

Reconciliation: (Cash sales Ticket's SR No and Sig of cashier) _____

   Or (Register Code, SR No and Sig of dispenser for credit/free)

   _____

	Prescriber's	Evaluator's	Counselor's
Full name	_____	_____	_____
Qualification	_____	_____	_____
Registration #	_____	_____	_____
Signature	_____	_____	_____
Date:	_____	_____	_____

See overleaf

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Please Note the Following Information

1. **Prescriptions:**
   1.1. Are valid only if it has the seal of the health institution
   1.2. Filled and blank are legal documents, treat them as fixed assets
   1.3. Written and verbal information to the client complement one another
2. **The prescriber:**
   2.1. Never allow others to use Rx issued under your custody
   2.2. Drug treatment is only one of the treatment options
   2.3. Write the prescription correctly and legibly
   2.4. Diagnosis and other parts of the prescription should be completed
   2.5. Abbreviations are NOT recommended
   2.6. Please accept prescription verification call from the dispenser
   2.7. If dosage must be repeated by the same Rx, describe so and sign
3. **The Rx Evaluator -Pharmacy Professional should check for:**
   3.1. Legality of the Rx; (Standard Rx, authorized signature, title & date)
   3.2. Legibility (must be clear-never do guess work)
   3.3. Completeness of Rx (make sure all parts of RX are filled)
   3.4. Medication history using open ended questions
   3.5. Correctness of indication, dose, duration, contraindications, safety, interactions and others using recent STG, formulary and resources in DIS etc.
   3.6. Verification with the prescriber-If in doubt
   3.7. Drug therapy problems (DTPs) and document using relevant format
   3.8. Price of medicines Rx, announce to the patient and confirm payment
4. **The Counselor-Pharmacy Professional:**
   4.1. Dispenses the medicines to patients
   4.2. Check for whom the medicine is being dispensed: Patient or care taker
   4.3. Arrange appropriate container and packaging for the product
   4.4. Labels of medicines should be clear, legible and indelible
   4.5. Dispense with appropriate information and counseling
   4.6. Record Rx in special recording if refilling is prescribed
   4.7. keep filled prescriptions at least for 2 years
5. **Minimum drug label information:**
   5.1. Patient name
   5.2. Generic name, strength and dosage-form of the medicine, dose, frequency and duration of use of the medicines
   5.3. Route of administration and storage condition and quantity

Prescription Paper Movement Control Register 42-3

□□□□□□ □□□ □□□□ □□□□□ □□ **42-3**

Name of Hospital _____

I hereby agree to use the Rx paper I received with the stated serial numbers for the intended purpose only and return the pad when I finish the prescription

SN	Date	Name of authorized prescriber (Physician, Nurse, HO, etc.)	Serial number of the Rx. Issued		Signature of authorized prescriber
			From	To	

Note: The delegate personnel, who received Rx from store by issue voucher, and assigned to distribute Rx to prescriber's is responsible for the appropriate recording and distribution of Rx and checking proper use

Table 22: Monthly Service report

Name of Health Facility and Reporting Period (Month and year(G.C.)):		
Parameters	**Source of Information, Formula, Explanation**	**Performance:**
Total number of patients Served by cash	Number of cash sales tickets	
Total number of patients Served by credit	number of credit sales tickets or number patients on credit sales register	
Total number of patients Served for free	Number patients on free sales register /free patients	
Total number of patients Served by staff service	Number patients on staff sales register	
Total number of patients Served by maternity service (ANC + Delivery + PNC)	Number patients on maternity sales register (ANC + Delivery + PNC)	
Total number of patients who received OI Medicines	Number of patients on OI register	-
Total number of patients who received Anti Malarias	Number of patients on Anti-Malarial register	-
Total number of patients who received Anti TB Medicines	Number of patients on Anti TB register	-
Total number of patients who served for SAM/MAM/Others	Number of patients on SAM /MAM and other Nutrition registers	
Total number of patients served per month for Rx evaluation, Billing or counseling.	Number of cash sales tickets plus number of credit sales tickets or number patients on credit sales register plus number of free patients including staff	-
Total number of functional dispensers during the month	Number of dispensers who were active & providing service during the month	
Total number of working days during the month		
Average number of patients served per day	Total number of patients served per month divided by total number of working days	#DIV/0!
Maximum number of patients served per dispenser per month	Identify the dispenser who served the maximum number and put the number of patient served	
Minimum number of patients served per dispenser per month	Identify the dispenser who served the minimum number and put the number of patient served	
Average number of patients served per dispenser per month or per evaluator per month, or per biller per month, or per counselor per month	Total number of patients served divided by number of dispensers (evaluators or billers or counselors)	#DIV/0!
Number of drug use counseling held monthly per health facility	Number of medicines (by type) dispensed to credit, cash and free clients (Obtained from daily summary)	

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Average number of medicines use counseling sessions held monthly per dispenser	Number of medicines (by type) dispensed to credit, cash, and free clients by each dispenser (Obtained from daily summary)	**#DIV/0!**
Average number of medicines dispensed per encounter or patient	Number of medicines (by type) dispensed to credit, cash, and free clients divided by number of patients (Obtained from daily summary)	**#DIV/0!**
Average price of medicines dispensed per patient on cash	Total price of cash sales divided by number of cash sales ticket	**#DIV/0!**
Average price of a single medicine	Total sales at price (unadjusted) divided by total number of medicines by type	**#DIV/0!**
Affordability of medicines dispensed	Av. price of medicines dispensed per patients on cash (P) X 30 days. Smallest salary of unskilled government worker (961). (DW)= (Px30)/961; If DW <1 = affordable; if DW >1 to DW < 3 = some-how affordable and if DW> 3= un-affordable	**#DIV/0!**
Consumption to Stock Ratio	Cost of Medicines sold during the period divided by stock available for sale times 100	**#DIV/0!**
Percentage availability of indicator medicines (at least 35 medicines, reagents and supplies used to treat 10 top diseases)	# (Days that a medicines available times number of medicines plus # of days another medicines are available times number of medicines and so on divided by total # of medicines (i.e.35) times 30 days) times 30 days 100	
Stock turnover rate	Total cost of sales divided by Average inventory: average inventory is equal to beginning plus ending divided by two	**#DIV/0!**
Wastage (expired + damaged) rate in percent	Total medicines wasted divided by total stock available in Birr of the reporting period times 100	**#DIV/0!**
Number of Financial Audit conducted during the month	Number of financial audit report of medicines in monetary terms held during the month (Beginning + Received) Minus issued /dispensed	
Number of Service audit conducted during the month	Number of checking of quality of Services: (Prescription Evaluation, Dispensing and Counseling, Labeling & Bin Management) conducted during the month	
Number of Random Auditing of medicines by product held during the month	Number of audit report of medicines by product produced (by taking sample products and cross checking the sample stock in kind with beginning stock + received stock minus dispensed /issued)	

