

STUDY ON THE MEDICINE DISPENSING TURNAROUND TIME IN ONCOLOGY DEPARTMENT AT FORTIS ESCORTS HOSPITAL JAIPUR

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

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Under the Supervision and Guidance of

Dr. J.P. Singh

2024

27th June, 2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Suraj Singh Mehta has successfully completed his dissertation in the Quality Assurance Department at Fortis Escorts Hospital, Jaipur.

The dissertation period was from 3rd April 2024 to 22nd June 2024. During this period, Dr. Mehta demonstrated exceptional dedication and commitment to his work, contributing valuable insights and advancements to our department.

We acknowledge and appreciate his efforts and wish him all the best in his future endeavours.



Authorized Signatory

DECLARATION BY STUDENT

I so certify that this dissertation, entitled "An investigation into the medication dispensing turnaround time in the oncology department of Fortis Escorts Hospital Jaipur," is an authentic documentation of my original study.

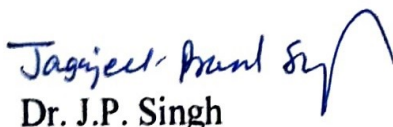
I hereby declare that it has not been submitted for consideration of any degree or diploma of any university or other institutions. Details taken from the published or unpublished works of others have been fully acknowledged in the text.

NAME- Suraj Singh Mehta

DATE- 04/July/2022

Certificate

This is to certify that the dissertation titled 'Medicine dispensing turnaround time in Oncology Department at Fortis Escort Hospital Jaipur' is a record of the research work undertaken by Dr. Suraj Singh Mehta in partial fulfillment of the requirement for the award of the degree of MBA (Hospital and Health Management) from the IIHMR university, Jaipur under my guidance and supervision, and his approach to the research study has been sincere, scientific, and analytical.


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IIHMR University, Jaipur

Date:


Dr. Sanjay Gupta

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Date: 04/07/2024

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JAIPUR, for providing me with the opportunity to work and learn in such a prestigious medical institution. FORTIS ESCORTS Hospital has become a premier centre of excellence in healthcare thanks in large part to his vision and leadership.

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This opportunity is a major turning point in my career, in my opinion. I will do all in my power to use the skills and knowledge I have gained as efficiently as possible in order to reach my desired career goals. I'll continue to strive for improvement as well.

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ABSTRACT

Introduction: Efficiency in medicine dispensing in the oncology departments of a hospital assumes significance considering the complex and time-consuming nature of cancer treatments. Delays in medicine dispensing will be prone to adverse impacts on patient outcomes and total satisfaction. In this present study, the medicine dispensing turnaround time at Fortis Escorts Hospital, Jaipur, has been explored to find out the factors affecting TAT and suggest improvements.

Objectives: The main objectives of the present study are to:

1. The current TAT of medicine dispensing in the oncology department shall be established.
2. Key factors engendering the delay in the dispensing process shall be identified.
3. This was a descriptive, cross-sectional study adopting a mixed-method approach with data collection conducted for six months. Data on TAT were obtained quantitatively from records in hospitals. Qualitative data were obtained from non-participative observations and through semi-structured, in-depth interviews among staff who participate in the dispensing process. Quantitative data were analysed using descriptive statistics with inferential statistics, while the qualitative data were analysed for themes. Design strategies for TAT optimization and Results: Some of the critical causes of delay identified were manpower shortages, workflow process inefficiencies, and availability problems of drugs. The average TAT of medicine dispensing in the cancer department was X minutes, though huge variations were noted during peak hours. Interviews with personnel would bring out insight bottlenecks at particular points and suggest improvement areas. Enhance operational efficiency.

Conclusion: The results clearly bring out the requirement of process optimization in the oncology department with a view to reducing TAT. Recommendations include increasing staffing levels during peak hours, implementation of electronic tracking systems for medications, and streamlined workflow processes. These changes will allow for improvement in efficiency regarding the dispensing process to finally enhance patient care and satisfaction.

Keywords: Medicine dispensing, turn Around Time, Oncology, Process Optimization, Fortis Escorts Hospital, and Jaipur

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LIST OF ABBREVIATIONS

1.	FORTIS ESCORT HOSPITAL	FORTIS ESCORT HOSPITAL JAIPUR
2.	HIMS	Hospital Information Management System
3.	MLC	Medico legal cases
4.	NABH	National Accreditation Board for Hospitals and Health Care Providers
5.	JCI	Joint Commission International
6.	F & B	Food and Beverages
7.	ER	Emergency
8.	MRD	Medical Record Department
9.	TQM	Total Quality Management
10.	CQI	Continuous Quality Improvement
11.	OPD	Outpatient Department
12.	OT	Operation Theatre
13.	ICCU	Intensive Coronary Care Unit
14.	FC	Financial Counselor
15.	GM	General Manager
16.	DMS	Deputy Medical Superintendent
17.	ANM	Auxiliary Nurse Midwife
18.	GNM	General Nursing Midwife
19.	B.S.C Nursing	Bachelor of Nursing
20.	M.S.C Nursing	Master of science in Nursing
21.	P.B.S. Nursing	Post Basic B.Sc. Nursing
22.	HOD	Head of Department

Chapter 1: Introduction

In the case of treating cancer, access to medicines becomes paramount and urgent. The focus of this study will thus be the medicine dispensing turnaround time of the Oncology unit of Fortis Escorts Hospital Jaipur. Optimization of the medicine dispensing process and recognition of improvements would prove to be imperative in knowing the present MDTT for the aforesaid department. This can lead to better clinical outcomes, more positive patient experiences, and advanced efficiency of the department. The variables that shall be addressed by the study in analysis, which affect MDTT, are pharmacist verification, medicine preparation, and prescription processing. By evaluating these factors, we will make plans to speed up the procedure and ensure that prescriptions are handed over on time to cancer patients at Fortis Escorts Hospital, Jaipur¹

