

THE QUALITY OF DISPENSING PROCESS
AT SUNTRESO GOVERNMENT HOSPITAL PHARMACY, KUMASI-
GHANA

By

Cecilia Akosua Tabiri (B. Pharm)

KNUST

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DECLARATION

This submission contains no material that has been earlier put out by another person, neither does it have materials which have been accepted for the award of any other degree at the University, except where due references have been made in the text.

I hereby affirm that this submission is my own work towards the Master of Science (MSc) in Clinical Pharmacy.

Cecilia Akosua Tabiri
(PG 5977511) Signature Date

Certified by:
Dr. Kwame Ohene Buabeng
(Supervisor) Signature Date

Certified by:
Dr. Kwame Ohene Buabeng
(Head of Department) Signature Date

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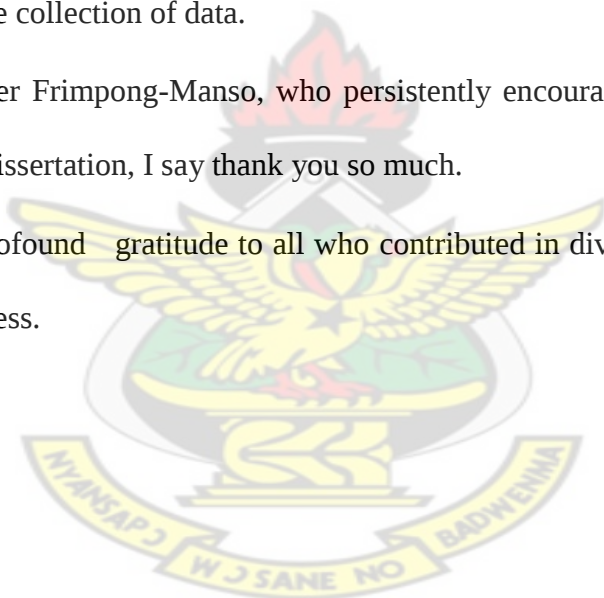
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DEDICATION

This study is dedicated to the late Dr. Ebenezer Mensah Lartey, my daughter, Mikayla Naadu Lartey and my mother, Theresa Smart.

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ABSTRACT

BACKGROUND: Dispensing is one of the important activities that take place in an everyday hospital setting. The risk involved with drug dispensing is one of the major challenges in achieving safety of medicines. An appropriate dispensing process is important for the reduction and prevention of medication errors. The quality of the dispensing process affects patient compliance to medication also impacts on the effectiveness of drug therapy.

OBJECTIVE: To assess the quality of dispensing process at Suntreso Government Hospital Pharmacy.

METHODS: This was a cross-sectional study conducted at Suntreso Government Hospital from the 7th of April to 12th of May. Assessment was made by direct observation of the dispensing process and through a face to face exit interview of patients. The dispensing staffs were also interviewed to assess their level of training and competence as pharmaceutical care providers. Three different structured questionnaires were designed .One assessed the understanding and knowledge of the patients about medicines dispensed; the second assessed patients' ability to recall instructions and the third, the level of training and competence of dispensing staff. Three hundred patients were involved in this study. Twenty patients were randomly selected every other day for six weeks, giving a total of 300 patients. The standard used for quality assessment was WHO indicators for good dispensing practices.

RESULTS

Out of the 300 patients who took part in the study, 28% (n=85) were above 60 years, 19.7% (n=59) were aged 20 to 30 years, 17% (n=.51) were 50 to 60 years and 8.7% (n=26) aged 15 to 20 years .Seventy five percentage of medicines dispensed were adequately labelled. Ninety six percent (n=288) were able to recall vividly how their

medicines were supposed to be taken, 3.7% (n=11) could recall partially, only 1 patient could not recall at all. 96% knew the correct dosage for their medication. The average dispensing time was 61 seconds and the percentage drug availability was 87.9%. The pharmacy had staff strength of 16. Four were pharmacists, 6 were pharmacy technologists, 2 were medicine counter assistants and 4 were trained on the job. Only 3 of the staff could recall the topics treated during the last in-service training. The qualification of the person who does the dispensing was significantly related to the patient knowledge of name of medicine and side effects of medicines, $p=0.049$ and $p=0.044$ respectively.

Conclusion The average dispensing time was short compared to WHO standards. Percentage drug availability was over 80%, but this was low compared to the WHO standard. The patients had a good knowledge of how to take their medication. Few of the Pharmacy staff remembered courses treated during the last in-service training programme at the hospital.

This study has shown that if pharmacists are more involved in the dispensing process, patients are more likely to know the names of their drugs, side effects and how the medicines should be used for best outcomes.

Keywords: dispensing, patient, quality, dispensing process, Suntreso Government Hospital Pharmacy, Kumasi, Ghana.

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LIST OF ABBREVIATIONS

E	Number of Encounter
FIP	International Pharmaceutical Federation
JSS	Junior Secondary School
KMHD	Kumasi Metropolitan Health Directorate
MSLC	Middle School Level Certificate
NAR	Number of patient able to vividly recall drug usage
NDAL	Number of Drugs Adequately Labelled
O/A LEVEL	Ordinary/Advanced Level
SSS	Senior Secondary School
TDD	Total Drugs Dispensed
TDP	Total Drugs Prescribed
UNICEF	United Nations International Children's Fund
WHO	World Health Organisation

LIST OF DEFINITIONS

Definition of Quality Indicators

- **Average number of drugs per encounter:** measures the degree of poly-pharmacy. This was done by dividing the total number of different drug products prescribed, by the number of encounters.
- **Patients' knowledge of correct dosage:** measures the ability of the patient to effectively recall the information given on the dosage schedule of the drugs they receive. This was measured by dividing the number of patients who could vividly recall the dosage schedule for all drugs during exit interviews, by the total number of patients interviewed, and multiplied by 100.
- **Percentage of drugs actually dispensed:** measures drug availability. It was measured by dividing the number of drugs actually dispensed at the health facility by the total number of drugs prescribed, multiplied by 100.
- **Average dispensing time:** measures the average time that personnel dispensing drugs spend with patients. This was done by observing and recording the time a patient spends with the dispenser when called out to receive drugs, till the time the patient leaves. It was calculated by dividing the total time for dispensing drugs to a series of patients, by the number of encounters.

CHAPTER ONE

1.0 Introduction

Dispensing is one of the important activities that take place in an everyday hospital setting. The risk involved with medicine dispensing is one of the major challenges in achieving the safety of drugs (WHO, 1995). In an attempt to reduce and prevent medication errors, the usefulness of a proper dispensing process cannot be over emphasised (TA Anacleto *et al*, 2005).

Dispensing involves all the activities that occur between the time the prescription is presented to the time the medicine is issued out to the patient (WHO, 1995). However dispensing is often marginalized and considered of a second priority to clinical work, stock control and distribution by health policy makers. This is unfortunate, since poor dispensing practices can undo many of the advantages of the health care system (Kumud *et al*, 1996, and Johanna and Lawrence, 2004). A patient's effort to seek medical care may prove futile and at the end detrimental, if the dispensing process fails.

