A STUDY ON EXISTING MEDICATION PROCESS OF DISPENSING FOR STAFF AT P D HINDUJA PHARMACY AND SCOPE OF IMPROVEMENT

Dissertation Submitted to

The IIHMR University, Jaipur

For the partial fulfilment for the award of the degree of

Master of Business Administration

in

Hospital and Health Management

By

Mr. Sandeep Narendra Chauhan - 1185

Master of Business Administration in Hospital and Health Management 2020 -2022

Under the Supervision and Guidance of

Ms Varsha Kaushal

Director of Material Department P D Hinduja National Hospital.

Dr. Vinod Kumar S V

Professor IIHMR University Jaipur

Dr. Dipak Bharambe

Assistant Manager Clinical Pharmacy of P.D.Hinduja National Hospital.

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2022

DECLARATION BY STUDENT

I hereby declare that this dissertation titled “A Study on Existing Medication Process of Dispensing for Staff at P D Hinduja Pharmacy and Scope of Improvement” is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Sandeep Narendra Chauhan

Date

CERTIFICATE

This is to certify that Sandeep Narendra Chauhan in partial fulfillment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur has successfully completed her/his internship at P D Hinduja National Hospital and medical research center. During March 22, 2022 to June 19, 2022.

Place: Mumbai

Date: 19/06/202

Ms.Varsha Kaushal, Director

Material Department

P D Hinduja National Hospital

CERTIFICATE

This is to certify that dissertation titled "A Study on Existing Medication Process of Dispensing for Staff at P D Hinduja Pharmacy and Scope of Improvement" is a record of the research work undertaken by Sandeep Narendra Chauhan in partial fulfillment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide – Dr. Vinod Kumar S V	School Dean
IIHMR University, Jaipur	IIHMR University, Jaipur
Date	Date

Abstract

The Dispensing Medication Process at hospital pharmacy is most critical process as it the final step for patients to come in for medication in pharmacy and if it is not Dispensed accurately then it will be fetal. Here in P D Hinduja Hospital, they have special facilities for staff's and their dependent people. One of its kind is medication at zero cost. P D Hinduja pharmacy only provides medication for Inpatients and Staff and decided to know the process of dispensing. There are many studies across the globe to the various reasons for medication error, prescription error and dispensing error. Few study which are correlating is been taken for the literature reviewed. Authors of many studies had concluded that automation helped pharmacy by decrease the dispensing error, medication error and prescription error.

The study carried out is Original. it is prospective observation study and To find out the existing process of dispensing for staff medication prescription at P D Hinduja Hospital and analyze the process to find out the delays and gap and give the appropriate recommendation with the Sample size 200. Inclusive criteria prescription given by staff themselves to pharmacy and exclusive criteria prescription brought by the relative were not included. For this, data analysis tool was self-made for the assessing the process dispensing at every step to find out the delay and gap. The result showed that there was Delay in process of Dispensing process average time of 9 minutes without charging the medication and charging of medication average time was 17.4 hours. There were around 87 percent of staff prescription which were not charged on real time.

Whereas there were no evidence of medication and dispensing error in past. As the data is very limited. So, the present data was not able to compare. But result was highly unsatisfied. As pharmacist were not Dispensing the medication as per Guidelines. The patients are on high risk as they are not getting the medication as per the dispensing guidelines by the Hospital and Organization.

Recommendation – Integrated system of Automated of Dispensing process with digital prescription.

Conclusion – The process of Dispensing of medication for staff in P D Hinduja pharmacy is manual and it should be dispensed as per the guidelines for patient safety they should change the Manual process to automated.

Acknowledgement

I would like to express my special thanks to Ms. Varsha Kaushal Director of Material Department of P D Hinduja Hospital who gave me the golden opportunity to do this wonderful project on Dispensing Staff Medication Prescription at P D Hinduja Hospital and IIHMR University Jaipur. Also, wants to thank my guide Dr Dipak Bharambe. Assistant manager of pharmacy at P D Hinduja Hospital and Dr S Vinod Kumar Professor at IIHMR University Jaipur for his guidance for completing my project. I have learnt many new things and I am thankful to them. I would also like to thank Pharmacy Department for their support.

I would also like to thank my Parents and Friends who helped me in finalizing this project in limited period.

Sincerely,

Sandeep Chauhan

MBA HM-25 Batch

IIHMR UNIVERSITY.