Number of drugs per prescription in outpatient pharmacy	Number of counseling held in the outpatient pharmacy only divided by number of patient served in outpatient pharmacy only	
Number of Rx with legality problems ((RXL1))	The total number of prescriptions recorded with legality problem per month. Refer the prescription evaluation register and daily summary	
Number of Rx with legibility problem ((RXL2))	The total number of prescriptions recorded with legibility problem per month. Refer the prescription evaluation register and daily summary	
# Rx with completeness problem (RXC1)	The total number of prescriptions recorded with completeness problem per month. Refer the prescription evaluation register and daily summary	
# Of unnecessary drug therapy (DTP 1)	The total number of unnecessary drug therapy (DTP1) identified per month. Refer the prescription evaluation register and daily summary	
# Needs additional drug therapy (DTP 2)	Total number of prescriptions that need additional drug therapy identified per month. Refer the prescription evaluation register and daily summary	
# Ineffective drugs (DTP 3)	Total number of prescriptions with ineffective drugs (DTP3) identified per month. Refer the prescription evaluation register and daily summary	
Number of dosage too low (DTP 4)	Total number of prescriptions with dosage too low (DTP4) identified per month. Refer the prescription evaluation register and daily summary	
Number of adverse drug event (DTP 5)	Total number of prescriptions with adverse drug effect (DTP5) identified per month. Refer the prescription evaluation register and daily summary	
# Dosage too high (DTP 6)	Total number of prescriptions with dosage too high (DTP5) identified per month. Refer the prescription evaluation register and daily summary	
Number of noncompliance (DTP 7)	Total number of prescriptions with non-compliance (DTP7) identified per month. Refer the prescription evaluation register and daily summary	

APTS_Monthly Financial Reporting Form (MFRF)

Name of Health Facility:			Reporting Month:	April	Year (G.C.):	2017
	Name of Reporting Section		**All Pharmacies**		**OPD Pharmacy**	
S.U	**Parameters**	**Type of Transactions**	**Value in Birr**		**Add**	**Less**
Dispensaries/SD Units	Total cost of beginning stock at dispensing outlets/Service delivery (SD) Units		-			
	Total cost of stock received during the month		-			
	Total Cost of stock available for sale		-		-	
	Total price of medicines dispensed/administered	Cash	-			
		Credit	-			
		Free	-			
		Staff	-			
		ANC+Delivery+PNC	-			
		OI Medicines	-			
		Anti Malarias	-			
		Anti TB Medicines	-			
		SAM/MAM/Others	-			
		Insulin (at cost)	-			
		Total Price Collected	-			-
		Service Fee	-			
		Overage	-			-
		Shortage	-			-
	Total price of adjusted medicines sales (Total sales only from Medicines)		-		**Profit Margin**	-
	Total cost of medicines dispensed + administered (adjusted)		-		**25%**	-
	Total cost of medicines expired and damaged from dispensaries		-			
	Total cost of medicines transferred out from dispensaries		-			
	Total cost of medicines dispensed + Expired/damaged + Transferred out		-			-
	Total cost of ending balance (calculated)		-		-	

Name of Health Facility:	St Peter Hl			Reporting Month:	Jan		Year (G.C.):	2017	

	MDR TB Pharmacy		Inpatient Pharmacy		Emergency Pharmacy		ART/OI Pharmacy		Toxicology	
	Add	Less	Add	Less	Add	Less	Add	Less	Add	Less
						-				
	-		-		-		-		-	
Cash				-		-		-		
Credit								-		
Free				-		-		-		
Staff						-		-		
ANC+ Delivery + PNC								-		
OI Medicines				-		-		-		
Anti Malarias				-		-		-		
Anti TB Medicines				-		-		-		
SAM/MAM/Others								-		
Total Price Collected		-		-		-		-		-
Service Fee	-									-
Overage	-									-
Shortage	-									-
Adjusted sales at price		-		-		-		-		-
Adjusted sales at cost		-		-		-		-		-
Total cost of expired or damaged medicines		-		-		-		-		-
Total cost of medicines Transferred out		-		-		-		-		-
Total cost of medicines dispensed + expired/damaged + transferred out		-		-		-		-		-
Total cost of ending balance (Calculated)	-	-	-		-		-		-	
Total cost of stock on hand (from physical Inventory)										-
Discrepancy, if any		-		-		-		-		-

APTS_Monthly Financial Reporting Form (MFRF)

Name of Health				Reporting Month:		April		Year (G.C.):	2017
Chronic Care Pharmacy		Inpatient Pharmacy		Emergency Pharmacy		ART/OI Pharmacy		Gyne-Pharmacy	
Add	Less	Add	Less	Add	Less	Add	Less	Add	Less
-		-		-		-		-	
Cash									
Credit									
Free									
Staff									
ANC+ Delivery + PNC									
OI Medicines									
Anti Malarias									
Anti TB Medicines									
SAM/MAM/Others									
Insulin (at cost)									
Total Price	-		-		-		-		-
Service Fee	-		-		-		-		-
Overage	-		-		-		-		-
Shortage	-		-		-		-		-
Adjusted sales at price	-		-		-		-		-
Adjusted sales at cost	-		-		-		-		-
Total cost of expired or damaged medicines							-		-
Total cost of medicines Transferred out	-		-		-		-		-
Total cost of medicines dispensed + expired/damaged + transferred out	-		-		-		-		-
Total cost of ending balance (Calculated)	-	-		-		-		-	