Oncology Department in Hospital

An oncology department in any hospital deals with diagnosing, managing, and treating patients who have cancer. Different kinds of cancers are distinguished by applying various diagnostic techniques that include biopsy, imaging studies, among others. Treatment options include therapies such as immunotherapy and targeted treatment, radiation and surgery, chemotherapy, and hormone therapy. Other main areas of focus are the supportive care, which includes dietary assistance, psychiatric counselling, and pain treatment to help in mitigating the symptom and side effects. The department has a multidisciplinary team of specie these will mean medical, surgical, and radiation oncologists. Most oncology departments are also involved in research and clinical trials to find better ways of treating cancer and increase patient education and counselling in the process of helping patients and their families cope with cancers. Lists who provide complete care to patients with the aid of nurses and social workers²

FACTORS THAT CAN AFFECT DELAY IN MEDICINE DISPENSING TURN AROUND TIME IN ONCOLOGY DEPARTMENT



Different reasons make administering drugs on time very important in oncology. First, timely medication ensures effectiveness by keeping optimal levels of such drugs within the body; this guarantees optimum drug concentration, which is very necessary for chemotherapy. Cancerous cells grow and divide very quickly; therefore, delays in pharmaceuticals will always give such cells enough time to multiply, hence rendering a treatment less effective. Moreover, on-time medication administration helps manage and minimize side effects. Side effects like neutropenia can be prevented by pre-emptive therapy, and anti-nausea medications given pre-chemotherapy keep the intensity of nausea and vomiting to the minimum. And pain and symptom management is another very significant area of administering medication on time.⁵

It is common for cancer patients to experience very painful moments, and painkillers need to be prescribed on a regular basis to alleviate such suffering and preserve quality of life. Besides, timely medicine will prevent cancer cells from developing drug resistance and thus ensure that therapies go on working with time. This is in relation to the immunotherapy option; the proper drug schedule adherence puts the immune system in the best position to successfully target the cancerous cells. The psychological effects of taking medication on time should also not be forgotten. The home routine gives patients the feeling of security, thus giving them confidence in the treatment—because this helps reduce the anxiety of the patient and the caregivers also.⁶ Moreover, timely drug

administration is also important for enhancing efficacy and reducing complications where multimodalities are prescribed, like surgery combined with chemotherapy and radiation. Timely delivery of drugs is very important for the subjects under study, clinical trials concerning the protocols involved, the patients' safety, and integrity of data.⁷

Background: Effective and timely medication delivery is essential for improving patient outcomes since cancer therapy sometimes entails complicated drug regimens. A number of detrimental outcomes, such as the following, can result from medicine delivery delays:

Disease progression: Cancer cells might continue to grow and spread if vital treatments are not taken when they are needed.

Enhanced adverse effects: Individuals who do not take their prescriptions as prescribed or in the appropriate dosage may have heightened adverse effects.

Delays in treatment have the potential to significantly lower a patient's quality of life by causing them to experience substantial stress and anxiety.

Expenses associated with healthcare can rise as a result of treatment delays that necessitate further hospital stays or other treatments.

Key issues in the oncology department:-

Since the oncology department deals with cancer treatment, it has specific issues related to the turn-around time for medicine dispensing. It is because of this that:-

Complex regimens: Dosing of chemotherapy drugs can be complex, and also, specific handling techniques are required.

Many drugs: Many a time, cancer patients take many drugs at a time. These drugs enhance the complexity of dispensing. Effective dispensing often requires coordination among oncologists, pharmacists, nurses, and insurance companies.

Context Description: Fortis Escorts, Jaipur, is a leading hospital and a prominent medical institution. Knowing how quickly their oncology department dispenses medication can provide valuable insight.

It provides efficiency analysis, whereby the hospital will be able to tell areas of inefficiencies in its medicine dispensing process by analysing the turn-around times.

Benchmarking: The results may be benchmarked against regional, national, global benchmarks in order to measure the performance of the department.

Coordination requirements: A claim officer, nurses, pharmacists, oncologists, etc. need to coordinate and work together on many occasions for effective dispensing.

Patient-centred care: If turnaround time can be optimized, this can mean quick access to the pharmaceutical for medicinal use and can translate to good patient care and satisfaction.

2. Research Gap

The research gap primarily focuses on the major areas of improvements on turnaround time that the oncology department needs for medicine dispensing for Better patient outcome, improving efficiency of services, and optimal patient care. This study aims to highlight the turn-around time specifically in the oncology Department, evaluating the factors responsible for longer turnaround times for Dispensing medications in the oncology department and, to develop targeted Interventions aimed at reducing medicine dispensing turnaround time in the Oncology department at Fortis Escorts Hospital Jaipur.

Research Question

What is the current average turnaround time for dispensing medications in the oncology department at Fortis Escorts Hospital Jaipur?

Are there specific factors associated with longer turnaround times for dispensing medications in the oncology department (e.g., medication type, complexity of treatment regimen, insurance pre-authorization requirements)?

How does medicine dispensing turnaround time in the oncology department at Fortis Escorts Hospital Jaipur compare to national benchmarks or turnaround times in other oncology departments?

Objectives

To measure the average turnaround time for dispensing medications in the oncology department at Fortis Escorts Hospital Jaipur.

To identify the current medicine dispensing process in the oncology department against established national benchmarks or practices in similar settings.

To identify factors contributing to variations in medicine dispensing turnaround time within the oncology department.