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List of Abbreviation

1. HH NO – Hinduja Hospital Number
2. SMO – Staff Medical Officer
3. WHO – World Health Organization
4. IPA – Indian Pharmaceutical Association
5. USA – United States of America
6. EHR – Electronic Health Record
7. EMR – Electronic Medical Record
8. SOP – Standard Operating Material.

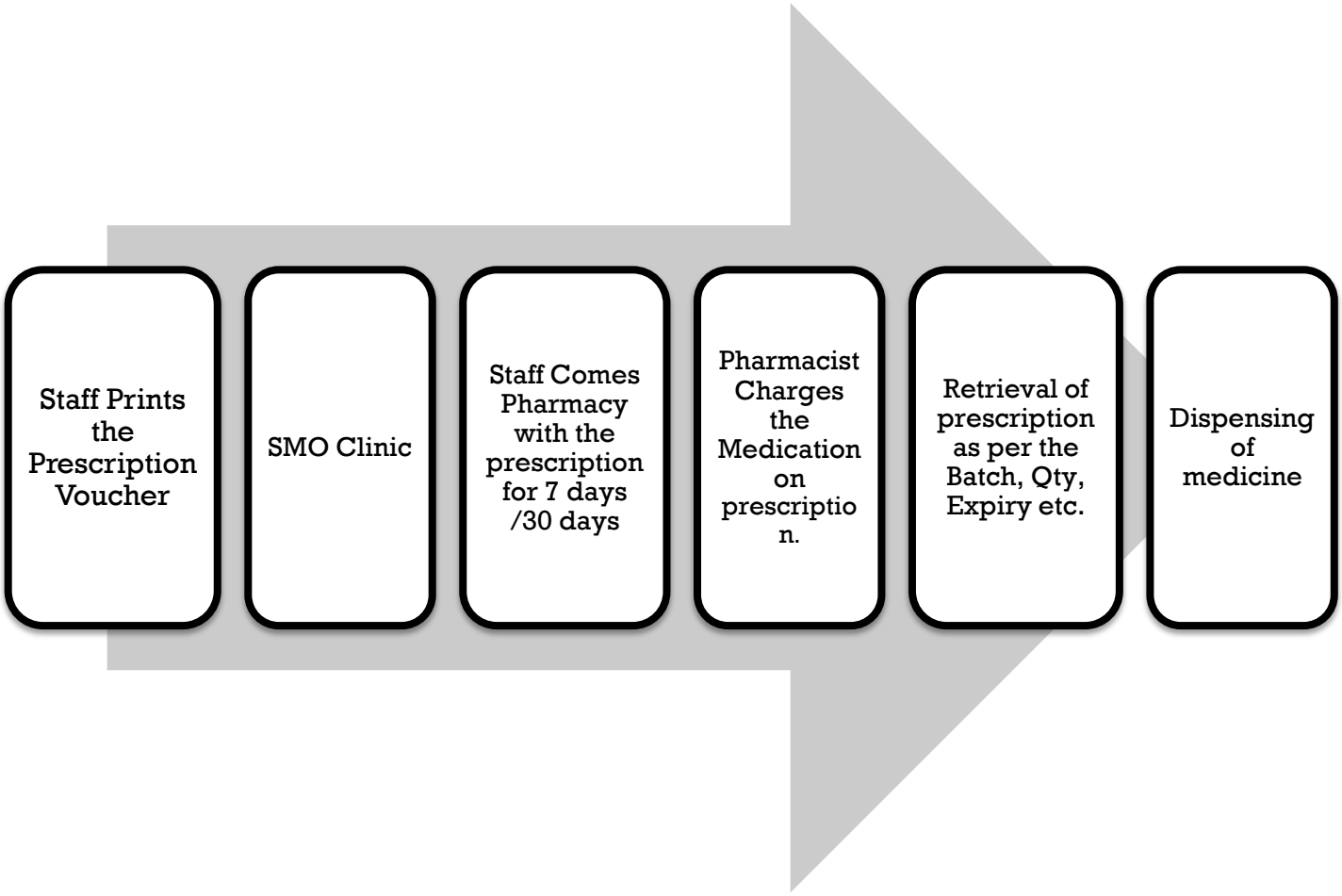
Chapter 1 - Introduction

Hospital pharmacy is a critical area of the Hospital and healthcare domain, which ensures the supply of medication to patients and also manages the procurement, proper storage,