1.1 Problem Statement/ Justification

WHO estimates that more than half of medicines prescribed, dispensed or sold are done irrationally and half of all patients take their medications wrongly. This estimation should be a wakeup call for good dispensing processes, since up to 40 to 60% of any countries public health budget is spent on medicine. (Perez *et al.*, 2001)

In a hospital setting, large crowds queue to collect drugs at the pharmacy after being attended to by the prescriber. It appears that the pharmacy staff tends to concentrate more on the swiftness to reduce the patient numbers at the pharmacy rather than accuracy of the dispensing process and information given to patients. Adequate time

may therefore not be spent on proper counselling to guide efficient medicine use. Some patients might end up in other hospital with side effects of drugs reported as new presenting complaint or perhaps die due to wrong use of medication. This may result in overburdening of the National Health Insurance Scheme as well as the health system as a whole.

Assessing the dispensing process may point to the shortfalls in current practices. This will go a long way to inform policy makers and health educators. The findings of this study would be used to improve practice, as well as policy formulation and implementation.

1.2 Main Aim

The aim of this study is to assess the quality of the dispensing process at the pharmacy of Suntreso Government Hospital.

1.3 Specific Objectives.

- i. To assess the quality of labelling.
- ii. To determine whether patients are well informed about drugs dispensed to them
- iii. To assess patient ability to recall drug information provided.
- iv. To determine average dispensing time
- v. To assess the professional background and competence of pharmacy staff and in-service training they have participated in.

CHAPTER TWO

2.0 Literature Review

Good Dispensing practices are therefore vital and guarantee that an effective dose of right medicine is issued out to the right patient with the right dosage and quantity, with the right and clear instructions and in the right package that will preserve the potency of the medicine (WHO, 1995). According to numerous studies, errors in drug prescription and dispensing had caused a rise in the potential of drugs to cause dangerous effects to patients (Hogerzell *et al.*, 1989).

For the dispensing process to go right or wrong depends totally on the dispensing personnel. It is therefore important that dispensing staff are competent enough and well equipped with all the knowledge needed for the dispensing process. Several personnel are involved in the smooth running of the hospital pharmacy and these personnel are from a wide range of educational background. These may include Hospital pharmacists, dispensing technicians or technologists, pharmacy assistants, now known in Ghana as Medicine Counter Assistants.

The activities involved in the dispensing process are outlined in table 1, below:

Table 2.1: Activities involved in the dispensing process

Action	Description Of Action
Clinical Screening of prescriptions	Read and interpret prescriptions correctly.
	Have good calculation and arithmetic skills
	Be able to assess the quality of preparations
	Be able to screen prescriptions for appropriateness of doses and drug therapy
	Be tidy, accurate and honest
Patient counselling	Know and give the right information that goes with each prescription. These include: common use, usual dosage, precautions about the method of use, common side effects, common food and drug interactions, conditions for storage)
	Have skills to communicate effectively
	Have Knowledge about national policies and working guidelines
	Be able to work and relate well with other health care professionals.

Source: Adapted from WHO document, on how to investigate drug use in health facilities (WHO, 1995).

The receipt of a prescription starts the dispensing process. The name of patient should be confirmed by the dispensing staff to ensure that the right patient receives the right medication. The date should also be confirmed to ensure that the prescription is current. The dispensing staff should be able to read, understand and interpret the

prescription. Calculations should be rightly done for doses and quantities to be dispensed. All abbreviations should be well understood or else the prescriber should be contacted.

The prescription should be screened by the pharmacist to ensure that doses prescribed are within normal range as well as identification of drug-drug interaction and contraindications. The dispensing process without all these checks will be greatly handicapped, especially in the event of an absentee pharmacist. It is alarming to note that, WHO estimates that more than half of all prescriptions are incorrect and more than half of patients fail to take their drugs correctly (Wledenmayer K. *et al.*, 2006).

Table 2.2: Steps for the dispensing process

STEP 1: RECEIPT AND VALIDATION OF PRESCRIPTION
STEP 2: UNDERSTANDING AND INTERPRETATION OF PRESCRIPTION
STEP 3: SELECTION OF MEDICINES
STEP 4: LABELLING OF MEDICINES FOR ISSUE
STEP 5: ACCURACY CHECK
STEP 6: DOCUMENTATION OF ACTION TAKEN
STEP 7: FINAL ACCURACY CHECK
STEP8: ISSUE OF MEDICINE WITH CLEAR INSTRUCTIONS

It should be well noted that dispensing is not just about the dishing out of drugs. Drugs to be dispensed should therefore be carefully selected, prepared and labelled. During drug selection, labels on containers should be well read and cross matched with the drug listed on the prescription. Drugs should not be identified by colour of packaging, since different drugs from the same company may have the same colour of packaging. Drugs should also not be identified based on location on the shelf, since

drug location on the shelf might change from time to time. Container labels should be double checked before preparation. The expiry date should also be checked before preparation.

Labelling should be simple, bold and clear. It could be simplified by the use of pictorial instructions and explained to patient. The patient should be able to understand and make reference to the label in case he forgets the instructions given. This is particularly important in a developing country like Ghana, where about 40% of the population are illiterates. (UNICEF, 2010). Labelling should be done to suit all manner of persons whether literate or illiterate.

A good label should have the features shown below

Table 2.3: Features of a Good Label

Feature Classification	Feature Descriptions
Drug Identification	The name of the drug (generic name)
	Strength (usually in mg)
Drug Information and Usage	The dose, quantity dispensed and frequency
	Direction for use
	Special caution
	Expiry date or use by date
Patient Information	The name of the patient
Medicine Source	The name and address of pharmacy
	Dispensing date

SOURCE: Adapted from WHO document on how to investigate drug use in health facilities (WHO, 1995).

Ideally, at least the name of drug, direction for use, the dose, frequency and quantity dispensed and special caution should be present. The expiry date is also important information that must be supplied, but it is usually omitted.

Re-checking of prepared drugs is vital to ensure accuracy and prevent medication errors. Re- checking could be done by the person dispensing or another member of staff. The action taken should be recorded and the quantities dispensed noted. In most cases the prescription is retained and patient details and drug dispensed are recorded. Lately, most prescriptions are keyed into a computer.

The counselling process is crucial and must be properly done. This will lead to proper patient understanding and adherence to medication (Melanic, 2007). Counselling points should include name of drug, when the drug is to be taken, how the drug is to be taken, and instructions relating to food and drug interaction. Patient should also be advised on storage conditions, to keep drugs out of reach of children and not to share drugs with other people. According to the Ghana Health Service Patient's Charter in February, 2002, patients have the right to know the type of treatment being given to them as well as potential risks involved. (Patient's Charter, 2002). Mechanical medication errors could be arrested by counselling with the 'show and tell' approach. This technique involves the pharmacist showing the individual drugs and reading the label to the patient. This is beneficial to the pharmacist as it is also a form of check and links drug to appearance. (Baker 2012) .

In most hospitals in developing countries, there is a lot of compromise on good dispensing practices. The WHO document on how to investigate drug use in health facilities, 1995, (WHO, 1995) attributes this to large crowds of people visiting the pharmacy with their prescriptions at the same time. This could be explained by the fact that pharmacies with excessive workload function in a more commercial way, reducing the time a pharmacist spends with each customer and exerting less control over prescriptions. (Caamano *et al.*, 2004). Dispensing staff tend to rush through the

dispensing process resulting in a lot of omissions, inadequate labelling, miscalculations, no or inadequate information and counselling. The dispensing staff spend little time (dispensing time) with patient in an attempt to speed up the process and clear the huge number of people at the pharmacy. It is essential to concentrate more on the exactness of the dispensing process rather than swiftness. (WHO, 1995). Also, the dispensing process itself is left for Medicine counter assistants or trained-on-the-job staff members to dispense due to shortage of qualified staff members (Zewdie *et al*, 1999). This practice is dangerous and should not be encouraged, since it gives a lot of room for medication errors.