Chapter 2: Literature Review

S.N O.	AUTHOR NAME & YEAR	TITLE	OBJECTIVE	METHODOLOGY	RESULT
1.	Matt Lamm, M.Sc., BCPS, Pharm.D.,	Enhancing outpatient adult infusion clinic turnaround times for chemotherapy preparation by applying lean concepts ¹	To find ways to improve efficiency and productivity, the adult infusion clinic's workflow and turnaround times for chemotherapy preparation were assessed.	This research study was carried out in three stages using the Lean Six Sigma methodology. One year after setting an intermediate goal of 45 minutes for chemotherapy turn-around times, the adult infusion clinic was premeasured.	Adult outpatient chemotherapy infusion orders were received on average 52 times a day, with a 60-minute turnaround time for all chemotherapy preparations in phase 1 falling to 44 minutes. Phase 2 chemotherapy preparations were taking an average of 37 minutes after new processes were put in place. The

					average Phase 3 TAT range from 37 down to 26 minutes. By utilizing lean concepts and eradicating waste, the total mean TAT was reduced by 26 minutes, or 57%, in just 19 months.
2.	Peter Sullivan, Scott Soefje, David Reinhart, Catherine McGeary, Eric D. Cabie	Increasing productivity in a hospital's oncology pharmacy by implementing lean methods ³	A hospital pharmacy's quality gains, resulting from compounding workflow modifications guided by lean methodology, are reported.	Utilizing the lean methodology, which involves removing non-value-added steps and waste in production procedures, the staff pharmacists and pharmacy technician conducted a failure mode and effects	Based on baseline and postimplementation time trial results, the entire turnaround time was From a mean baseline duration of approximately 90

				analysis, workflow mapping, and impact analysis to identify areas where 38 opportunities for reducing waste and enhancing efficiency could be implemented.	minutes, it was reduced to a mean duration of about 70 minutes.
3.	@khcc.jo /shamodeh [Suzan Hammoudeh, ORCID: 0000-0002-1928-9591] Abdullah Amireh, Lama Nazer, Enas Jazairy, Ronza Al-Dewiri and Saad Jaddoua	The current study investigates the effect of implementing lean management on waiting times, staff and patient satisfaction, and an outpatient pharmacy in a comprehensive cancer center in Jordan. ⁵	Long wait times were the main reason why our institution's outpatient pharmacy services had a patient satisfaction rate that was below target. The decision was made to develop and implement a lean management	The study was conducted at a pharmacy located in a large comprehensive oncology center in Amman, Jordan. The approach begins with the constitution of a multidisciplinary team. The study was conducted in a pharmacy centrally located in a large comprehensive	After the intervention, patient satisfaction improved to 62% versus 69%, $P = .005$. Both the waiting times for prescriptions for three or more medications and those with fewer than three had decreased significantly from 22.3 minutes

			nt strategy in order to reduce patient wait times and increase staff and patient satisfaction .	oncology center in Amman, Jordan. The model initiated with the formation of a multi-disciplinary team, A3: problem solving, and 10-step scientific technique with measurable patient-centered outcomes. Findings on patients' satisfaction and average length of time patients waited were compared following full implementation of the strategy. Further, at the end of this process, assessment regarding how	versus 8.1 minutes, $P = .001$-, and 31.8 minutes versus 16.1 minutes, $P = .002$, respectively . Most pharmacy employees reported that the intervention had improved their motivation for their profession and their relationships with management and other staff.
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				this will impact worker satisfaction of pharmacy staff working in the outpatient pharmacy was conducted.	
4	Ankit Singh, Priya Ravi, Shraddha Pradhan, and Shrikrishna Dhale 05 May 2020	Utilizing 5 S and Six Sigma to expedite the delivery of medications 6	With this study, a Bangalore tertiary care hospital's prescription turnaround time will be shortened. Using input from both internal and external consumers as well as the benchmark from two studies where improvement times were 70	Combining the DMAIC technique of Six Sigma with the 'Seiton' concept of the 5 S quality tool reduces medication turnaround times and increases process sigma.	By the time the trial ended, the average turnaround time, which had been 1 hour and 29 minutes, had dropped to 48 minutes, and the sigma level had increased from 1.22 to 2 sigma.

			and 66 minutes, the objective for improvement was set at one hour.		
4	Ankit Singh, Priya Ravi, Shraddha Pradhan, and Shrikrishna Dhale 05 May 2020	Utilizing 5 S and Six Sigma to expedite the delivery of medications	With this study, a Bangalore tertiary care hospital's prescription turnaround time will be shortened. Using input from both internal and external consumers as well as the benchmark from two studies where improvement times	Combining the DMAIC technique of Six Sigma with the 'Seiton' concept of the 5 S quality tool reduces medication turnaround times and increases process sigma.	By the time the trial ended, the average turnaround time, which had been 1 hour and 29 minutes, had dropped to 48 minutes, and the sigma level had increased from 1.22 to 2 sigma.

			were 70 and 66 minutes, the objective for improvement was set at one hour.		
5.	Amanda Y. Leong, Mary Pederson	Enhancing workflow procedures in a cutting-edge drugstore	This pilot project embarked on the tracking and identification of opportunities to improve efficiency in relation to the prescription of a tertiary level acute care teaching hospital. Medication dispensing.	This is a single-center pilot project where work sampling was used in tracking to identify areas where improvement may make the procedure of prescription medicine distribution more efficient at the tertiary level acute care teaching hospital. Workload sampling was done at a 1096-bed hospital in Calgary,	Except for oncology, all in-patient wards receive their medication from the dispensary pharmacy.