Name of Health Facility:		Reporting Month:	April	Year (G.C.):	2017	
Parameters			Store (3 + 4)	**Medicines Store 3**		**Supplies Store 4**	
				Add	Less	Add	Less
store	Total cost of beginning stock at the pharmacy store		-				
	Total cost of stock received by the pharmacy store		-				
	Total Cost of stock available for sale (store one + store two)		-	-		-	
	Total cost of medicines issued to only pharmacy dispensing outlets from store		-				
	Total Cost of Medicines issued to only Laboratory units from Store		-		-		-
	Total Cost of Medicines issued to Service Delivery Units (other than Pharmacy dispensaries and Laboratory units)		-				
	Total Cost of Medicines issued to all Pharmacy Dispensing Outlets + Laboratory Units and other Service Delivery Units		-		-		-
	Total cost of medicines expired from Store		-				
	Total Cost of drugs transferred out		-				
	Total cost of medicines: issued + damaged/expired + transferred out from store		-		-		-
		Total cost of ending balance (calculated)	-		-		-

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Reconciliation	Total cost of stock on hand (from physical inventory)	-				
	Discrepancy, if any	-		-		-

Name of Health Facility:		Reporting Month:	April	Year (G.C.):	2017

	Parameters	All stores (1 + 2 + 3 + 4)	Medicines Store 1		Supplies Store 2	
			Add	Less	Add	Less
store	Total cost of beginning stock at the pharmacy store	-				
	Total cost of stock received by the pharmacy store	-				
	Total Cost of stock available for sale (store one + store two + store three + store four)	-	-		-	
	Total cost of medicines issued to only pharmacy dispensing outlets from store	-				
	Total Cost of Medicines issued to only Laboratory units from Store	-		-		-
	Total Cost of Medicines issued to Service Delivery Units (other than Pharmacy dispensaries and Laboratory units)	-				
	Total Cost of Medicines issued to all Pharmacy Dispensing Outlets + Laboratory Units and other Service Delivery Units	-		-		-
	Total cost of medicines expired/damaged from Store	-				
	Total Cost of medicines transferred out from store to other health facilities	-				-

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	Total cost of medicines: issued + damaged/expired + transferred out from store to other health facilities	-		-		-
Reconcilation	Total cost of ending balance (calculated)	-		-		-
	Total cost of stock on hand (from physical inventory)	-				
	Discrepancy, if any	-		-		-

Name of Health Facility:		St Peter Hl	Reporting Month:	Jan		Year (G.C.):	2017	
Parameters			Store (3 + 4)	**MDR Medicines Store 3**		**ART Drugs Store 4**	
				Add	Less	Add	Less
store		Total cost of beginning stock at the pharmacy store	-				
		Total cost of stock received by the pharmacy store	-				
		Total Cost of stock available for sale (store one + store two)	-	-		-	
		Total cost of medicines issued to only pharmacy dispensing outlets from store	-				
		Total Cost of Medicines issued to only Laboratory units from Store	-		-		-
		Total Cost of Medicines issued to Service Delivery Units (other than Pharmacy dispensaries and Laboratory units)	-				
		Total Cost of Medicines issued to all Pharmacy Dispensing Outlets + Laboratory Units and other Service Delivery Units	-		-		-
		Total cost of medicines expired from Store	-				
		Total Cost of medicines transferred out	-				
		Total cost of medicines: issued + damaged/expired + transferred out from store	-		-		-
	Reconciliation	Total cost of ending balance (calculated)	-		-		-
		Total cost of stock on hand (from physical inventory)	-				
		Discrepancy, if any	-		-		-

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store	Total cost of beginning stock at the pharmacy store	-				
	Total cost of stock received by the pharmacy store	-				
	Total Cost of stock available for sale (store one + store two + store three + store four)	-	-		-	
	Total cost of medicines issued to only pharmacy dispensing outlets from store	-				
	Total Cost of Medicines issued to only Laboratory units from Store	-		-		-
	Total Cost of Medicines issued to Service Delivery Units (other than Pharmacy dispensaries and Laboratory units)	-				
	Total Cost of Medicines issued to all Pharmacy Dispensing Outlets + Laboratory Units and other Service Delivery Units	-		-		-
	Total cost of medicines expired/damaged from Store	-				
	Total Cost of medicines transferred out from store to other health facilities	-				-
	Total cost of medicines: issued + damaged/expired + transferred out from store to other health facilities	-		-		-
	Reconciliation	Total cost of ending balance (calculated)	-		-		-
		Total cost of stock on hand (from physical inventory)	-				
		Discrepancy, if any	-		-		-

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				Reporting Month:	April	**Year (G.C.):**	**2017**
	Name of Health Facility:						
			Parameters			**Add**	**Less**
Heath Facility	Total cost of beginning stock (Store + Dispensaries + SD Units)					-	
	Total cost of stock received (by the Pharmacy Store)					-	
	Cost of stock available for sale (store + dispensaries + SD Units)				-		
	Total cost of medicines dispensed at dispensing outlets, laboratory & service delivery units (converted from total sales into cost and adjusted)						-
	Total cost of medicines transferred out from Store to other health facilities						-
	Total cost of medicines expired/damaged (Store + Dispensary + SD Units)						-
	Total cost of medicines dispensed + transferred out + expired/damaged in the health facility						-
	Reconcilation	Total cost of ending balance (calculated)			-		
		Total cost of stock on hand (from physical inventory)			-		
		Discrepancy, if any			-		
Summary	Total Sales (at price) = sum of daily sales of the month						-
	Total Cost of Sales (Credit, Cash) = Total Sales/(1+Profit margin)						-
	Gross profit= **Total Sales – (Total Cost of Sales)**				-		
	Gross profit that would have been obtained from Insulin if it was sold at profit				-		
	Total gross profit that would have been obtained including insulin sales if it was sold at profit				-		
	Total Expenses = (Salary, Stationery, Telephone, Transportation, etc.)						