packaging, dispensing or distribution of the medicine in the hospital. The department is managed by highly skilled professionals and pharmacists. Often, there are delays which can be disastrous due to non – availability of the drug at the right time and one of the major responsibilities of a hospital pharmacy is to ensure that the right drug is available at the right time. Continuous monitoring of the dispensing process helps in measuring the impact of quality of care and service given to patients. In P D Hinduja National Hospital, they do Enormous charity to needy and poor people. Along with this they also provide special medical facility to their staff and their dependent. One of them is medicine at zero value is being charged.

Medication process for Staff Dispensing is below –

- Staffs firstly has to take the print of Progress note paper for diagnosis of staff patient, prescription paper for prescribing the medicine and duplicate prescription paper for documentation with their information like Name, Age, sex, HH No, Date, Time etc.
- Then staff goes to Staff Medical officer (SMO) with prints. (Time for staff and staff medical officer Consultation is on 8:00 am to 9:30 am and 2:30 pm to 4:00 pm).
- After Consultation staff carries the prescription to Pharmacy.
- Staff keeps their prescription in pharmacy Staff Prescription Drop Box. So that they can collect it afterwards for those who have monthly medication. Those who have 7 days medication is get right away.
- Now pharmacist will take the prescription for charging the medication, after charging only they can retrieve the medication as per the Name, Drug, Dosage, Quantity, Expiry etc.
- After retrieving they pack the medicine and dispense it to staff and keep the duplicate prescription and bill copy for documentation.



Problem Statement

The study aims to look at some problem areas in the existing workflow which includes Manual handing over of the prescription, manual feeding of the prescribed medicine in the system, not charging the staff prescription on real time basis and delay in dispensing medicine to staff

Aim

To Assess the existing process of Dispensing for Staff Prescription at P D Hinduja National Hospital.

Objective

To Study and Analyze the existing process of Dispensing for staff Prescription. Find out the various reasons for the Delay in process and give the appropriate recommendation.

Chapter 2 - Review of literature

According to WHO and IPA, Patient safety is an integral part of delivering quality of healthcare to the patient. The process of dispensing medication is a very critical part for patient safety. Dispensing error occurs frequently. There are various factors that affect the process of dispensing medication to patients, and number of studies has been done on the process of dispensing prescriptions.

Sr No	Author	Year	Study Location	Sample size	sample techniques	Salient Features
1	1. Elizabeth allan. Flynn 2. Kemmeth N. Barker	2003	USA	4481	Random seletion	Study is Cross sectional descriptive study and despesning accuracy was 98.3 percent
2	1. Jean-Eudes Fontan 2. Vincent Maneglier 3. Vu Xuan Nguyen 4. Chantal Loirat 5. Francoise Brion	2003	France	4532	-	Prescription and Administrative error rate got reduuced significatly with computerized process as compered with handwritten Prescription.

3	1. Elizabeth allan. Flynn 2. Kemmeth N. Barker	2006	-	Pharmacy 1 3427 pharmacy 2 3424	-	Pharmacy 1 showed decrease in overall error rate Pharmacy 2 observed increase in the overall erro rate due to resignation of 2 experience pharmacist.
4	1. Tammy.L Humphries 2. Thomas Delate 3. Dennis K. Helling 4. Brace Richardson	2008	Colorado, USA	74 Pharmaicist were inteterview	-	Pharmacist worked in Automated Dispensing System were Satiefied

5	1. Marisa R. Hodgkison 2. Lan Larmour 3. Eldho Paul	2017	-	379 Prescription were evaluated before the implementing and 375 Prescription after the Implementing	-	After Implementation of intergrated system of Dispensing showed significantly reducing Dispensing and medication error.
6	1. Alex C. Lin 2. Yao-chin Huang 3. George Punches 4. Yan Chen	2007	Clare, Michigan	-	Videotaping & Working sampling Technique.	Prescription filling time reduced after installation of Automated Prescription Filling.
7	1. Shuvam Sharma 2. Sachin Patil 3. Ashwini narasannavar 4. Ramesh Bhandari	2021	Belgavi, India	80 Pharmacists	Simple random technique	Pharmacist had a average knowledge of dispensing drug without prescription.