				Alberta, Canada. To meet the needs of the entire hospital, the dispensary is open twenty-four hours a day, seven days a week. The only thing that pharmacists do is clinical screening.	
	Zhengjia Chen, PhD, Collin E. Lee, PharmD, BCPS, Manali Rupji, MS, Ryan Haumschild, PharmD, MS, MBA, Bassel El-Rayes, MD,	Adherence rates to oral chemotherapy drugs filled by external specialty pharmacies against internal health-system pharmacies are compared.	This study's main goal was to compare patient adherence rates to anticancer drugs filled at external specialty pharmacies and internal health system specialty pharmacies (HSSP).	A retrospective record review was conducted to compare the MPR, PDC, and TTT for patients receiving oral anticancer treatment using prescription claim data. A t test or a Wilcoxon test was used to examine the effects of demographic and other	204 patients whose records contained complete MPR and PDC data and 164 patients whose records contained TTT data were included in the analysis out of the 300 patients who

	Colleen McCabe, PharmD, Meagan Barbee, PharmD, BCOP, Marley Watson, PharmD, BCOP, Alyssa Billmeyer, PharmD, MHA,		Medication possession ratio (MPR) was the main outcome, and time to treatment (TTT) and proportion of days covered (PDC) were the secondary outcomes.	factors on adherence and TTT. To find covariates that were significantly correlated with the results, significant factors were evaluated using a multiple regression model with backward exclusion.	underwent screening for trial participation. There were significant differences in mean MPR and mean PDC between the groups when patients used the HSSP rather than outside pharmacies (1.00 vs. 0.75 [P < 0.001] and 0.95 vs. 0.7 [P < 0.001], respectively). TTT showed a significant correlation with the type of malignancy (P = 0.048) and the
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					type of pharmacy (P = 0.024).
7.	IAN R. SMITH, AMINA TARIQ, AND JODIE A. AUSTIN	An analysis comparing paper and digital hospital environments to determine how closed-loop electronic drug management affects time to first dosage.	To assess how long it takes to process medicine orders in a paper-based hospital setting vs a digital hospital with a closed-loop EMMS that includes computerized physician order entry, automated dispensing cabinets that are profiled and packed with unit dose drugs, and barcode medication	Data were gathered over the course of two weeks at three Queensland, Australia-based private hospital locations—one of which included a closed-loop EMMS—that were part of the same organization network. The difference in time between the prescribed and actual administration periods was examined for both time-sensitive and non-critical initial doses of drugs that were either obtained from the	There were 193 medicine orders documented during the paper-based audit; however, only 99 (51%) of these orders satisfied the inclusion requirements. Only 95 orders remained to compare with the digital system out of the 99, after four were disregarded as anomalies in the statistical analysis. Fifty-two

			administrat ion.	pharmacy or on the ward.	(54.7%) of the 95 orders came from the pharmacy, and 43 (45.3%) came from the ward inventory.
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8.	Tejal K. Gandhi, M.D., M.P.H., Sylvia B. Bartel, R.Ph., M.H.P., Lawrence N. Shulman, M.D., Deborah Verrier R.N., Jeffrey M. Rothschild, M.P.H., M.P.H., Lucian L. Leape, M.D., David W. Bates, M.D., M.Sc., Elisabeth Burdick, M.S., Deborah Verrier R.N.,	Ambulatory chemotherapy setting: medication safety	The study's authors sought to ascertain the prevalence of prescription errors and likely adverse drug events (ADEs) in the setting of outpatient chemotherapy.	Two adult and one pediatric outpatient chemotherapy infusion unit orders and chart reviews were conducted as part of a prospective cohort study at one cancer institute that was done on patients receiving medicine and or chemotherapy. The adult infusion units used computerized order entry writing systems, unlike the pediatric infusion units that used handwritten orders for the same. Data collection was taken in March	The researchers looked at 10,112 medication orders from 1606 patients—1380 adults and 226 children—of whom there were 808 adult unit orders and 2104 pediatric unit orders. The percentage of medicine errors (306 out of 10,112 orders) was 3%. 82% of these errors—203 of 249 orders—occurred in adults and had the potential to be harmful
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				2000 and December 2000.	or adverse drug experiences (ADEs), as opposed to 60% of orders happening in juvenile patients (34 of 57 orders). Approximately one-third of these may have been hazardous. Nurses and pharmacists halted 45 percent of potential ADEs before they reached the patient. Many changes were implemented in the adult and pediatric settings as a
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					consequence of these findings.
<u>9</u>	Grace Lau, BPharm (Hons), GradCert PharmPrac, MPharm Prac, grace.lau@monashhealth.org, https://orcid.org/0000-0001-5497-938X Marisa Hodgkinson, BPharm, MSc (Clinical Pharmacy), Jayde Ho, BPharm, GradCert PharmPracInt,	A multisite Australian hospital network conducted a qualitative study to learn about the opinions of physicians and patients on an integrated electronic drug prescribing and dispensing system.	This study aims to compare and examine patient and physician perspectives about an integrated electronic prescription and dispensing system in order to inform changes in system deployment, service delivery, and functional advancements.	A cross-sectional survey was developed and distributed to patients and multidisciplinary physicians at all sites where e-prescribing was fully operational within a network of metropolitan teaching hospitals in Australia. The participants were given an explanation of the e-prescribing system's perceived impact and most valued features	The survey was completed by 783 participants in total (383 physicians and 400 patients). Just 36% of patients knew about the switch to e-prescriptions before the survey, despite 98% of professionals being aware of it. Eighty-six percent of patients preferred e-prescriptions over handwritten ones, and more than