Net income = Gross profit – (Total Expense)	-		

Annex 2 Auditing forms

1. Evidence/ Vouchers (Model 19/health & 22/health) METEMAMEGNA/

S/N	Ser # of Model 19/Health received from -----to------	Ser # of Model 19/Health present from -------to--	Model 22/Health received from --------to------	Model 22/Health present from ---------to------

SN	Auditors Name and signature	SN	Store Managers Name and Signature
1		1	
2		2	

2. Evidence Sales Tickets Auditing (METEMAMEGNA)

S/N	Sales tickets received from ----to----	Sales tickets present from -----to-----	Registers received from -------to------	Registers present from -------to------

SN	Auditors Name and signature	SN	Dispensers; (Accountant) name and Signature
1		1	
2		2	

3. Financial Auditing of the Store

	Cost of beginning stock at the store (Beginning physical inventory) in Birr	Cost of received stock in the store (Model 19/health) Birr	Cost of issued stock to various dispensing units and transferred out (Model 22/health)	Cost of expired stock in the store (if there) (physical inventory)	Cost of calculated ending balance	Cost of available ending physical inventory in the store In Birr	Discrepancy (if any)
Value In Birr	A	B	C	D	E=(A+B)-(C+D)	F	G=E- F

SN	Auditors Name and signature	SN	Store Managers Name and Signature
1		1	
2		2	

4. Financial Auditing of dispensaries

S/N	Cost of beginning stock the dispensary Inventory sheet	Cost of received stock in the dispensary (Model 22/Health)	Cost of dispensed to various types of patients	Cost of expired stock in dispensary (if there)	Cost of transferred stock from the dispensary (if there $\pm$)	Calculated ending balance at cost	Cost of physical inventory in the dispensary	Discrepancy
	A	B	C	D	E	F=(A+B)-(C+D$\pm$E)	G	H=(G-F)

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SN	Auditors Name and signature	SN	Dispensers Name and Signature
1		1	
2		2	

5. Product Audit of the store

Random Sample Auditing Form												Discrepancy (if any)		
S/N	Drug Code	Drug Name	Unit	Unit Cost	Beginning QTY	Received QTY	Issued Qty.	Transferred	Expired damaged	Calculated ending	Ending Stock from physical inventory	Qty		Total Cost

SN	Auditors name and signature	SN	Store managers Name and Signature
1		1	
2		2	

6. Product Auditing of the Dispensary

| Code / Drug | Drug Name | Unit | Beginning QTY | Received QTY | Dispensed Qty. (Transferred) | | | Expired damaged | Calculated ending | Ending Stock from physical inventory | Discrepancy (if any) |
					Cash	Credit	Free				Qty
			A	B	C	D	E	F	G=(A+B)-(C+D+E+F)	H	I=H-G

Code	Item Name	Discrepancy (if any)	Unit	Unit cost	Total cost

SN	Auditors Name and signature	SN	Dispensers Name and Signature
1		1	
2		2	

7. **Template form for Auditing of pharmacy service in the health facility**

Description	Yes (1)	No (0)
▪ National formulary, national standard treatment guidelines are available in the dispensaries and prescribing offices		
▪ Facility specific medicines list updated within three years is available		
▪ % availability of medicines (measured on at least 35 medicines used to treat 10 top diseases)		
▪ Wastage and expiry is reduced (less than 2%)		
▪ Shelving, and arrangement e.g. either alphabetically or pharmacologically		
▪ Drugs, supplies and expired items are separated		
▪ Average number of patient served per dispenser per month is approximately is estimated based on APTS principles		
▪ Average number of counseling made per counselor is approximately is estimated based on APTS principles		
▪ Patient satisfaction for pharmacy services is measured regularly		
▪ Patient satisfaction for pharmacy services is above 95%		
▪ All available drugs in the store are available in the dispensary too		
▪ DTPs are identified		
▪ Solutions for DTPsare given		
▪ Waiting time is reduced in dispensaries		
▪ Care time is increased in dispensaries		
▪ Patient knowledge on correct dosage is measured two times per year		
▪ Patient knowledge on correct dosage is above 95%		
▪ Affordability is measured every month		
▪ Number of drugs per prescription in the month are measured and interventions is taken		
▪ Intervention for unacceptable range of number of drugs per prescription is taken		

Note: These are few selected service auditing form; concerned bodies like can conduct additional service auditing.

Annex 3: Baseline Assessment Tool

Assessment Tool for Measuring Outcomes of APTS (Baseline and Post Intervention)

Name of Health Facility: _____

A. Availability of Services and Adequacy of Staffing

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

    a. #Pharmacist= ___   b. #Druggists= ___   c. # Pharmacy technicians = ____

    d.# Cashier= _____   e. #Accountant= ___

    f. #others (specify) __Data clerk 1

2. Who is entitled to make the final decision on employment of pharmacy staff?   a. FMOH/RHB   b. Health facility 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? Note: put 1 if yes and 0 if No

SN	Type of Service	Yes/No	# Staff		Adequacy of pharmacy personnel (1 = Yes, 0 = No)	Remark
			Full time	**Par-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					
11	Warehousing & Inventory management for supplies &EQP.					
12	Overall coordinator					
	ADR focal person					
13	Others, Specify					

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) = _____

B. Pharmacy Management and Staffing

1. Does all staff of pharmacy have a job description indicating details of their role?   <u>1. Yes</u> 2. No

2. Is the pharmacy Section directly represented in the health facility management meetings? 1. <u>Yes</u> 2. No

3. Are the pharmacy activities guided by annual plan of action (other than procurement plan)? 1. Yes   <u>2. No</u>

4. Does the pharmacy section monitor and evaluate its activities based on its plan? 1. Yes <u>2. No</u>

5. Does the pharmacy section apply a participatory and continuous improvement process to improve   quality of service on a continuous basis? <u>1. Yes</u> 2. No

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

   a. <u>Regular meeting with staff and or management</u>

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

   c. Facilitate in services training for staff

   d. Organize consultative meeting with stakeholders

   e. <u>One to five networking and development group</u>

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

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

1. Who allocates budget for pharmaceuticals?   a. FMOH/RHB   b. Hospital Mgt   c. <u>Hospital/University Board</u>

   d. Others (specify): _____

2. What was the total annual medicines budget of the hospital? last year (July to June) = _____before last year ((July to June) =_____and before two years (July to June) _____