These recent studies provide significant insights for automated medication dispensing. So, researchers know that automation of medication will relate to successful management and integration of dispensing process of medication

Chapter 3 - Methodology

- Research question - What is the existing process of dispensing the medication to staff and what will be the scope of improvement on the existing process at P D Hinduja Hospital Pharmacy?
- Study period: - 21st March 2022 to 18th June, 2022.
- Study Design & Area - A Prospective observational study will be conducted at P D Hinduja National Hospital.
- Sample size – on an average, about 110 - 120 staff prescription are brought to the pharmacy. As per the feasibility 20-25 percent of these prescriptions has been taken for 15 days of the study period.

  Inclusive Criteria – Only the prescriptions that were brought to the pharmacy by the staff themselves were included in the study sample.

  Exclusive Criteria – Prescription brought to the pharmacy by anyone expect the staff were excluded from the study sample.
- Sampling technique – Convenience Sampling technique.
- Data collection – Primary Data analysis.
- Data analysis tool – MS Excel 365.
- Data collection tool – Dispensing Process Tracker is to analyze the Process at every single step performed while dispensing the medication at pharmacy To find out the delay and gap

.

Figure 3.1 Data collection tool

Sr no	SMO Clinic		Pharmacy										
	HH NO	Staff voucher Print time (A)	Staff in Time (B)	Time Taken by Staff (B-A)	Prescription taken for Retrival (C)	Medicine Ready for Dispatch (D)	Medicine taken for Charging (E)	Medicine Charged Time (F)	Time taken to Charge Staff Priscription (F - E)	Reason for Delay in charging on Real time	Time taken By Pharmacist For Dispensing (F-E)	Staff out Time	Remark
1													
2													
3													
4													
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Staff Travel Time – staff comes to Pharmacy with Prescription after consultation with SMO.

Post Retrieval time - Staff waiting in Queue to give their prescription.

Pharmacy retrieval time – it a time at which pharmacist gets the prescription from staff till its gets dispensed.

Charging time – time taken to charge the medication. (After the prescription is taken form the staff it has to get charged and retrieval according to the Drug name, Batch, Expiry date and other details).

Dispensing Cycle Time - Post retrieval time + Pharmacy retrieval time. (staff waiting time is equal to Dispensing cycle time.

Total cycle time – Dispensing time + charging Time.

Chapter 4 – Results

For analysis total number of staff prescription taken for evaluating was 200. As data of charging for 10 staff prescription were not found in the system. so it has excluded from data analysis. So, N = 190. On evaluating 190 staff prescription as per the activity wise dispensing process on table 4.1.1, about 176 staff patient took more than 15 minutes to reach pharmacy. In pharmacy 157 staff with prescription had to wait for around 0 to 4 minutes fir there chance retrieval of 130 prescriptions were 0 to 4 minutes and 46 prescriptions had retrieval between 5 to 9 minutes. Charging of 55 staff prescription was found to between 0 to 4 minutes were as 124 prescription took more than 15 minutes to charge. Further, in table 4.1.2 average time for activity wise Dispensing process, staff travel time is 110 minutes, post retrieval time is 4 minutes, pharmacy retrieval time is 5 minutes and charging time 962 minutes and dispensing time is 9 minutes, so staff prescription has been dispensed earlier than prescription were taken for charging. So if we see total cycle time of dispensing is 971 minutes (approx. 16 hours). In figure 4.1.1 we can see that number of days taken for charging the staff prescription. 123 prescriptions took 1 day prescription for charging. also seen that few were charged on 8^{th} day from the day of dispensing. on further analysis of 190 prescription in figure 4.1.2, 86 percent of staff prescription is not charged on real time and 14 percent of staff prescription has been charged on real time. it mean only 14 percent is been dispensed as per the SOP of hospital and guidelines by WHO and IPA for good pharmacy practice.

Table 4.1.1, Represents the Activity wise number of staff prescription at different time interval for dispensing process.

Staff Prescription Time Interval	Staff Travel Time	Post Retrieval Time	Pharmacist Retrieval	Pharmacist Charging	Dispensing Total Cycle	Total Cycle Time
0-4	1	157	130	55	72	15
5 to 9	5	28	46	2	59	23
10 to 14	8	4	12	9	39	12
More Than 15 Min	176	1	2	124	20	140

Table 4.1.2, Represents the Activity wise Average time taken (in minutes) for staff prescription at every step of dispensing medication.