The pharmacist plays an instrumental role in ensuring good dispensing practice. The view the pharmacist has about their responsibilities have been suggested as possible determinants of the quality of dispensing. (Pendergast *et al.*, 1995 and Cancrinus-Matthijssse *et al.*, 1996) However, in order to achieve this responsibility, the pharmacist should be able to perform several functions. The WHO introduced the concept of the seven-star pharmacist and taken up by FIP in 2000 in its policy statement on Good Pharmacy Education Practice, perceives the pharmacist as a caregiver, communicator, decision-maker, teacher, life-long learner, leader and manager. (WHO /PHARM 1997). These unique functions of a pharmacist make the menace of an absentee pharmacist very worrying. This problem affects both the community and hospital pharmacy. Instead of some hospital pharmacist being involved in clinical and dispensary process, they rather stick to paper work and sometimes attend to their personal matters.

This study seeks to assess the quality of the dispensing process in the pharmacy of Suntreso Government Hospital.

CHAPTER THREE

METHODOLOGY

3.1 Study Site

The Suntreso Government Hospital is located at North Suntreso and serves North and South Suntreso, Patasi Estate, Kwaadaso, Adoato, Asuoyeboa, Breman and Suame. The hospital has 98 beds and about 200 Out Patients attendants per a day.

3.2 Type of Study

This was a cross sectional study conducted at the Pharmacy Department of the Suntreso Government hospital.

3.3 Study Population

The study involved 300 out patients visiting the Suntreso Government Hospital pharmacy between the hours of 9am to 2pm from the 7th of April to 12th of May. Twenty patients were selected randomly every other day for six weeks.

In addition, all the 16 members of staff of the pharmacy were recruited and a 100 patient-dispenser encounters were directly observed.

3.3.1 Inclusion Criteria

Patients 16 years and above who visited the hospital on out-patient bases from 9am to 2pm and consented to participate in the study.

3.3.2 Exclusion Criteria.

All patients who refused consent to participate in the study as well as in-patients at the hospital, during the study period.

3.4 Sample Size Calculation

Using a proportion of 97% in a similar study conducted by Lukshmy *et al* in Sri Lanka in the year 2013 and a delta of 0.0195, a minimum of 295 patients was required for the study. On this basis a sample size of 300 was estimated and used for this study.

3.5 Data Collection Techniques

The data collection tool designed were three different structured questionnaires targeting patients, the dispensing staff and for observation of the dispensing process. The questionnaires for patients were administered by trained data collectors using face to face exit interview.

The principal investigator observed the dispensing process directly and the information obtained recorded appropriately on the questionnaire. The questionnaires for dispensing staff were also administered by the principal investigator.

3.6 Questionnaire Description

Three different questionnaires were designed for patients, the pharmacy staff and observation of the dispensing procedure. The questionnaires for patients were administered by the investigator. Sample of questionnaire can be found in appendix 1. Patients' questionnaire covers the following areas:

- Demographic features of patients.
- Drug availability.
- Patient ability to recall drug information provided

Questionnaire for Observation of the Dispensing process covers the following areas

- Quality of labelling.
- Quality of information given to patients about drugs dispensed to them.
- average dispensing time (Average time dispenser spends with patients)

Questionnaire for the pharmacy staff also covers the areas below

- Professional Background of pharmacy staff
- Competence of dispensing staff

3.7 Quality Indicators

The following quality indicators, which are based on Good Pharmacy Practice standards of WHO would be used as outcome measures:

- Average dispensing time (the average time dispenser spends with patients)
- Adequate labelling
- Patient information provided
- Pharmacist availability and monitoring
- Professional background of pharmacy staff

3.8 Pilot of Data Collection Tools

The study tools (questionnaires) were pre-tested using two dispensing staff and ten patients to ascertain the quality of the questionnaire and the feasibility of its use to obtain relevant data for the study. After the pilot, appropriate changes were made before it was used for field data.

3.9 Data Collection

Data was collected from the 7th of April to the 12th of May between the hours of 9am to 2pm. Data collection. Data collectors were trained on how to obtain the needed information. The purpose of the study was also well explained to respondents.

3.10 Data Analysis

The data obtained was coded, stored and analysed using SPSS (Statistical Program for Social Sciences, version 16.0). Descriptive data was presented as frequencies and proportions. Charts were created using Microsoft Excel. Chi-Square analysis was used to compare patient knowledge of side effect and name of medicine against the professional background of dispensers. P-values <0.05 were considered as being statistically significant. The results were compared to WHO standards for quality assessment.

3.11 Ethical Considerations

Participants' consent was sought and study carefully explained. A consent form was given out to the literates to read and sign. The form was read and explained to those who could not read and made to thumb print. Permission was also sought and approved from the administration of the Suntreso Government Hospital before the commencement of this research. The proposal of the study and other necessary documents were completed and submitted to the Directorate of Medicine for approval. Ethical Clearance was also sought and approval given by the Committee for Human Research Publication and Ethics of the Kwame Nkrumah University of Science and Technology.

CHAPTER FOUR

RESULTS

4.1 Socio-Demographic Characteristics of Respondents

The Tables below shows the age distribution, educational level and languages spoken by respondents.

Table 4.1 Age of Respondents (Years)

Age of respondents (years)	n	(%)
15-20	26	(8.7)
20-30	59	(19.7)
30-40	35	(11.7)
40-50	44	(14.7)
50-60	51	(17)
60↑	85	(28.3)
Total	300	(100)

n=number of patients

The age of the respondents ranges between 15 to 60 years and above. Twenty eight percent of were above the age of 60 years. Patients between the ages of 15-20 years had the lowest percentage of 8.7%.

Table 4.2 Educational Level of Respondents

Educational level of respondents	n	(%)
NIL	94	(31.3)
(No formal education)		
Primary	31	(10.3)
JSS/MSLC	96	(32)
SSS/O-A level	63	(21)
Tertiary	16	(5.3)
Total	300	(100)

n=number of patients

Thirty two percent of respondents were educated up to JSS/MSLC Level. This represents a majority number. Thirty one percent had no formal education at all, 21% were educated up to SSS/O-A level and 10.3% were educated up to the primary school level. Only 5.3% were educated up to tertiary level. This implies that dispensers would have to take time in explaining drug use to patients, especially, those with no formal education at all.

Table 4.3 Languages Spoken

Languages Spoken frequently			n	%
Twi			287	(95.7)
English			9	(3)
Fanti			1	(0.3)
Ewe			1	(0.3)
Wale			1	(0.3)
Frafra	1	(0.3)		
TOTAL			300	(100)

n=number of patients

Ninety six percent of respondents were fluent in the Twi language, 3% in the English language and 0.3% were fluent in the Fante, Ewe, Wale and Frafra language.

4.2 Labelling and Quality of Labelling

Table 4.4: Medicine Related Drug information Inscribed on label

Name of medicine	n	(%)
Yes	296	(98.7)
No	4	(1.3)
Strength of medicine on label		
Yes	298	(99.3)
No	2	(0.7)
Quality of medicine on label		
Yes	289	(96.3)
No	11	(3.7)
Frequency of administration on label		
Yes	296	(98.7)
No	2	(0.7)
TOTAL	300	(100)

n=number of patients

Ninety nine percent of labels had the name of the medication written on them. Only One percent did not have the name of the medication written.

Ninety nine percent of the medicine labels had the strength written on them, but only 0.7% had no strength of medicine written on them.