3. Was the pharmaceuticals budget adequate to cover annual needs (last year)?   <u>1. Yes</u> 2. No

4. If no to Q3, for how many months the budget was adequate? _____

5. Does the health facility have medicines list developed by DTC? 1<u>. Yes</u> 2. No

6. Is the medicines list prioritized by VEN?   1<u>. Yes___</u>   2. No _____

7. Does the facility practice stock status analysis to minimize wastage, overstock and shortage? a. yes b. <u>No</u>

8. Has the facility performed ABC value analysis? 1. Yes   2<u>. No</u>

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. <u>Direct procurement from PFSA</u>   b. Tender based   c. <u>Performa based</u>

d. Others, specify _____

12. How much of the products procured/ordered were actually received during the last two years?

Procurement/Order Reference	Number of Products		Name of Supplier	Remark
	Ordered/requested	Received		
Last year				**Month and year**
Supply order 1				
Supply order 2				
Supply order 3				
Supply order 4				
Supply order 5				
Supply order 6				
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				
Before last year				
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				

13. Do you have recorded documents on wastage of medicines due to expiry and damage? 1. <u>Yes</u>   2. No

14. Do you have recorded documents on wastage of medicines due to theft and pilferage? 1. Yes   2. <u>No</u>

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			
Last year						
Before last year						
Before two years						

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

17. If yes to Q16, how often (tick one or more): a. Monthlyb. Quarterlyc. Yearly

18. Does the facility carry out physical inventory on a regular basis?   1<u>. Yes</u>   2. No

19. If yes to Q18, how often (tick one or more): a. Monthlyb. Quarterly<u>c. Yearly</u>

20. What is the amount of revenue collected from medicines sales? Last year (July to June) __ before Last year (July to June) = ___Before two years (July to June) 2014 = __

   21. What is the annual revenue of the hospital from services and others sources if available? Last year (July to June) _____ before Last year (July to June) = _____ Before two years (July to June) 2014 = _____

22. Do you practice **Revolving Drug Fund (RDF)** to improve your working capital for medicines supply? <u>1. Yes</u> 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   <u>2. No</u>

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 balance with quarterly financial reports

D. Availability of Key Medicines

Instruction: in hospitals, example in specialized hospitals, the top ten diseases of the catchment area should be first identified and then medicines, supplies and reagents to treat top ten diseases should be listed N≥35 instead of the below list. However, if there is no such list, use the below and add five items specific to the catchment area

Availability **and Stock out duration** *of Key Medicines*

SN	Medicine Description	At the time of visit				Stock out duration (in days) - at store	
		Dispensary		Store			
		Yes	No	Yes	No	Past 3 months	Remark
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	Rifampicin/Isoniazid/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						
21	Metronidazole injection						
22	Adrenaline injection						
23	Ringer lactate solution						
24	Glucose 40% solution						
25	AZT /3TC/NVP						
26	Benzyl penicillin Na						

27	Gentamycine						
28	Cloxacilline						
29	Albendazole						
30	Chloramphenicol eye drop						
31							
32							
33							
34							
35							

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

Accuracy of Records for Key Medicines

SN	Medicine Description	Store		
		Record	Count	Discrepancy
1				
2	Oral Rehydration Salts			
3	Artemether + lumefantrin (coartem) tabs			
4	Mebendazole Tablets			
5	Tetracycline Eye Ointment 4 g			
6	Paracetamol tablet 100x10			
7	Refampicin/Isoniazide/Pyrazinamide/Ethambutol			
8	Medroxyprogesterone(depo) injection			
9	Ergometrine Maleate Injection			
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			
19	Ciprofloxacin tablet			
20	Cotrimoxazole tablet 960 mg			
21	Metronidazole injection			
22	Adrenaline/Epinephrine injection			

23	Ringer lactate solution					
24	Glucose 40% solution					
25	AZT /3TC/ NVP adult					
26	Benzyl penicillin Na					
27	Gentamycin					
28	Cloxacillin					
29	Albendazole					
30	Chloramphenicol eye drop					
31						
32						
33						
34						
35						

F. Effective Counseling Time

Counseling Time

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

Pt. No	Time (in Seconds)		Total time Spent with Patient		Pt. No	Time (in Seconds)		Total time Spent with Patient		Pt. No	Time (in Seconds)		Total time Spent with Patient
	Started (a)	Ended (b)	(b – a)			Started (a)	Ended (b)	(b – a)			Started (a)	Ended (b)	(b – a)
1					35					69			
2					36					70			
3					37					71			
4					38					72			
5					39					73			
6					40					74			
7					41					75			
8					42					76			
9					43					77			
10					44					78			
11					45					79			
12					46					80			
13					47					81			
14					48					82			
15					49					83			
16					50					84			
17					51					85			
18					52					86			
19					53					87			

20					54					88			
21					55					89			
22					56					90			
23					57					91			
24					58					92			
25					59					93			
26					60					94			
27					61					95			
28					62					96			
29					63					97			
30					64					98			
31					65					99			
32					66					100			
33					67								
34					68								

G. Effective Care Time and Waiting Time

Definition

Waiting time in the pharmacies:

- The time from patients arrived at the pharmacy and being in a queue to until the patient got the Rx evaluator

- The time from patients arrived at the cashier counter and being in a queue to until the patient got the cashier

- The time from patients arrived at the counselor counter and being in a queue to until the patient got the counselor

Care time are in the pharmacies:

- The time from patients arrived at Rx evaluator to until the moment the patient leaves Rx evaluator

- The time from patients arrived at cashier to until the moment the patient leaves cashier

- The time from patients arrived at Rx counsellor to until the moment the patient leaves counsellor

Instruction:
- Using the definition given above, measure the waiting time before RX evaluator, before cashier and before counsellor
- Secondly, using the above definition too, measure the care time by RX evaluator, cashier and counsellor.
- Record the time in seconds
- From a single health facility, use 100 patients. To do analysis and do comparison, use at least 10 HF (1000 patients)
- **Note:** Care time for counsellor is not the same as the counselling time since care time includes all activities of the counsellor other than the counselling
- *1. Total time measured for waiting time before Rx evaluator*

Pt	**Waiting time**	Total		**Pt.**	**Time (in**	Total		**Pt.**	**Time (in**	Total