Activity wise Average Time Taken for Staff Dispensing Process					
Staff Travel Time	Post Retrieval Time	Pharmacy Retrieval Time	Prescription Charging Time	Dispensing Cycle Time	Total Cycle Time
110	4	5	962	9	971

Figure 4.1.1, Represents Number of Day's taken to Charge Staff Prescription.

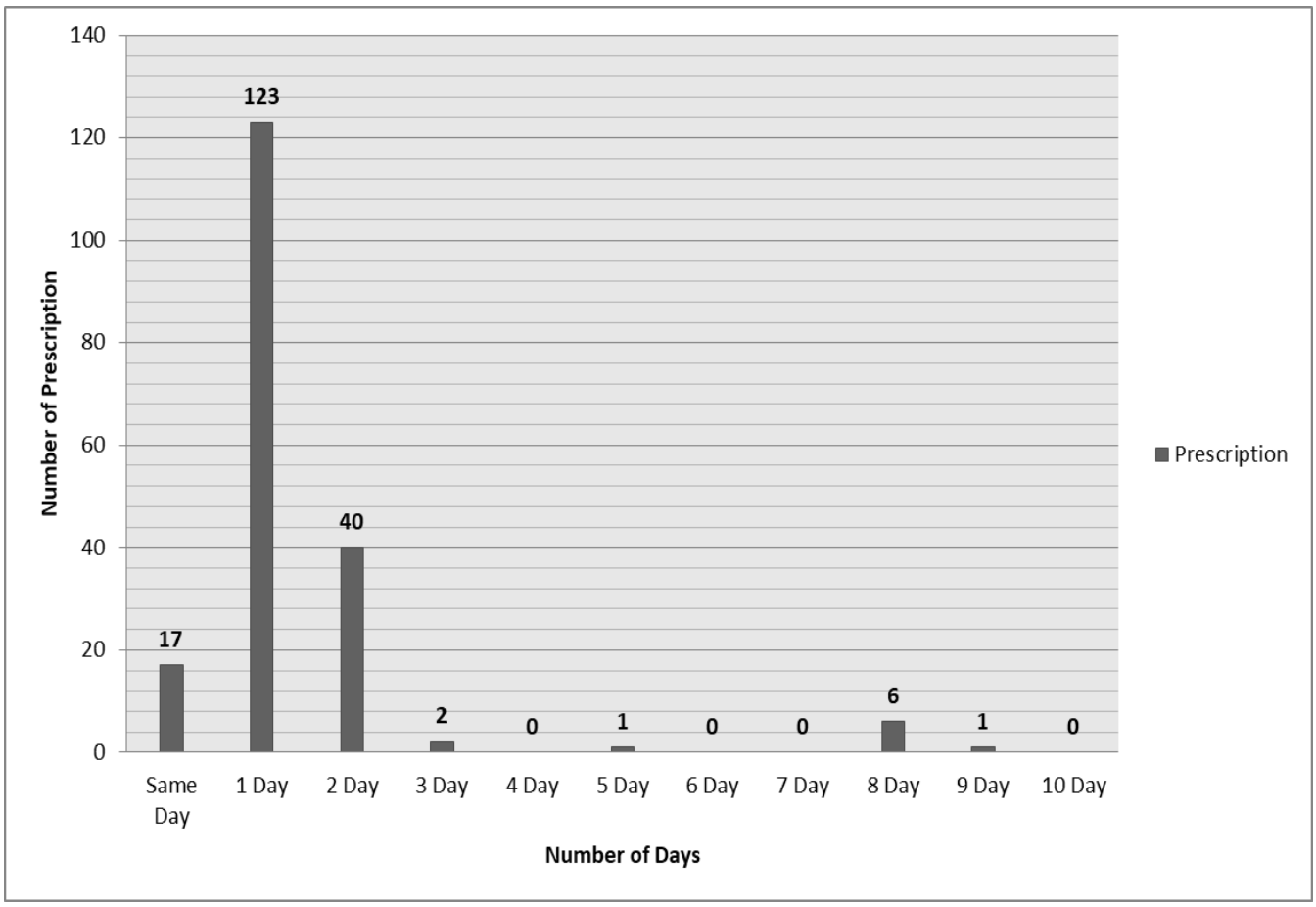
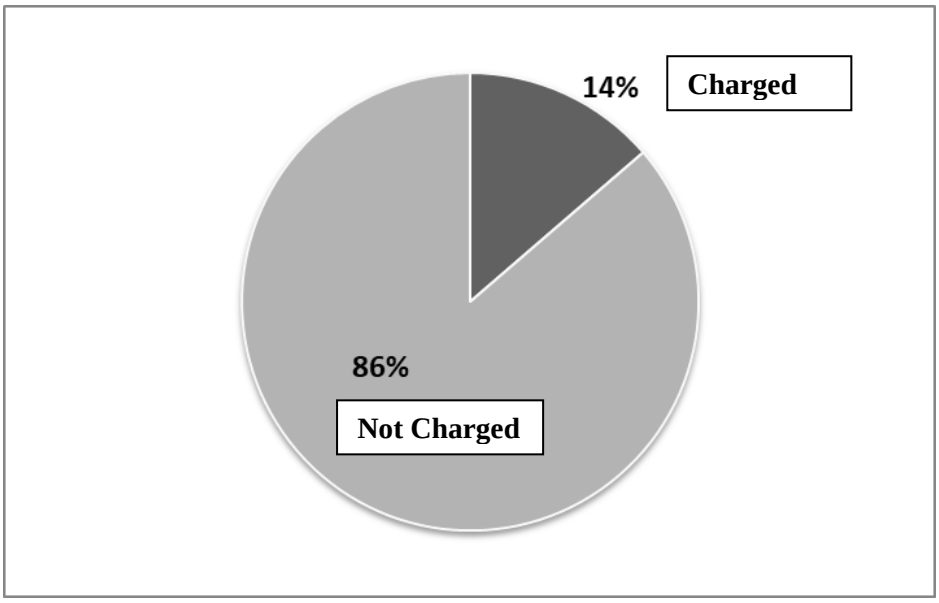