Ninety nine percent of medicines dispensed were labelled with the frequency of administration. Only 1% did not have frequency of administration written on the label.

Table 4.5: Other Relevant Non-Medicine Related information on label

Medicine Packages Labelled	n	(%)
Yes	295	(98.3)
No	5	(1.7)
Date on label		
Yes	89	(29.70)
No	211	(70.3)
Patient name on label		
Yes	2	(0.70)
No	298	(99.30)
Facility name on label		
Yes	2	(0.70)
No	298	(99.3)
TOTAL	300	(100)

n=number of patients

Ninety eight percent of medicines dispensed were labelled. Two percent were not labelled at all.

Thirty percent were labelled with the date of dispensing, but 70% were not labelled. Only 1% of medicines dispensed had patient name on the label. However, 99% did not have patient name written on the label.

Only 1% of medicine dispensed had the name of the facility written on the label. However, 99% did not have facility name written.

Table 4.6: Type of Labelling

Labelling done with symbols or texts	n	(%)
Symbols	15	(5)
Texts	8	(2.7)
Both	277	(92.3)
Total	300	(100)

n=number of patients.

Ninety two percent of drugs were labelled with both symbols and text, 5% were done with only symbols and 2.7% were done with text only

4.3 Observation of Pharmacy Staffs' Involvement in the Dispensing Process

A hundred patient encounters were observed without the knowledge of dispensing staff.

Table 4.7: Observation of Pharmacy staff Involvement in the dispensing process

Who issues out medicines to patient	n	n (%)
Pharmacist	41	41 (41)
Pharmacy technologist	19	19 (19)
Dispensing assistant	2	2 (2)
Dispensing technician	19	(19)
Pharmacy intern	14	(14)
Medicine counter assistant	5	(5)
Total	100	(100)

n=number of patient encounter

A pharmacist issued out the medicine in 41% of patient encounter, pharmacy technologist, 19% of the encounters, dispensing assistants 2% , dispensing technician 19%, pharmacy interns 14% and e medicine counter assistants 5% of the patient encounter.

Table 4.8 Pharmacist's availability and involvement

Is the pharmacist available at the pharmacy every day?	n	(%)
Yes	80	(80)
No	20	(20)
Are drugs cross checked by pharmacists before dispensing?		
Yes	80	(80)
No	20	(20)
Pharmacists' involvement in the dispensing process		
Yes		
Yes, but not always	52	(52)
No	37	(37)
	11	(11)
Total	100	(100)

n=number of patient encounters

Out of the observations made, pharmacists were available 80% of the patient encounters and absent 20% of the time. Eighty percent of drugs dispensed were cross checked by a supervising pharmacist, while 20% were dispensed without being checked,

During the time of the study, pharmacists were always involved in the dispensing process 52% of the time. During 37% of the time, pharmacists were available but not always. Pharmacists were not available only 11% of the time.

4.4 Assessment of medicine related information provided

The average dispensing time was sixty one (61) seconds. Ninety six percent of patients were shown the drugs that were being dispensed to them during counselling. 4% of patients were not shown at all.

Ninety three percent of patients were informed about the frequency of dosing of drugs dispensed. 7% of the patients did not have any idea about the frequency of dosing of drugs dispensed to them.

Sixty one percent of patients were told how long they were supposed to take their medication. 39 % did not know for how long they were supposed to continue with their medication

Table 4.9: Patient knowledge of labelling type

Patient knowledge of labelling type	n	(%)
Symbols	191	(63.7)
Text	4	(1.3)
Both symbol and text	105	(35)
Total	300	(100)

n=number of patients

Sixty four percent of respondents were conversant with symbols only, 35% were conversant with both symbols and texts and 1% was conversant with only texts.

Five percent of patients had the names of their drugs mentioned to them during the dispensing process. The names of 95% were not mentioned at all.

Table 4.10 Instructions given on how to take medicine

Instruction given on how to take medicine	n	(%)
Yes	293	(97.7)
No	7	(2.3)
Total	300	(100)

n=number of patients

Ninety eight percent of respondents were given instructions on how to take their medicine. Only 2% were not given any instructions.

Table 4.11: Provision of any additional information

Provision of any additional information	n	(%)
Yes	17	(5.7)
No	283	(94.3)
Total	300	(100)

n=number of patients

Six percent were given additional information, 94% were not given any additional information about their medication.

Table 4.12: Confirmation of patients' name

Does the dispenser confirm the patients' name	n	(%)
Yes	5	(5)
No	95	(95)
Total	100	(100)

n=number of patient encounters

The dispenser confirmed 5% of the names of patients, but did not confirm 95%.

4.5 Professional Background of dispensing staff and in-service training programmes organized

Table 4.13: Professional Background of dispensing staff

Qualification	n	(%)
Pharmacist	4	(25)
Pharmacy Technologist	6	(37.5)
Medicine Counter Assistant	2	(12.5)
Trained on the job	4	(25)
Total	16	(100)

The pharmacy has 4 pharmacist, 6 pharmacy technologist, 2 medicine counter assistant and 4 trained -on- the- job personnel.

The hospital has two Pharmacists working in the main pharmacy. The Pharmacy Head is mainly in his office engaging in administrative work. The other pharmacist heads the Sexually Transmitted Infections pharmacy unit. The remaining two pharmacists are in the main pharmacy.

Table 4.14: Duration of work as pharmacy staff

Duration of work as pharmacy staff	n	(%)
Few months	4	(25)
1-5 years	7	(43.8)
6-10 years	2	(12.5)
10 years plus	3	(18.8)
Total	16	(100)

Seven had worked for between one to five years, 4 had worked for only a few months, 3 had practiced for more than 10 years and 2 between 6 to 10 years. These values represent 44%, 25%, 19% and 13% of the pharmacy staff.

4.6 In-Service Training

Nine out of the 16 members of staff agreed that in-service training was organized for them. Seven claimed in-service training was never organized. These values represent 56 % and 44% respectively.

Table 4.15 In-service training

Who organizes the in-service training	n	(%)
The pharmacist	6	(37.5)
The hospital	2	(12.5)
Pharmaceutical representatives	1	(6.3)
Non applicable	7	(43.7)
Can you recall the last in-service training and what was it about		
Yes, I can recall	3	(18.8)
No, I cannot recall	4	(25)
Can recall partially	1	(6.2)
Non applicable	7	(43.8)
No response	1	(6.2)
Total	16	(100)

n=number of pharmacy staff

Six out of the 16 members of staff stated that the pharmacist organizes the in-service training. This number represents 37.5%. 12.5% (n=2) stated that the hospital organized their in-service training. Only 1 said pharmaceutical representatives. This represents 6.2%. Forty four percent (n=7) stated that in-service training was not organized at all, therefore the question was not applicable to them.

Nineteen percent of the staff population were able to recall, 25% were not able to and 6% could recall partially. Forty four percent indicated they had never had in-service training; therefore the question was not applicable to them.

Table 4.16 Written prescriptions and actions taken

What happens when the handwriting of the prescriber cannot be seen?	n	(%)
The prescription is taken back to the prescriber for clarity	15	(94)
Try to figure it out among themselves	1	(6)
Action taken when prescribed drugs are not available		
Dispense its equivalent available	1	(6.7)
Write prescription for patient to buy from community pharmacy	10	(66.7)
Inform prescriber to write what is available.	3	(20)
Inform the prescriber to transfer prescription written in folder to prescription form for patient to purchase from community pharmacy	1	(6.7)
No response		
Total	16	(100)

When asked the action they took when prescriptions were not illegible, 15 of them stated that the prescriptions are taken back to the prescriber for clarity. Only 1 stated that they try to figure it out among themselves.