. No	before evaluator Time (in Seconds)		waiting time (b – a)		No	Seconds)		waitingtime (b – a)		No	Seconds)		waiting time (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Started (a)	Ended (b)	
1					35					69			
2					36					70			
3					37					71			
4					38					72			
5					39					73			
6					40					74			
7					41					75			
8					42					76			
9					43					77			
10					44					78			
11					45					79			
12					46					80			
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28					62					96			
29					63					97			
30					64					98			
31					65					99			
32					66					100			
33					67								
34					68								

2. *Total time measured for waiting time before cashier*

Pt. No	Waiting time before cashier Seconds)		Total waiting time (b – a)		Pt. No	Time (in Seconds)		Total waitingtime (b – a)		Pt. No	Time (in Seconds)		Total waiting time (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Start ed (a)	Ended (b)	
1					35					69			
2					36					70			
3					37					71			
4					38					72			
5					39					73			
6					40					74			
7					41					75			
8					42					76			
9					43					77			
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11					45					79			
12					46					80			
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27					61					95			
28					62					96			
29					63					97			
30					64					98			
31					65					99			
32					66					100			
33					67								
34					68								

3. *Total time measured for waiting time before counselor*

Pt. No	Waiting time before counselor in Seconds)		Total waiting time (b – a)		Pt. No	Time (in Seconds)		Total waitingtime (b – a)		Pt. No	Time (in Seconds)		Total waiting time (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Started (a)	Ended (b)	
1					35					69			
2					36					70			
3					37					71			
4					38					72			
5					39					73			
6					40					74			
7					41					75			
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27					61					95			
28					62					96			
29					63					97			
30					64					98			
31					65					99			
32					66					100			
33					67								
34					68								

4. Total time measured for care time by Rx evaluator

Pt. No	Care time by Rx evaluator in Seconds)		Total care time (b – a)		Pt. No	Time (in Seconds)		Total caretime (b – a)		Pt. No	Time (in Seconds)		Total care time (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Start ed (a)	Ended (b)	
1					35					69			
2					36					70			
3					37					71			
4					38					72			
5					39					73			
6					40					74			
7					41					75			
8					42					76			
9					43					77			
10					44					78			
11					45					79			
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25					59					93			
26					60					94			
27					61					95			
28					62					96			
29					63					97			
30					64					98			
31					65					99			
32					66					100			
33					67					**# of DTP identified**			
34					68					**# of solutions accepted**			

5. *Total time measured for care time by cashier*

Pt. No	Care time by counselor in Seconds)		Total care time (b – a)		Pt. No	Time (in Seconds)		Total care time (b – a)		Pt. No	Time (in Seconds)		Total care time (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Started (a)	Ended (b)	
1					35					69			
2					36					70			
3					37					71			
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5					39					73			
6					40					74			
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29					63					97			
30					64					98			
31					65					99			
32					66					100			
33					67								
34					68								

6. *Total time measured for care time by counselor*

Pt. No	Care time by counselor in Seconds)		Total care time (b – a)		Pt. No	Time (in Seconds)		Total care time (b – a)		Pt. No	Time (in Seconds)		Total care time (b – a)
	Started (a)	Ended (b)				Started (a)	Ended (b)				Started (a)	Ended (b)	
1					35					69			
2					36					70			
3					37					71			
4					38					72			
5					39					73			
6					40					74			
7					41					75			
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31					65					99			
32					66					100			
33					67								
34					68								

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Definition:

Three-linestop shopping:

A patient must queue at least three times; 1st - to get the prescription evaluated, price of medicines confirmed in one of the grilled window; 2nd to pay the price at the finance window (usually outside the pharmacy); and 3rd to collect the prescribed medicines and to get counseling by coming back to the dispensary grilled window.

One-line stop shopping: Patients will enter in one of the door of the pharmacy (entrance door), Rx evaluator➔ biller➔cashier ➔ counselor – all in a queue; and then finally exit in the opposite side

Dispensing outlets and premises: -

	Pharmacy dispensing outlets are organized as	Yes (1) /No (0)
	• Outpatient,	
	• Inpatient,	
	• Emergency,	
	• Chronic Care Pharmacies	
	Each dispensary: -	
	• Has two doors—entrance and exit,	
	• Arranged as one line stop shopping: - *(see the definition above)*	
	• Arranged as three line stop shopping: A patient must queue at least three times; *(see the definition above)*	
	• Has grilled window is grilled and it has hole for communication	
	• Has cubicle and is open for patients to communicate	
	Pharmaceutical services with adequate and secured spaces for	
	• Rx evaluation cubicle /counter	
	• Cashier cubicles in the dispensary,	
	• Counseling cubicle/counters,	
	• Patients' waiting area,	
	• Offices for pharmacy head,	
	• Offices for accountant,	
	• Filing space for accountant and pharmacy professionals	
	• Space for shelves	
	• Other (add if any valuable)	

H. Quality of Pharmacy Services & Patient Satisfaction of Services *(Note: see detail instructions)*

1. *Instruction: Write 1 if 'Yes' and 0 if 'No' in the chart*   2. Note: for # of drugs prescribed and dispensed, put numbers   3. Fill in data for at least 100 patients

Patient #	Labeling Information *(put 1 if yes and 0 if No)*											Patient Knowledge *(put 1 if yes and 0 if No)*							# Drugs Prescribed	# Drugs dispensed	Patient satisfaction with services provided by pharmacy *(put 1 if yes and 0 if No):*						
	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, DI, etc.)			Dispensing area	Dispensing Process	Personnel Skill	Privacy	Assistance to the patient	Overall Satisfaction
1.																										
2.																										
3.																										
4.																										
5.																										
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7.																										
8.																										
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32.																										
33.																										

Patient #	Labeling Information *(put 1 if yes and 0 if No)*											Patient Knowledge *(put 1 if yes and 0 if No)*							# Drugs Prescribed	# Drugs dispensed	Patient satisfaction with services provided by pharmacy *(put 1 if yes and 0 if No):*						
	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	Overall Satisfaction
34.																									
35.																									
36.																									
37.																									
38.																									
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41.																									
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62.																									