Figure 4.1.2, Represents Charging of Staff Medication Prescription on Real Time.



Chapter 5 – Discussion and Recommendation

Discussion

Medicine is very much critical and essential over the globe for treatment of disease. WHO has given the guideline for the Dispensing the Medication Good Pharmacy Practice. Here at P D Hinduja National Hospital there is unique facility is provided to their staff medication charged at zero value. So, the Purpose of the study was to find out the existing process of the Dispensing Staff Prescription and scope of improvement by analyzing the existing process. The study is prospective observational study. As a result from 190 responses of Medication process of dispensing staff prescription. The hypothesis of the study shows that average time for per staff Prescription Dispensing Cycle is 9 minutes and average charging time per staff Prescription is 962 minutes / 16 hours (approx.), Average total cycle time is 971 minutes / 16 hours and 86 percent staff medication prescriptions is not charged on real time and 14 percent are charged on real time and 10 Staff Medication Prescription were not found in system which were excluded from the study. These staff is at high risk as Medicine is not check as per the dispensing protocol. As the process of dispensing in pharmacy is not followed. Pharmacist are not happy with the existing process it causes the heavy work load. Because of the heavy queue of staff patients, to avoid the heavy queue they charge the medication after dispensing. Few patient staff keeps their prescription in staff drop box due the heavy queue which has kept for the monthly medication. As we can see in table 4.1.2 average staff traveling time is also 110 minutes (approx. 2 hours). This is why they don wont to stand in queue for longer period of time. now, These staff takes their medication after working hours to avoid in standing in the queue for medication this affect the pharmacy process as pharmacist are busy in other daily work. Now as per the standard operating procedure for dispensing medication by Hospital is it should charge first and then it to be dispensed by the pharmacy as per the Drug Name, Dosage, Strength, Batch, Expiry, and Maximum Retail Price. As they are not following the process which may cause in Medication error, Batch difference, Inventory variation.