4.7 Association between who finally issues out medicines to patients and patients' knowledge of name of medicine

Table 4.17: Summarized description of Cross tabulation between who issues medicine out finally to patients and patients' knowledge of name of medicine

			Pharmacist	Pharmacy technologist	dispensing assistant	dispensing technician
Name of medicine mentioned	ye s	Count	29	15	0	12
		patients who knew name of medicine	39.7%	20.5%	.0%	16.4%
		% of staff who issued out medicines	70.7%	78.9%	.0%	63.2%

Among the patients who were told the name of medicine, 39.7% were issued out medicines by pharmacists compared to 20.5% of patients who were issued out medicines by pharmacy technologists. Also, among the patients whose medicines were dispensed by pharmacists 70.7% knew the name of the medicines as. Again among patients whose medicines were dispensed by dispensing technicians, 63.2% knew the name of their medicines.

From the Pearson Chi-squared test result $p=0.049$. The professional background of the dispenser was significantly relevant to the patient knowledge of name of medicine.

4.8 Association between who finally issued out medicine to patients and patients' knowledge of side effects of medicine

Table 4.18: Summarized description of Cross tabulation between who finally issues out medicine to patients and Patients' knowledge of side effects of drugs.

		Pharmacist	pharmacy technologist	dispensing assistant	dispensing technician
side effects of drugs	Count	30	11	1	18
	% of patients who knew side effects of medicine	40.5%	14.9%	1.4%	24.3%
	%who finally issues out medicine to patients	73.2%	57.9%	50.0%	94.7%

Among the patients who were told the side effects of medicines 40.5% were finally issued out medicines by pharmacists compared to 14.9% who were attended to by pharmacy technologists dispensed their medicines. Also, among the patients whose medicines were dispensed by pharmacists 73.2% knew the side effects of the medicines. Again among patients whose medicines were dispensed by pharmacy technologists, 57.9% knew the side effects of the medicines.

The professional background of the dispenser was significantly relevant to the patient knowledge of side effect of medicine. $P=0.044$.

4.9 Patients' Ability to Recall Drug Information Provided

Ninety six percent (n=288) of the patients were able to recall the information provided on drug administration, 3.7% (n=11) could partially recall and 1 patient could not recall the information provided. (Figure 4.1.)

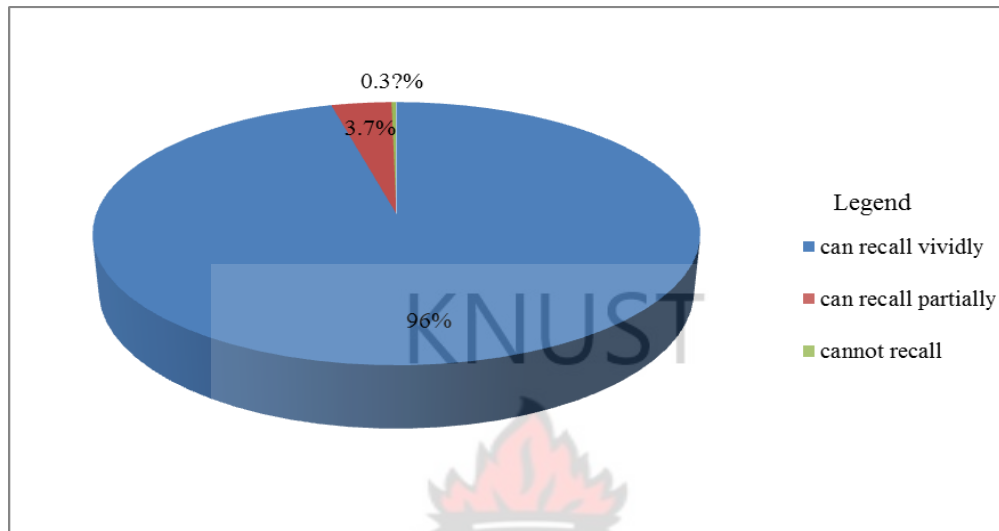


Figure 4.1: Distribution of patients' ability to recall drug administration information provided

4.10 Patients' ability to recall additional information provided about medicine

Ninety five percent (n=285) of the patients were provided with additional drug information and could recall the information provided. Three percent (n=8) of the patients were not provided with additional drug information whiles 2% (n=7) were provided with additional drug information but could not recall the information provided.

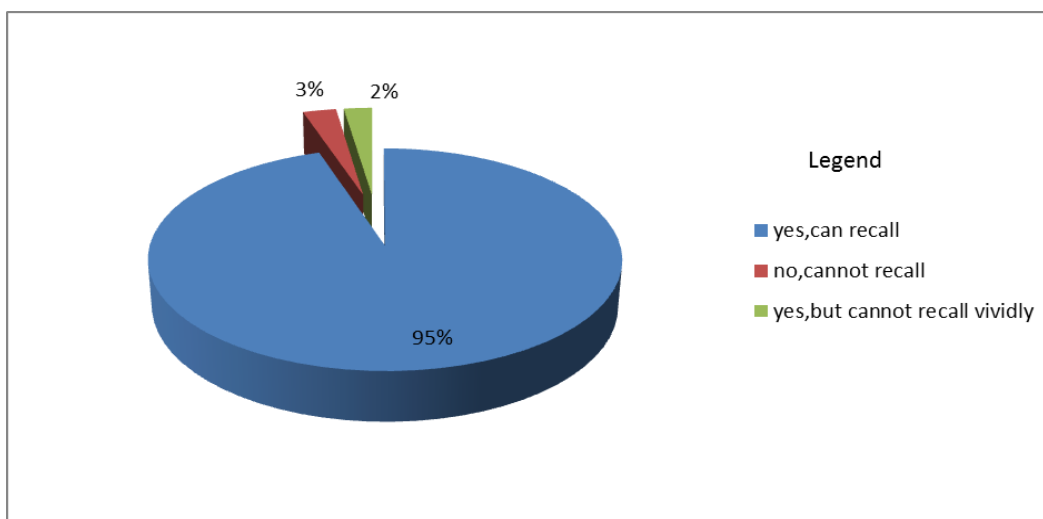


Figure 4.2: Recollection of additional medicine related information

4. 11 Calculation of Drug Availability

Percentage of drugs actually dispensed (PDA): measures drug availability. It was measured by dividing the number of drugs actually dispensed at the health facility by the total number of drugs prescribed, multiplied by 100.

Total Number of Drugs prescribed (TDP) = 902 Total number of drugs dispensed (TDD) = 793

$$PDA = \frac{TDD \times 100\%}{TDP}$$

$$= \frac{793 \times 100\%}{902}$$

902

Percentage of drugs actually dispensed = 87.9%

4.12 Calculation of Average number of drugs per encounter

Average number of drugs per encounter (ADPE): measures the degree of poly-pharmacy. This was done by dividing the total number of different drug products prescribed, by the number of encounters.

Total number of drugs prescribed (TDP) =902

Number of encounters (E) =300

$$\frac{TDP}{E} = ADPE = \frac{902}{300}$$

Average Number of Drugs per Encounter (ADPE) =3

4.13 Calculation of Patients' knowledge of correct dosage

Patient knowledge of correct dosage: measures the ability of the patient to effectively recall the information given to on the dosage schedule of the drugs they receive. This was measured by dividing the number of patients, who could vividly recall the dosage schedule for all drugs during exit interviews, by the total number of patients interviewed, and multiplied by 100.