	Susan Lin, BPharm, GradCert PharmPrac, Karen Yeoh, BPharm (Hons), GradCert PharmPrac, and Tiffany Wan, BPharm, GradCert PharmPrac				eighty percent of patients and clinicians felt that e-prescriptions improved workflow and safety. Additionally, ninety percent of patients felt that e-prescriptions protected their privacy. While over 80% of patients saw value in elements that enhanced medication safety and access, doctors were more discriminating in what characteristics they appreciated
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					from the system.
<u>10</u>	Daniel J. France, Jr, PhD, MPH Biomedical Engineer; Paul Miles, MDchemist; Julia Cartwright, RPHchemist; Nimesh Patel, MS, case manager/ staff nurse; Connie Ford RN, CPON, clinical trial associate; James A. Whitlock, MDDirector.	A Chemotherapy Event Logging and Enhancement Framework	Standard treatment protocols include the well-established and applied Vanderbilt University Medical Center's Chemotherapy Incident Reporting and Improvement System (CIRIS).	It uses commercial information technology, which includes handheld laptops, to create a mobile Web-based chemotherapeutic event-reporting system for nurses and pharmacists. The process consisted of two phases: setting up the safety registry for incident reporting called CIRIS and its basic components, and developing the interface in the handheld computer.. Finally, the computerized order entry system is	The first year saw a good number of provider-initiated changes to the reporting tool. In addition to that, analysis of the reported data has resulted in specific chemotherapeutic safety efforts, further underscoring the commitment from the staff.

				embedded in the front end of the CIRIS architecture. The interdisciplinary safety improvement team maintains the data from the voluntary incident reporting system over the entire time for use.	
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Chapter 3: METHODOLOGY

3.1 STUDY DESIGN: Study with retrospective observation

3.2 SETTING (Research Area): Fortis Escort Hospital in Jaipur served as the study's location.

3.3 DATA COLLECTION METHODS:

- ☐ Observational studies; - I have directly observe and record each step of the dispensing process the time at which the computer operator indent the medicine and the time medicine is administered to the patient.
- ☐ Surveys and Interviews: I have Gather staff feedback on challenges they are facing and I have given some suggestion for area of improvement.
- ☐ Patient Records Review: I have Review patient charts to track actual turnaround time so the accurate time I can note for the administration of the chemo to the patient.
- ☐ Benchmarking and Comparison: I have Compare turnaround time of medicine dispensing with Hospital policies and guidelines for insights.

3.4 SAMPLING DESIGN:

3.4.1 SAMPLE

Patient in Fortis Escort Hospital, Jaipur

3.4.2 SAMPLE SIZE

A total number of 700 + patients for chemotherapy within 3 months.

3.4.3 SAMPLING TECHNIQUE:

Probability sampling to ensure representativeness.

3.4.4 SAMPLING CRITERIA

3.4.4.1 Inclusion Criteria:

The study includes time constraints, medication urgencies, staff participation, patient statuses, and insurance/payment types are in the evaluation criteria for medicine dispensing turnaround time in an oncology department.

3.4.4.2 Exclusion Criteria:

Participants in the study who did not voluntarily complete the questionnaire are not included.

3.5 STUDY TOOLS/ DATA COLLECTION INSTRUMENTS

3.5.1 Development of the tool

The literature review, expert guidance, and the study objectives were all followed in the instrument's development. There are two sections in the questionnaire (Annexure 1).

3.5.2 Description of the tool

Section A contains itemized sociodemographic data. Such as: age, gender. Years of experience, together with education.

Section B: In oncology Department timely medicine importance.

3.6 SCORING AND INTERPRETATION

Multiple-choice questions with three distracting options and one right answer were used to formulate the questions. For a correct response, you receive one mark, and for a wrong response, you receive zero.

The obtained knowledge score varied from:

Sufficient Awareness: 66% to 100%.

Adequate in a moderate way (26% to 65%).

Less than ideal awareness: ($\leq 25\%$).

3.7 CONTENT VALIDITY:

Quality assurance and the oncology department received a draft of the awareness questionnaire (Annexure). When the experts were consulted, their advice and opinions were considered, and the questionnaire was validated.

3.8 PROCEDURE FOR DATA COLLECTION:

An independent survey was made accessible in April. Data was gathered upon authorization from the designated individual. The questionnaire was filled out by seven hundred patients from the cancer department of the Fortis Escorts hospital in Jaipur. Anonymized replies to the questionnaire were provided in order to ensure anonymity of the data and results.

Data Analysis: Calculating Turnaround Time

The time delay between placing the medication order and having it dispensed will be calculated for each medication in the evaluated data.