The study on effect of an automated dispensing system on errors in two pharmacies by (Flynn & Barker, 2006). The study compared the dispensing error rates before and after implementation of Automation Dispensing System with bar code verification in two community pharmacies. The dispensing error was calculated by dividing the number of errors in one or more prescription by the number of prescriptions that had been inspected. They

have divided the error categories into two: targeted error and non-targeted errors. However, a significant decline was observed in target error and overall errors at Pharmacy 1. However, in pharmacy 2, there was an increase in the overall error rate due to resignation of two experienced staff just prior to the measurement and therefore the staff had a shorter time. implemented Automation Dispensing System with bar code verification showed better result. Likewise, there was similar study performed by same author (Flynn & Barker, 2003) in USA he found accuracy of dispensing mediation was 98.3 percent. Whereas another study on medication error in hospital compared the computerized unit dosage with ward stock system called "Computerized Prescription Plus" by (Fontan, Maneglier, Nguyen, et al., 2003). This study was performed French hospital in pediatric ward Here the aim of the study was to evaluate the handwritten prescription with computerized prescription. Hospital medical and non-medical staff was also aware of the error in the medication will be fetal. Report was regularly reported. Result showed significant decrease in error rate as compared to the handwritten prescription. Similarly, another pioneering work studied the impact of an integrated electronic medication prescription (e-prescription) and dispensing system on medication errors in Australia (Hodgkinson et. al., 2017) implemented the integrated system significantly reduced prescription & dispensing errors and reduced the patient waiting times for prescription dispensing. In 2005, there was a study done by (Humphries, Delate, et al.,2008) on evaluating automated dispensing system on pharmacy staff work activities and job satisfaction. They conclude that implementing automated dispensing system did not shift work activities from dispensing to counselling or job satisfaction bus significantly reduce the dispensing error and medication error. Another study on robotic prescription filling system on pharmacy staff activities and prescription-filling time was done by (Lin, Huang et. Al., 2007) Result showed reduce in prescription filling time but he also stated that staff has to be adjusted to optimize the efficiency gained. Most recent study done by (Sharma, Patil et. Al., 2021) in India. on knowledge and practice of dispensing drug without prescription by pharmacist. And they concluded that pharmacist is having average level of knowledge on dispensing drug without prescription on request of patients.

Based on the studies and results above, it is recommended that pharmacy should strictly follow certain guidelines provide by the higher authorities and to minimize the dispensing error as well medication error, Batch variation and stock variation. Organization and mangers of pharmacy should implement automation of the process of medication dispensing with electronic or digital prescription to improve the process and waiting time of the staff patients.

This will also help in EHR and EMR records of patients Even manual handing over of staff prescription from Printing to Pharmacy can be improved by digital prescription.

Limitation

While conducting the study only manual data is available in the system like patient prescription printing time and charging time and other relevant data are not available for comparison with current data.

Disadvantage of existing process.

- Staff patients are not receiving the medication as per the dispensing process. So patients are at high risk.
- There are Chances of getting manipulation in prescription while traveling from SMO to pharmacy after consultation.
- Manual feeding of staff prescription in the system for charging can lead to adding and charging false medication without knowing to staff patients as medication are charged after the process.
- Staff waiting in queue.
- Heavy work flow for pharmacy due to manual feeding of prescription

Recommendation –

System

- Handwritten prescription should be digitalized, or Tran scripted by nurse / doctor by himself so that pharmacy will get prescription before staff they will keep medication ready with proper procedure before staff reach in pharmacy.
- Hospital should install the Software which will automatically feed handwritten prescription in the system. So that pharmacy will get digitally prescription and they will keep the medication ready before staff will come.
- For dispensing the medication of staff prescription there should be bar code system to ensure the prescribed and Retrieved medication are accurate and also counter check /2nd check should be done by the other pharmacist for patient safety.
- This will help hospital to keep record of patients for EHR and EMR.

Process

- Pharmacy should keep a designated time for monthly medication. To avoid interruption of staffs asking for medication of 30days in normal dispensing process.
- Standard time should be given for dispensing process to improve the efficiency and regularly it should be check and updated.

Man/Women

- Motivate them to work efficiently
- Awareness to staff patient for received medication from pharmacy should be according to the Batch, Quantity and MRP.
- Professional Training program for pharmacist.
- Avoid Disturbance by other.
- Create good environment in department

Advantage –

- Patients will get accurate medication,
- Efficiency of pharmacy dispensing will improve.
- Inventory will be manage properly.

Chapter 6 - Conclusion

In practice of dispensing medication for staff prescription at P D Hinduja Pharmacy Results shows that process should be highly integrated with atomization system, so that right drug is given to right person with minimum time interval. This will improve the quality of service as well the efficiency of the pharmacist to work according to the guidelines by the hospital as well the government.

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