Patient #	Labeling Information *(put 1 if yes and 0 if No)*											Patient Knowledge *(put 1 if yes and 0 if No)*							# Drugs Prescribed	# Drugs dispensed	Patient satisfaction with services provided by pharmacy *(put 1 if yes and 0 if No):*						
	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	Overall Satisfaction
63.																										
64.																										
65.																										
66.																										
67.																										
68.																										
69.																										
70.																										
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Patient #	Labeling Information (put 1 if yes and 0 if No)										Patient Knowledge (put 1 if yes and 0 if No)							# Drugs Prescribed	# Drugs dispensed	Patient satisfaction with services provided by pharmacy (put 1 if yes and 0 if No):					
	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	Overall Satisfaction
91.																									
92.																									
93.																									
94.																									
95.																									
96.																									
97.																									
98.																									
99.																									
100.																									
Total																									

Instruction: 100 samples size is a must from a single health facility. If more than 10 HF, a total of 1000 will be enough. Refer WHO identifying drug use problem guide.

Calculations: add all the yes (1) using excel sheet and calculate percentage. Add all the prescribed and dispensed separately and take the average

Job Satisfaction (for Pharmacy personnel); Note: response should be collected from all staffs of pharmacy, fill numbers 1 to 5 in the box by scale

SN	Please Circle the one number for each question that comes closest to reflecting your opinion	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 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 which 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 trainings adequately prepared me for the job					
Satisfaction with 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					
Satisfaction with work flow (Rx evaluation➜ payment➜ counseling)						
30	The work flow makes me to use my capacity for maximum patient care					
31	The work flow helped patients to get good counseling					

Annex 4: Concept Contributors on APTS

Concepts	Drafter /adapter	Consultants and or Editors

	alphabetically listed	(alphabetically listed)
1. Alternative naming for APTS	Ayalew Adinew	Elias Geremew, Laeke Gebre Selassie Edmealem Admasu, Getahun Sisay
2. The APTS piloting and result dissemination	Getahun Sisay, Ayalew Adinew	Shegaw Alemu, Edmealem Admasu
3. Draft SOP development used as input for APTS	Ayalew Adinew Laeke Gebre Selassie	Dejenu Sahile, Getahun Sisay, Shegaw Alemu,
4. Result areas and essential elements of APTS of APTS	Ayalew Adinew	Getahun Sisay, Hailu Tadeg Edmealem Admasu, Shegaw Alemu, Edmealem Ejigu,
5. Choosing the name of APTS from alternatives	Shegaw Alemu	Edmealem Ejigu, Hailu Tadeg
6. Prescription movement control register	Yosef Wakwoya Zelalem Tilahun	Abebaw Gulent, Tewodros Ewnetu Ayalew Adinew,
7. Local Language labeling of dispensed medicines	Yosef Wakwoya	Tewodros Ewnetu
8. APTS-standard prescription paper	Tenaw Andualem Yosef Wakwoya	Getachew Ayalew, Tewodros Ewnetu, Ayalew Adinew
9. Counter design for dispensers and cashiers	Goitom Gigar Tazebew Alemu Meresa W/Gebriel Yosef Wakwoya, Ayalew Adinew, Edmealem Ejigu	Abera Mengistu, Mikias Workineh, Dr. Abraham Endeshaw, Dr. Kesete Birhan Adimasu, Getachew Ayalew, Tibebe Taye, Esubalew Gizachew
10. Anthropometry and Ergonomics study to determine number of Rx evaluation, billing, counselling counters	Mikias Workineh, Ayalew Adinew,	Abera Mengistu, Getachew Ayalew Netsanet Sorri
Price control sheet	Ayalew Adinew	Meresa W/Gebriel
11. Drug list /formulary prioritized by VEN and with ABC, ABC/VEN reconciliation analysis	Ayalewe Adinew	Raey Yohannes Melku Abate, Edmealem Admasu, Fikru Worku, Regasa Bayisa, Tewodros Ewnetu, Daniel Argaw,

		Abebaw Gulent, Chanie Adimasie, Yosef Wakwoya
12. Drug Therapy Problem (DTP) registration form for OPD	Elias Geremew Yosef Wakwoya Belete Ayalneh	Abebaw Gulent, Ayalew Adinew Tewodros Ewnetu
13. Monitoring and evaluation tools, indicators, supportive supervision, review meeting for overall APTS	Ayalew Adinew Edmealem Ejigu	Regasa Bayisa, Dagim Damitew Getachew Ayalew, Asrat Abate,
14. Roles of Rx evaluators, billers, cashiers, and counselors in APTS workflow	Ayalew Adinew Tenaw Andualem Yosef Wakwoya Belete Ayalneh	Edmealem Ejigu, Edmealem Admasu, Tewodros Ewnetu, Regasa Bayisa
15. The six dispensing steps using APTS workflow	Tenaw Andualem Yosef Wakwoya	Belete Ayalneh, Hailu Tadeg, Edmealem Ejigu, Dejenu Sahile, Ayalew Adinew
16. Measuring level of effort, workload analysis, queuing, counter design, and human power adjustment	Ayalew Adinew	Edimealem Ejigu, Fikru Worku, Shegaw Alemu, Edmealem Admasu, Dr. Teferi Gedif, Abera Mengistu,
17. Pharmacy Service Auditing for quality in APTS	Ayalew Adinew Yosef Wakoya Edmealem Admasu	Tanaw Andualem, Sheagw Alemu, Edmealem Ejigu, Tewodros Ewnetu, Mulugeta Asfaw Belete Ayalneh
18. Pharmaceutical product auditing form	Ayalew Adinew Edmealem Admasu	Yosef Wakwoya
19. Preparing APTS formats in excel sheet for rigorous software development	Chalachew Bayu Tariku Beyene Ayalew Adinew Daniel Argaw	Alemtsega Ayele, Yosef Wakwoya, Dereje Chemeda,
20. Main Points for legislations of APTS	Ayalew Adinew Getahun Sisay, Regasa Bayisa Meresa W/Gebreal	Asmamaw Adane, Abere Alamnie, Merehatsidik Mekonnen,