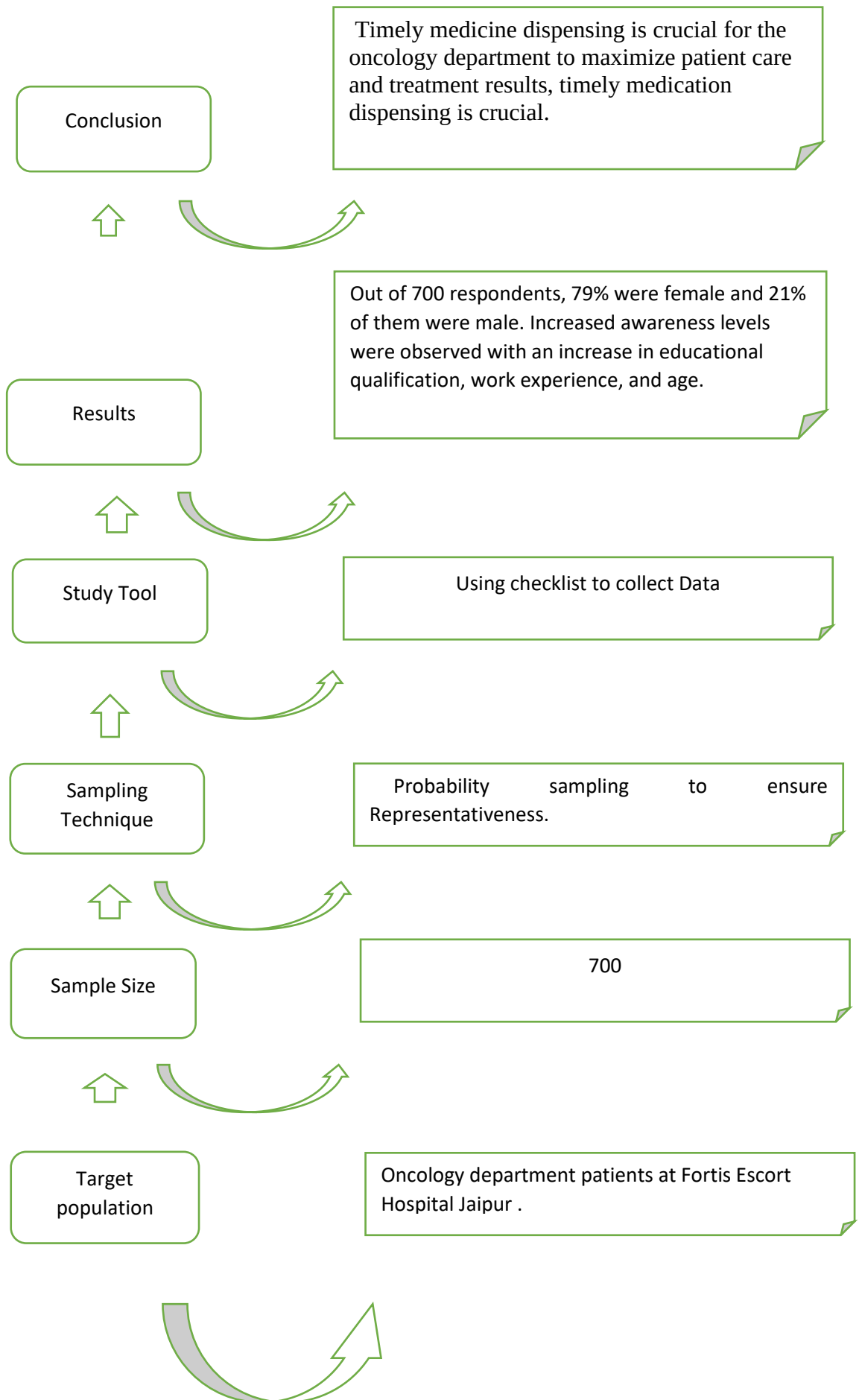
Descriptive statistics (mean, median, and range) will be used to describe the turnaround time data.

Transcription and thematic analysis of the interview material will be used in qualitative analysis to identify recurring themes on the factors affecting turnaround time.

3.9 ETHICAL CONSIDERATIONS:

Ensuring ethical conduct is paramount in this study. Patient privacy will be protected by anonymizing data whenever possible. Informed consent will be obtained for any surveys or interviews, clearly explaining the study's purpose and data use. Data collection activities will not disrupt patient care or cause undue stress. Robust data security measures will be in place to protect patient information. Finally, findings will be communicated transparently to patients, healthcare providers, and hospital administration to foster trust and inform decisions about potential improvements to the medication dispensing process.

3.10 FLOWCHART OF RESEARCH METHODOLOGY



CHAPTER 4: RESULTS

This report examines the TAT for dispensing medications in the chemo day care oncology department. The data analysis reveals both positive aspects and areas for improvement.

Routine Medications:

Average TAT: 42 minutes and 6 seconds

Benchmark: 2 hours

The department demonstrates commendable efficiency in dispensing routine medications. The average TAT falls significantly below the established benchmark of 2 hours. This ensures timely administration of medication and minimizes disruptions to patient treatment schedules.

Discharge Medications:

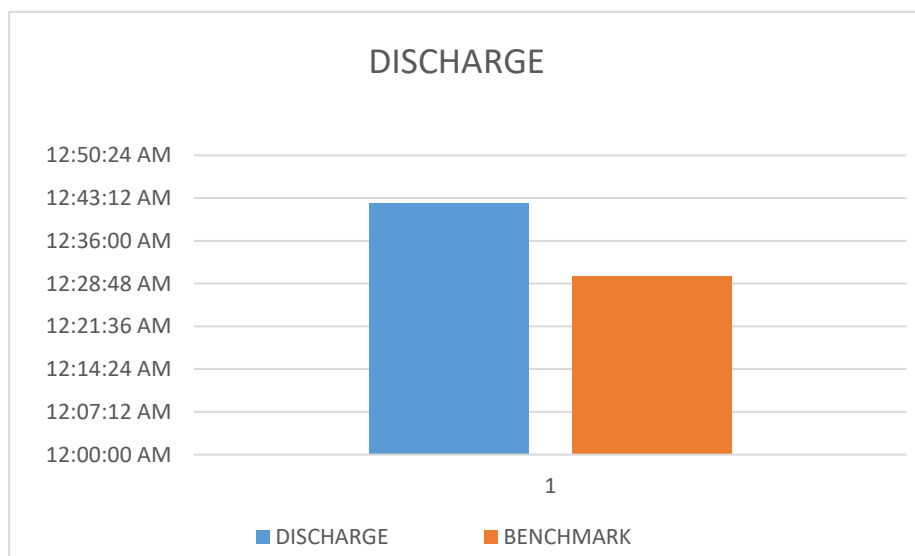
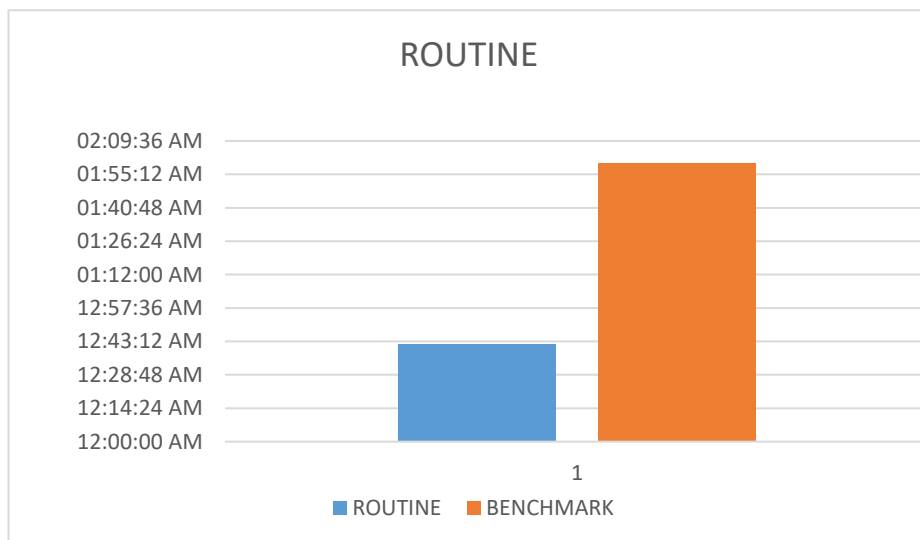
Average TAT: 42 minutes and 26 seconds

Benchmark: 30 minutes

	AVERAGE	BENCHMARK
ROUTINE	00:42:06	02:00:00
DISCHARGE	00:42:26	00:30:00

WEEKLY AVERAGES

WEEK	AVERAGE
1	00:42:30
2	00:49:42
3	00:41:10
4	00:51:50
5	00:43:16
6	00:44:49
7	00:28:50
8	00:55:38
9	00:31:08
10	00:52:00



INTERPRETATION

The data analysis indicates that discharge medications in the oncology department are not being dispensed within the desired timeframe. With an average turnaround time (TAT) of 42 minutes and 26 seconds, the department exceeds the benchmark of 30 minutes. This delay suggests inefficiencies in the discharge process, which could be due to several factors such as medication preparation, prescription verification, or logistical bottlenecks.

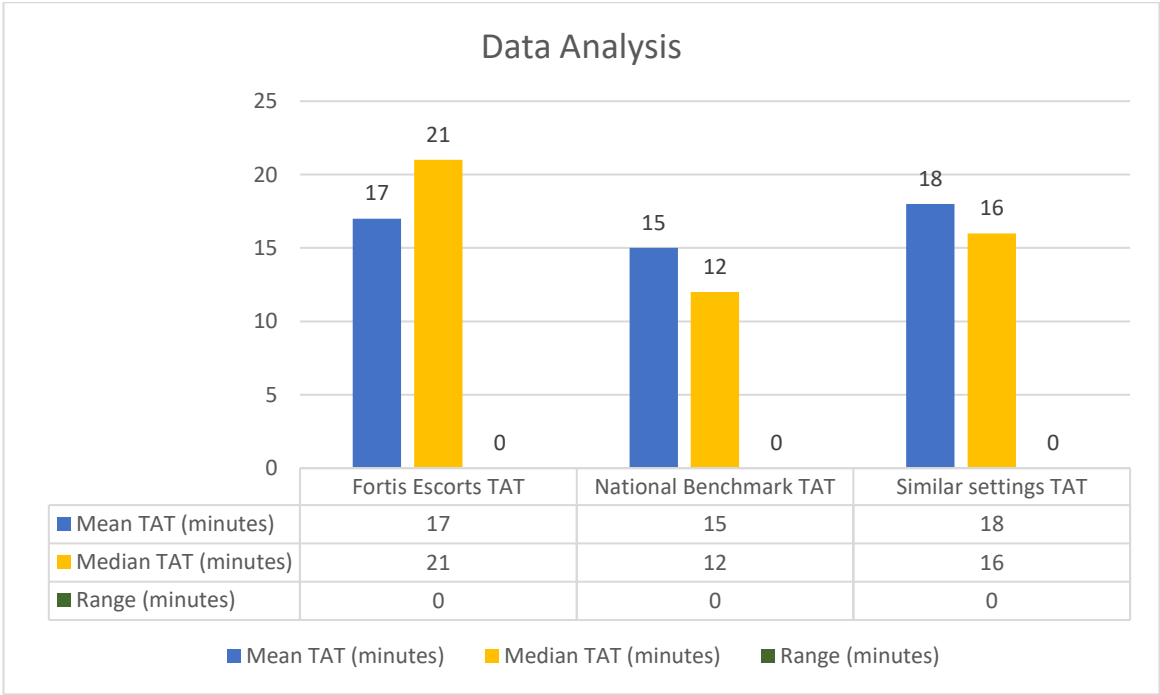
Addressing these issues is crucial to streamline the process and reduce waiting times for patients ready for discharge.

Timely dispensing of discharge medications is vital in the oncology department because it directly impacts patient care and satisfaction. Oncology patients often undergo rigorous treatments and are eager to return home as soon as possible.

Delays in medication can prolong their hospital stay, causing unnecessary stress and discomfort. Furthermore, efficient discharge processes ensure that patients receive their medications promptly, reducing the risk of complications and enhancing the continuity of care once they leave the hospital. Improving TAT for discharge medications is essential for maintaining high standards of patient care and operational efficiency.