NUMBER OF PATIENTS ABLE TO RECALL VIVIDLY HOW TO TAKE DRUG (NAR) =288

Number of encounters (E)

$$\frac{NAR}{E} \times 100 = \frac{288 \times 100}{300}$$

Patients' knowledge of correct dosage = 96%

4.14 Calculation of Average Dispensing time

Measures the average time that personnel dispensing drugs spend with patients. This was done by observing and recording the time from when a patient comes to the dispensing counter to receive medicines after being called to the time the patient leaves the dispensing counter. It was calculated by dividing the total time for dispensing drugs to a series of patients, by the number of encounters.

$$=6147 \text{ Seconds}/300$$

Average dispensing time =61seconds

4.15 Calculation of Percentage of Drugs Adequately Labelled

Percentage of drugs adequately labeled measures the degree to which dispenser's record essential information such as name of patient, description of drug, dosage regimen, strength of the drug, precautions and total quantity dispensed on the drug packages they dispense. It was measured by dividing the number of drug packages containing at least patient name, drug name and when the drug should be taken (number of drugs adequately labeled), by the total number of drug packages dispensed, multiplied by 100.

No. of drug packages with at least patient name, drug name when to be taken X100

Total number of drugs dispensed (TDD)

$$\frac{596}{793} \times 100 = 75\%$$

793

Percentage of drugs adequately labeled=75%

CHAPTER FIVE

DISCUSSION

5.1 Socio–Dermographic characteristics of respondents

The results of this study shows that, patients above sixty (60) years, visited the Suntreso Government Hospital, most frequently compared to those between the ages of 15 to 20 years. This observation might be due to the fact that patients above sixty years are more prone to chronic diseases such as hypertension, diabetes and arthritis. They therefore visit the hospital more often for treatment, reviews and refills.

The main language of the patients visiting the hospital is the Akan language, Twi. This finding is expected, since Suntreso Government Hospital is in Ashanti Region, with Akan as the main language spoken. Only a few patients could speak English language fluently. At the pharmacy, the main language of communication with patients is the Akan language. This conforms to the suggestions of the Drug Administration and control Authority of Ethiopia, which states that drug dispensers should be able to give detailed information clearly by the particular language patients can appreciate. (Food, Medicine and Healthcare Administration, and Control Authority of Ethiopia, 2012).

5. 2 Average number of drugs per encounter

WHO recommends that the average number of drugs per hospital visit should be 1.6-1.8 drugs but this study suggests three (3) drugs per encounter for the findings from this hospital. In a similar study done in Southern Malawi, the average number of drugs per encounter per visit was 2.1 drugs .The Referral hospital in Malawi however, had a higher number of drugs per encounter (2.7). (Sosola 2007). Three drugs per encounter for this study, however, appear high. This result was expected, because at

the time of the study, the hypertension/diabetes clinic was in progress. Most of the patients with both conditions are usually prescribed medicines for the two conditions and other presenting complaints that might not require drug therapy. This prescribing practice should be looked into, since the hospital has a greater percentage of its patients being above sixty years and this age group is usually at risk of experiencing adverse drug reactions and other medicine related complications. Also, as the number of medicine to be taken increases, there is a high risk of increase in drug-drug interactions, medication errors on the part of the dispensers (Liu and Christensen, 2002) , as well as patients becoming confused about administration of the many drugs given to them.

5.3 Drug Availability

The study showed a percentage drug availability of 87.9. This was the percentage of drugs actually dispensed. In a Cross sectional surveillance of drug dispensing efficacy, availability and quality of labelling using patient care indicators in health care facilities, the percentage drug availability for a government hospital was 79%. WHO recommends that an ideal percentage drug actually dispensed should be 100% in a standard hospital with good patient care rank. (Lukshmy et al, 2013). In a similar study done in Nigeria, Bangladesh, and Nepal, the percentages of drugs actually dispensed were as follows 70%, 81% and 83%, respectively.(Hogerzeil et al., 1993). When medicines were not available in the hospital, patients had to go through the inconvenience of going outside the hospital in search of their medications. Some may eventually give up and decide to use only the medicines they obtained from the hospital, without knowing the implications. Some patients also came back for review with the old prescriptions left in their folders and not purchased, claiming that they were not told what to do with them. Others confirmed they were told, but had

forgotten all about it. This is peculiar to elderly patients. This may go a long way to affect the efficacy of therapy.

5.4 Labelling

It was found out from the study that almost all medicines dispensed were labelled with both symbols (pictorial illustrations) and text, although more than half was conversant with symbols only. This method of communicating instructions to patients is appropriate even if patient cannot read. Anyone can help patient with the dosing in situations where patient forgot how he was asked to take his medication.

It has also been recommended by the WHO that a label should have the name of the drug (generic), name of patient, strength (usually in mg), dose regimen, quantity dispensed, expiry date, direction for use, dispensing date, special precaution, name and address of facility. (WHO, 1995). Provision of all these information will help patients know about their medications and how to use them safely for maximum efficacy. In this study, the date on label, facility name and name of patient were usually not written on the medicine labels. Almost all medicine labels however had dose, strength, name of medicine and quantity, usually written on them.

Overall, about three quarters of medicines dispensed were adequately labelled. In a study done to Evaluate drug utilization pattern and patient care practices, the percentage drug adequately labelled was almost 90% (Ehijie and Ifeanyi, 2011). In this study, almost all labels did not have the name of patient, date of dispensing and facility name. This might be because dispensers thought this information was not too necessary and did not want to spend the little time they had to serve patients on writing all that information on the label. Provision of patient name on medicine labels is necessary in order not to confuse which drugs are for which patients

especially when a relative is collecting medicines for more than one patient. The facility name is also important to trace the source of the medication, in case of any adverse drug reactions or medication errors, in situations where patients are not in the position of tracing where they obtained their medications.

5.5 Patient Knowledge of Name of Medicine

In this study, dispensers mentioned the name of drugs dispensed to only a few patients. Over 90% were not told the names of their medications. According to the Ghana Health Service Patient's Charter, patients have the right to know the type of treatment they receive as well as potential risks involved. (Patients' Charter, 2002). In situations where patients react to peculiar drugs, but cannot identify them, mentioning the names of the drugs would enable them prompt dispensers and prescribers. This will go a long way to prevent adverse drug reactions.

In a study done to assess patients' knowledge of prescribed medicines at public facilities in several countries, the percentage of patients who knew the name of their medicine was 65% for Ghana, 61% for Tanzania, 9% for India. (WHO, 1995). In this study, 5.3% observed appears to be low. Dispensers were so much in a hurry that mentioning the names of the drugs did not seem too important to them.

5.6 Instructions Given for Medicine Use

Instructions for medicine use and additional information on their medicines were given to almost all patients. Also, almost all patients interviewed were able to recall vividly the drug information and advice given during dispensing. This may be probably due to the fact that patients paid much attention during the counselling process. Ninety six percent of the patients knew the correct dosage of their medicines. In another study, the 55%, 75%, 82% and 81% were obtained for Zimbabwe, Nigeria,

Bangladesh and Nepal respectively. (Hogerzeil *et al*, 1993).The overall patients' knowledge of correct dosage was high compared to the study mentioned above, probably due to an increase in public awareness of the importance of being involved in and responsible for one's own health and the importance of drug compliance. Also, the fact that some patients were coming for refill and were conversant with the way the medications were supposed to be taken might be another reason. To ensure that patients understand instructions and medicine information given, it is best for patients to be asked to repeat instructions during the dispensing process.