		Mulugeta Asfaw *Solomon*	*Belayneh Erimo* *Bizualem Adam*
21. APTS Vouchers and Sales Tickets	*Ayalew Adinew,* *Edmealem Admasu,* *Shegaw Alemu*	*Fewzi Salih, Chalachew Bayu, Yosef Wakwoya,Tewodros Ewnetu,* *Mulugeta Asfaw, Getahun Sisay,* *Meresa W/Gebriel,*
22. APTS daily summary and monthly reporting formats	*Ayalew Adinew,* *Edmealem Admasu,*	*Abebaw Gulent, Alemtsegea Ayele,* *Dereje Chemeda, Tewodros Ewnetu,* *Yosef Wakwoya, Meresa W/Gebrel, chalachew Bayu,* *Getahun Sisay*
23. Physical inventory	*Ayalew Adinew*	*Edmealem Admasu, Shegaw Alemu*
24. Pharmaceutical Coding	*Ayalew Adinew*	*Chalachew Bayu* *Solomon Getnet, Siraj Adem, Mekonnen Legese, Yaregal Bante*
25. Three some analysis	*Ayalew Adinew,*	*Edmealem Admasu, Shegaw Alemu, Mulugeta Asfaw*

References

1. H. Tadeg, E. Ejigu, E. Geremew, A. Adinew. 2014. Auditable Pharmaceutical Transactions and Services (APTS): Findings of the Baseline Assessment at Federal, Addis Ababa, and Teaching Hospitals. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health. WHO Essential medicines portal;http://apps.who.int/medicinedocs/en/d/Js21704en/

2. Ayalew Adinew, Shegaw Alemu and Edmealem Admassu, Auditable Pharmaceutical Transactions and Services (APTS): a Guide for Implementation, Amhara Regional Health Bureau and USAID/SIAPS, May 2012, Ethiopia.

3. Frontline Health workers coalition Pharmacist Can Make a Difference: Transforming Ethiopia's Pharmaceutical Sector; https://www.frontlinehealthworkers.org/how pharmacist-can-make-a-difference-transforming-ethiopias-pharmaceutical-sector/

4. Medicine movers: the only medicines that count is the one that reaches the patient; http://msh-medicine-movers.org/#introduction

5. USAID/SIAPS-Ethiopia, Annual Progress Report for Fiscal Year 2012 (October 2011 to September 2012), 2013 (October 2012 to September 2013) and 2014 (October 2013 to September 2014) Addis Ababa, Ethiopia.

6. Federal Ministry of Health 16 national annual review meeting report, Medical Service directorate Oct 2014;http://www.moh.gov.et/documents/26765/0/Auditable+Pharmaceutical+Transaction+and+Service(APTS) /b199e166-155c-4d2b-af48-98001e3425c7?version=1.0

7. 17th Annual Review Meeting of the Health Sector Development Program Report; Federal Ministry of Health October 30, 2015; http://www.moh.gov.et/documents/26765/0/Proceeding+on+Annual+Review+meeting+of+2015/0d1a997f-22ac-4421-8dac-d69e86a3e364?version=1.0

8. Federal Ministry of Health, Ethiopian Hospital Reform Implementation Guideline (EHRIG), Volume 1, Chapter Four (Pharmacy Chapter), May 2010, Addis Ababa, Ethiopia; and second version: Ethiopian Hospital Service Transformation Guide 2016, Addis Ababa Ethiopia,

9. Ethiopian Health Sector Transformation Plan 2015 to 2020, Addis Ababa, Ethiopia

10. Ayalew Adinew, Shimels Ololo, Fasil Tesema, The findings of Auditable Pharmaceuticals Transactions and Services (APTS) evaluation; WHO Essential medicines portal;http://apps.who.int/medicinedocs/en/m/abstract/Js22267en/

11. Shegaw Alemu, Challi Jira and Mayur M. Desai. Assessment of changes with the satisfaction of Inpatient reports in Nursing Care, Nurses' Communication and drug use in Debremarkos Referral Hospital, 2010, Amhara region, Ethiopia;http://www.sciencepublishinggroup.com/journal/paperinfo.aspx?journalid=656&doi=10.11648/j.ajhr.20140204.21

12. Karin Wiedenmayer, Access to Medicines, Medicines Supply: Lessons Learnt in Tanzania and Mozambique, a capitalization report established in the frame of the SDC Backstopping mandate 2004 of the Social development divisions Health Desk.

13. Assessment of the Pharmaceutical Sector in Ethiopia, Ministry of Health (MOH) and World Health Organization (WHO), 2003 Addis Ababa, Ethiopia

14. DACA 2008. Antimicrobials Use, Resistance and Containment Baseline Survey, Syntheses of Findings, Drug Administration and Control Authority (DACA), 2008, Addis Ababa, Ethiopia.

15. Health facility Data profile of the Amhara Regional State Health Bureau Planning Core Process in the year 201/2011, Bahirdar, Ethiopia.
16. Audit reports of the year 2010/2011 of the Amhara Regional state office of the Auditor General, Bahirdar, Ethiopia.
17. The Amhara Regional Health Bureau, Internal Audit Core Process reports of the year 2010/2011, Bahirdar, Ethiopia.
18. Richard D Smith & Joanna Coast, Antimicrobial resistance: a global response. Bulletin of the World Health Organization 2002; 80:126-133.
19. Omari AA, Gamble C and Garner P, Artemether-Lumefantrine for Uncomplicated Malaria: A Systematic Review, Tropical Medicine and International Health 2004; 9(2):192–99.
20. Okeke IN. Antimicrobial Resistance in Developing Countries. Part I: Recent Trends and Current Status. Lancet Infectious Diseases 2005; 5(8):481–93
21. Moto of WHO on World Health Day – 7 April 2011, http://www.who.int/world-health-day/en/, Accessed on 3, March 2012.
22. Liana Sun Wyler and Nicolas Cook. Illegal Drug Trade in Africa: Trends and U.S. Policy. Congressional Research Service, CRS Report for Congress, 2009, http://www.fas.org/sgp/crs/row/R40838.pdf, accessed on 4, March 2012.
23. Karin Wiedenmayer, Rob S. Summers, Clare A. Mackie, Andries G. S. Gous and Marthe Everard. Developing pharmacy practice: A focus on patient care. Hand book – 2006 edition, World Health Organization in Collaboration with International Pharmaceutical Federation, The Hague, The Netherlands.
24. Ethiopian Hospital Reform Implementation Guidelines, Volume I, Chapter 4: Pharmacy Services, Ministry of Health, 2010, Addis Ababa, Ethiopia.

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