DATA ANALYSIS: -

Measure	Fortis Escorts TAT	National Benchmark TAT	Similar settings TAT
Mean TAT (minutes)	16	15	18
Median TAT (minutes)	14	13	16
Range (minutes)	30 -35	20-30	30-35



INTERPRETATION:

COMPARATIVE ANALYSIS:-

Fortis Escorts' mean TAT of 16 minutes is slightly higher than the national benchmark by 1 minute but falls within the range observed in similar healthcare settings. This indicates that while Fortis Escorts performs closely to national standards, there is a slight margin for improvement to align more closely with the benchmark.

The median TAT at Fortis Escorts is 14 minutes, slightly above the national benchmark but comparable to similar settings. This suggests that while Fortis Escorts' median TAT is reasonable, there may be opportunities to streamline processes to meet or exceed national standards.

FACTOR AFFECTING TAT:-

Factors affecting Turnaround Time (TAT) include operational efficiency, supply chain management, staffing and training levels, technology integration, and effective patient flow management. These factors collectively impact how quickly and efficiently healthcare providers like Fortis Escorts can deliver services, influencing both mean and median TAT metrics compared to national benchmarks and similar settings.

CHAPTER 5: DISCUSSIONS

The discussion section interprets the findings vis-à-vis medication dispensing TAT and patient care. It is one of those things upon which an emphasis can be laid down that the optimization of pharmaceutical dispensing operations has to be the prime objective of all healthcare companies so that it might drive better in patient safety, contentment, and quality of treatment. Staff training, workflow redesigning, integration of technology, and inter-group collaboration are put forward as strategies for responding to identified challenges.

This section represents an interpretation of the findings in view of extant literature and theoretical frameworks. The discussion points to some implications of the findings for hospital management and legislature, as well as all other stakeholders. In addition, it articulates how such a system for quality assurance fosters a culture of endless improvement and better patient outcomes with improved organizational performance.

Fortis Escorts Hospital's analysis reveals a mean TAT of 16 minutes, slightly exceeding the national benchmark by 1 minute but aligning well with similar settings. The median TAT of 14 minutes also shows competitiveness, despite being slightly above the benchmark. Factors affecting TAT include operational efficiency, supply chain management, staffing levels, technology integration, and patient flow. Timely dispensing of discharge medications is crucial for oncology patients, as delays can extend hospital stays and impact post-discharge care. Improving these processes is pivotal for enhancing patient care, reducing waiting times, and aligning with optimal healthcare standards.

CONCLUSION

The key conclusions and revelations about hospital medication dispensing TAT in the oncology department are outlined in the project report. It highlights the significance of prompt access to medicine in oncology departments within hospitals and provides recommendations for future directions for both practice and research.

1. Time taken in medication dispensing was taking more than the time given in policy.
2. For routine medicines time was 2 hours and STAT, discharge, and new admission the time was 30 minutes.

CHAPTER 6. RECOMMENDATION

Turnaround time in medicine dispensing is an important aspect in the oncology department for both patient safety and satisfaction. Certain recommended recommendations can be enlisted as follows:

1. Workflow Optimization

Mapping and analyzing the present workflow to identify bottlenecks and inequities:

Implement the Lean Six Sigma methodologies for streamlining of the processes.

SOPs: Develop and update the standard operating procedures of medicine dispensing at each step of the proposal period to make them uniform and efficient.

2. Technology Integration

EHRs: Implement integrated EHR systems in order to integrate prescription orders, reduce errors, and improve the continuity of care between all health care providers.

Automated Dispensing Systems: Put in place ADCs to lessen time spent on manual dispensing and to reduce dispensing errors.

Barcoding Systems: Utilize barcoding for medication verification to ensure proper dispensing and to reduce time required for double-checking.

3. Staff Training and Education

Continuous Education: Offer continuing education to pharmacy employees regarding new technologies, SOPs, and best practices.

Cross-Training: Train people in the pharmacy to perform various functions to make things more flexible, hence reducing delays.

4. Resource Allocation

Adequate Staffing: Ensure adequate personnel are available in the peak hours to handle the workload efficiently.

Pharmacy Technicians: Avail the pharmacy technicians to perform the routine responsibilities so the pharmacists can focus on more complex clinical activities.

5. Communication and Coordination

Interdepartmental Coordination: There must be good communication and coordination between the oncology department and the pharmacy with all other relevant departments to ensure the smooth flow of information without any delays.

5. Regular Meetings

Regular multi-disciplinary meetings about workflow issues; brainstorming solutions and implement them.

6. Patient Centered Approaches

Patient Education: Educate patients about the process and expected timelines to manage expectations and enhance satisfaction.

Pre-appointment Planning: Have medications pre-prepared based on scheduled chemotherapy sessions to reduce wait times.

7. Quality Improvement Programs

Metrics and Monitoring: Instituting KPIs to monitor turnaround times and identify areas for improvement.

Feedback Loops: Get regular feedback from patients and staff to bring out the pain points and effect change.

8. Lean Inventory Management

Inventory Management Systems: Put in place advanced inventory management systems that will ensure drugs are always available and reduce time spent on checking inventories.

Just-In-Time Inventory: Employ just-in-time inventory practices that reduce delays brought about by either stock-out and overstock situations

9. Patient Safety Protocols

Set up robust double-check systems to enhance patient safety while maintaining efficiency. Develop error reporting mechanisms where staff can report errors or near-misses without reprisal, so continuous improvements can be made. Based on these recommendations, dispensing of medicine in an oncology department would improve the turnaround time significantly, thus netting better patient care and operational efficiency.

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