5.7 Pharmacist Availability and Involvement

The dispensing process was observed for hundred (100) patients, without the knowledge of the dispensing staff. On observation, it was shown that a pharmacist was available at the pharmacy almost all of the time of the study and crossed checked almost all drugs to be dispensed. It is recommended by the WHO that, drugs are finally checked, just before they are given out to patients.(WHO 1995) During this final check, the prescription should be read and well interpreted before checking drugs. It is important that how appropriate a prescribed dose is, drug interactions, identity of drugs dispensed as well as labels are also checked. (WHO, 1995). This final check would be best done by a pharmacist because of its detailed nature. At the Suntreso Government Hospital, the pharmacist at the adult counter and the other at the ante-natal counter cross check drugs to be dispensed. However, since the paediatric counter had no pharmacist, it was the pharmacy assistant who dispensed medicines at that counter.

5.8 Average Dispensing Time

The average dispensing time was 61 Seconds, in this study. The WHO recommends an average dispensing time of 3 minutes. (WHO, 1995). In another study the average dispensing time for Bangladesh, Nepal and Tanzania were given as 23, 86 and 78 seconds respectively. (Hogerzeil *et al*, 1993). Sixty one Seconds (61 Sec) is short as compared to WHO standards. This might be due to the fact that large number of patients visited the pharmacy after assessing the hypertension and diabetes clinic as well as dental and Ante Natal Clinics. Patients who attend hypertensive /diabetic clinic came in as early as four O'clock in the morning and by the time they got to the pharmacy they were exhausted, hungry and impatient. They therefore pressurized the dispensers to speed up the process, which has the risk to compromising on effective counselling and labelling.

Significant amount of the time was also spent on manual drug entries, inspection of National Health Insurance cards, filling of insurance claim forms, instead of the dispensing time itself. This could be explained by the fact that pharmacies which are overburdened, deliver in a more commercial way, decreasing the time a pharmacist spends with each customer and exerting less control over prescriptions. (Caamano *et al.*, 2004) . Dispensing staff may rush through the dispensing process resulting in a lot of omissions, inadequate labelling, miscalculations, no or inadequate information and counselling. The dispensing staff spend a short time (dispensing time) with patient in an attempt to speed up the process and clear the huge number of patients at the pharmacy. In dispensing, the accuracy of the process is more important than the speed with which one works. (WHO, 1995). Dispensers also assume that patients who come for refill of their medications are aware of instructions and other drug information, since they have been on them for some time.

5.9 Confirming Name of Patients

In a majority of the encounters the dispensers gave out drugs without confirming the name of the patient. This could be dangerous because sometimes patients might have similar or names that sound the same. If confirmation is not done, the right drug might go to the wrong patient. This might result in worsening of the patient condition.

In most of the encounters, the frequency of dosing was mentioned to patients, while the duration of treatment was least mentioned. In a study done to assess the knowledge, attitude and practice of patient medication counselling among drug dispensers in North West Ethiopia, most of the dispensers never told the names of the drugs to patients. The majority also informed the patients about the frequency of administration. Only a few told patients about the purpose and duration of therapy. In the research conducted in North West Ethiopia, the most commonly told medicine education were route and dose of medicine. (Nasir et al, 2011). In comparison, this study showed that the most commonly told instructions were dosing and the frequency of dosing. It is important that instructions are plainly given to patients to enhance compliance as well as improve the efficacy of drug therapy.

5.10 Professional Background of Dispensing Staff

The Suntreso Government hospital pharmacy has more pharmacy technologist, than any other group of workers. In this study, most of the workers at the pharmacy had working experience between one to ten years.

5.11 In-Service Training Programmes

Nine of the staff indicated that they had participated in in-service training programmes, but seven indicated that in-service training programmes were never organised for them. Upon further investigations it was realised that those who said in-

service training was never organised were either new at the pharmacy, or had completely forgotten. This suggests that it had been a long time since in-service training and workshops had been organised for the staff. Periodic staff training is important to serve as a refresher of dispensers' knowledge as well as to ensure that the right information is given to patients. In-service were not organised often, due to the busy nature of the pharmacy.

5.12 Action Taken When Medicine Prescribed Was Not Available

Pharmacy staffs were asked the action they took when drugs prescribed at the pharmacy were not available. More than half indicated that prescriptions were written for patients to buy from private pharmacies, less than a fifth said they informed prescribers to write what was available at the pharmacy, more than five percent said they dispensed what they had available at the pharmacy and more than 5% also said the folder was sent back to prescriber to transfer prescription written from the folder to a prescription form to be bought from a private pharmacy. Again more than 5% did not answer at all. There appeared to be lack of communication between pharmacist and prescribers. The pharmacy did not have a formulary available; therefore prescribers did not know drugs available and those not available. Extra time had to be spent on re-writing prescriptions on prescription forms for patients to obtain from community pharmacies; hence extending waiting time.

Pharmacist and prescribers should be able to work hand in hand to ensure that patients get the best of care without having to spend so much time waiting to be served their medications.

5.13 Action Taken When Prescriptions Were Illegible

When asked what action dispensers took when prescriptions written were not legible, the majority said they went back to prescribers for clarity. Handwritten prescriptions, which are frequently used in most developing countries like Ghana, are usually illegible. It is important that dispensers do not guess the writings they cannot read, since this could result in serious medication errors. In case of misgivings, the prescriber should be contacted for clarification. (Food, Medicine and Healthcare Administration and Control Authority of Ethiopia, 2012).

5.14 Association between Who Dispenses Drugs and Patients Knowledge of Name of Medicine

Among the patients who were told the name of medicine, pharmacist who dispensed the medicines were 40% compared to 21% pharmacy technologists who dispensed the medicines of these patients. Again, majority of the patients whose medicines were dispensed by pharmacists knew the name of the medicines as compared to patients whose medicines were dispensed by dispensing technicians.

P value is < 0.05 , suggesting that the difference observed is statistically significant. This implies that there is evidence of association between who issues out the medicines to patients and patients' knowledge of name of medicine.. Hence in the wider population it could be that there are differences in patients' knowledge of name of medicines depending on who dispenses the medicine and those patients whose medicines were dispensed by pharmacists are more likely to know the name of their medicines. This is so because pharmacists with their knowledge usually gave better counseling and went the extra mile of giving additional information.

5.15 Association between Who Dispenses Drugs and Patients Knowledge of Side Effects

Among the patients who were told the side effects of medicines 41% were attended to by pharmacists compared to 14.9% who were attended to by pharmacy technologists. Also, among the patients whose medicines were dispensed by pharmacists 73% knew the side effects of the medicines. Again among patients whose medicines were dispensed by pharmacy technologists, 58% knew the side effects of the medicines. P value is < 0.05 . There was a statistically significant difference between who issues out the medicines to patients and patients' knowledge of side effects of medicines dispensed. In the wider population, it could be that there are big differences in patients' knowledge of side effects of drugs depending on who dispenses the medicine. Patients whose medicines were dispensed by pharmacists are more likely to know the side effects their medicines. This observation may be because pharmacists have in-depth knowledge about drugs and are more likely to give patients additional information other than how medicine should be used.

5.16 Limitation of the Study

The WHO indicators for evaluation involve 12 core indicators. However, for the scope and interest of this study only 5 were adopted for use in the study. The evidence generated in this study, though provides insight into dispensing practices at the study site only, it may also be used to improve current practice in pharmacies for best outcomes and also for medication management and therapy.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The average dispensing time was short compared to WHO standards. Majority of the patients interviewed were usually not told the names of their medication. Percentage drug availability was over 80%, but low compared to the WHO standard. Few staff members remembered courses taught during the last in-service training programme. Patients had a good knowledge of how to take their medication, although information on labels was inadequate

This study has shown that if pharmacists are more involved in the dispensing process, patients are more likely to know their medicines, side effects and likely to use them effectively for optimal outcomes.

6.2 Recommendations

The following recommendations are made in view of the findings above:

1. Patients should be properly informed about drugs not available at the hospital pharmacy and emphasis should be made that these drugs are equally important and must be obtained from a community pharmacy.
2. Adequate time should be taken to give patients proper counselling about their medication. This will increase average dispensing time, enhance compliance and improve drug therapy.
3. Pharmacy staff should communicate with prescribers for them to know drugs available. A formulary should be put together by the pharmacist and a copy made available to prescribers.

4. Every dispensing window at the hospital pharmacy should have a pharmacist for proper supervision.

KNUST

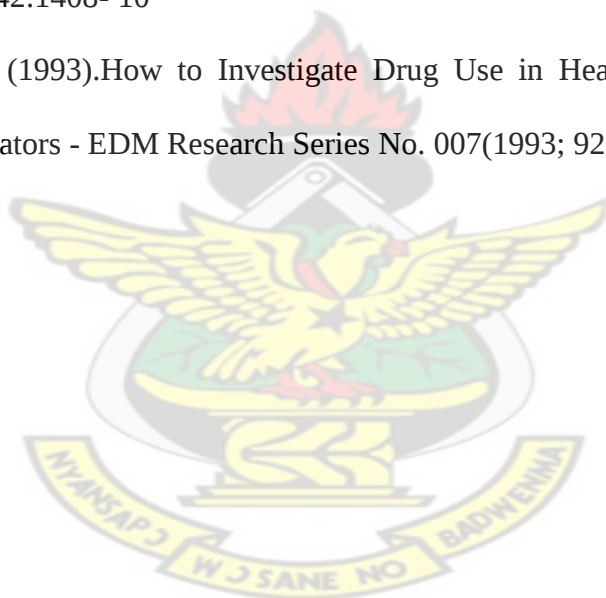


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APPENDICES

Appendix 1: Sample of Study Questionnaire

To Assess the Quality of Dispensing Process at the Pharmacy of the Suntreso Government Hospital in the Ashanti Region

PATIENT INTERVIEW

A. SOCIO-DERMOGRAPHIC FEATURES OF RESPONDENT.

(Check OPD card /folder in case of missing information)

1. How old are you?
 - ❖ From 15-20 years
 - ❖ From 20-30 years
 - ❖ From 30-40 years
 - ❖ From 40-50 years
 - ❖ From 50-60 years
 - ❖ Above 60 years
2. What is your level of education?
 - ❖ NIL
 - ❖ Primary
 - ❖ JSS/MSLC
 - ❖ SSS/O-A Level
 - ❖ Tertiary (please specify.....)
3. How many languages do you speak?

(Please name them)

4. Which of them are you more fluent in?

.....

B. MEDICINE STOCK SUPPLY

5. How many drugs were you given in all ?

.....

6. Did you get all the drugs prescribed for you at the pharmacy?

❖ Yes

❖ No

7. How many have you been asked to get from outside the hospital?

.....

C. QUALITY OF LABELLING

8. Are the packages of the medication labelled?

❖ Yes

❖ No

9. Checklist for correct labelling. Which of the following can be seen on the label? Please tick.

❖ Name

❖ Strength

❖ Quantity

❖ Frequency

- ❖ Dose
- ❖ Date
- ❖ Patient name
- ❖ Facility name

10. Was the labelling done with symbols or with text?

- ❖ Symbols
- ❖ Text
- ❖ Both symbols and text

11. Which of them are you conversant with?

- ❖ Symbols
- ❖ Text
- ❖ Both

D. DRUG INFORMATION PROVIDED

12. Were the names of your medicines mentioned to you at the pharmacy?

- ❖ Yes
- ❖ No

13. Were you given instructions on how to take your medication?

- ❖ Yes
- ❖ No

14. Were you given any additional information for example; side effects, drug or food interactions?

- ❖ Yes
- ❖ No

E. PATIENT ABILITY TO RECALL INFORMATION

15. Can you recall how you were asked to take your medication?

- ❖ Can recall vividly
- ❖ Can recall partially
- ❖ Cannot recall

16. Can you recall the additional information given about the drug ? (E.g. interaction with food or side effect).

- ❖ Yes, can recall
- ❖ No, cannot recall
- ❖ Yes, but cannot recall vividly.

F. FOR PHARMACY STAFF

1. What is your qualification?

- ❖ Pharmacist
- ❖ Pharmacy Technologist
- ❖ Medicine counter Assistant(MCA)
- ❖ Trained on the job.

2. How long have you worked as a pharmacy staff?

- ❖ Few months
- ❖ 1-5 years
- ❖ 6-10 years
- ❖ 10 years plus

3 How many people work at the pharmacy?

.....

4 How many pharmacists are there at the pharmacy?

.....

5 How many pharmacy units are available in the hospital?

.....

STAFF TRAINING

6 Do you organize in-service training programmes on medicines?

- ❖ Yes
- ❖ No

If yes:

7a. who organizes the in-service training?

- ❖ The pharmacist
- ❖ The hospital
- ❖ Pharmaceutical representatives (REPs)

7b. Can you recall the last in-service and what it was about?

- ❖ Yes, I can recall
- ❖ No, cannot recall
- ❖ Can recall partially

8. What happens when the hand writing of the prescriber cannot be seen?

- ❖ We try to figure it out among ourselves
- ❖ The prescription is taken back to the prescriber for clarity

9. What happens if a drug prescribed is not available at the pharmacy?

- ❖ We dispense its equivalent available
- ❖ We write the prescription for the patient to buy from outside
- ❖ We inform the prescriber so he writes what is available
- ❖ We inform the prescriber to transfer the prescription in the folder to a prescription form for the patient to buy from outside.

AVERAGE DISPENSING TIME

10. Approximately how long do you spend dispensing to patients?

- ❖ Under 30 sec
- ❖ Between 30sec to 1min
- ❖ Between 1 to 3min
- ❖ 3min to 5min
- ❖ 5min or more

G. OBSERVATION OF THE DISPENSING PROCESS

AVAILABILITY AND INVOLVEMENT OF PHARMACIST

1. Is the pharmacist available at the pharmacy every day?

❖ Yes

❖ No

2. Is the pharmacist involved in the dispensing process?

❖ Yes

❖ Yes, but not always

❖ No

3. Who does the dispensing?(State qualification please).

.....

4. Are drugs cross checked by the pharmacist before dispensing?

❖ Yes

❖ No

5. How long does the dispenser spend with the patient.

.....

6. Does the dispenser confirm patient name before dispensing.

❖ Yes

❖ No

7. Does the dispenser show individual drugs to patient while counselling?

❖ Yes

❖ No

8. Which of the following information was given by the dispenser?

(Please tick).

❖ Name of drug

❖ Purpose of drug

❖ Frequency of dosing

❖ Duration of treatment

❖ Side effects of drugs

❖ Instructions relating to food /drug interaction

