Summer Training

In

Manipal Hospital

(April 6 to June 6, 2015)

A Report

By

Devina khandelwal

MBA Hospital and Health Management

2014-2016

IIHMR UNIVERSITY

Institute of Health Management Research, Jaipur

INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that **Devina Khandelwal** has undergone her Summer Training **in Manipal Hospital** from 6 th April 2015 to 6th June 2015 and has done project on-

"Time Motion Study on In Patient Drug Indent"

The candidate herself carried out all the studies related to her Summer Training. Her approach to the study has been scientific and analytical.

The summer training is in partial fulfilment of the course requirement recommended for the award of Master of Business Administration-Hospital & Health Management.

I wish her success in all her future endeavours.

Col. (Dr.) Ashok Kaushik,

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ManipalHospitals
LIFE'S ON

SMH/HR/2015/TP/126

6th June 2015

To Whomsoever It May Concern

This is to certify that **Ms. Devina Khandelwal** has successfully completed 60 days training at **Clinical Operations** department in our Hospital, under the supervision of Dr. Nitesh Kumar.

Project: Time motion study on Inpatient Drug Indent.
Duration of Training: - April 06, 2015 to June 05, 2015.

During this period we found her very sincere and hard working.

We wish her all the best for her future endeavors.

For Soni Manipal Hospital
(A Unit of Manipal Hospitals (Jaipur) Pvt Ltd

Nagendra Kumar
Deputy Manager-HR

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ACKNOWLEDGEMENT

The internship opportunity I had with Soni Manipal Hospital was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it.

Bearing in mind previous I am using this opportunity to express my deepest gratitude and special thanks to the Unit head Mr. Varun Sharma who in spite of being extraordinarily busy with his duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project at their esteemed organization and extending during the training.

I express my deepest thanks to Dr. Nitesh Kumar, Medical superintendent for taking part in useful decision & giving necessary advices and guidance and arranged all facilities to make life easier. I choose this moment to acknowledge his contribution gratefully.

This training wouldn't have been completed without a substantial support from various departments and other staff members at Soni Manipal Hospital for being so helpful all the time and making this summer training project an unforgettable experience.

I express my deepest thanks to Asst. Prof. Santosh Kumar for his guidance and support. He supported to me by showing different method of information collection about the company. He helped all time when i needed and he gave right direction toward completion of project.

I would also like to thank my institution and faculty members without whom this project would have been a distant reality.

Abbreviations

ACLS	Advanced cardiac life support
BLS	Basic Life Support
CCU	Coronary care unit
CSSD	Central Sterile Supply Department
HDU	High dependency unit
ICU	Intensive care unit
IPD	In patient department
MICU	Medical intensive care unit
NICU	Neonatal intensive care unit
OPD	Outpatient department
OT	Operation theatre
TAT	Turnaround time

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MANIPAL HOSPITAL

OVERVIEW

The focus at Manipal Hospital is to develop an affordable tertiary care multispecialty healthcare framework through its entire delivery spectrum and further extend it to homecare.

Over the last few years, they have not only focused on treatment delivery but also at the quality aspect, and hence have the honour of having Manipal Hospital NABL accredited hospital.

Its Clinical Excellence is rooted in their excellent team of doctors/medical specialists who are well versed with the latest advancements in their respective field of medical expertise This is further complemented by their teams of highly trained nurses and paramedical people.

At Manipal Hospital, They are at the leading edge of technological advancements in the medical world. This, along with state-of-the-art infrastructure and facilities, the finest minds in Rajasthan and a genuine desire for providing the best healthcare drives us to deliver path-breaking care for their patients on a day-to-day basis. From the smallest to the most complex medical problems, they pride themselves in the way they deliver healthcare.

Soni Manipal Hospital is a name synonymous to emergency care in this part of the country. With the largest number of ICU beds among all the public & private hospitals in the state, Manipal Group of Hospitals is the most preferred destination for all kinds of emergency treatments. As part of the overall endeavour to improve surgical and critical care outcomes across the Hospitals operations – a first of its kind in Rajasthan - unified policies for the control of infection and the development of resistant strains of microorganisms have been formulated and implemented over the years.

Consultation with our doctors starts with fixing up an appointment either by phone call or by visiting our hospitals in person, after which you will be given a Manipal record file and a unique Identification number which you can use for your subsequent visits.

Philosophy:

The ethos of Manipal Hospitals is its belief in the credo of its triad of core values namely "Clinical Excellence, Patient Centricity and Ethical Practices" which have led to it becoming one of the best and most trusted healthcare providers in the country today

Amenities:

Amenities at Manipal hospital are among the best you can ever find in India. Here are some of the essential amenities you can find in Manipal hospitals:

- Critical care at this Hospital is provided by multi-professional team of highly experienced professionals in coordination with primary physician who use their unique expertise, ability to interpret important therapeutic information, access to highly sophisticated equipment and the services of support personal care that leads to the best outcome for the patients.
- Transport-Emergency ambulance services round the clock for immediate pick up/drop
- Special Nurse - If any sick or old patient wants special care we can have a special nurse assist you whenever you need help. Just contact their desk, and they will arrange a special nurse immediately.
- Well-maintained canteens - Their canteens are equipped with modern canteen facilities where you will get a variety of foods and beverages to refresh yourselves.
- 24 Hours service - Complete 24 Hour support from NICU and Intensive care facilities, Blood bank, and Operation Theatre, Anaesthesia and Laboratory services.
- Maternity facilities – They have exclusive facilities in our Maternity. It includes birthing suite, Labour delivery rooms, Diagnostic Foetal CTG, labour analgesia. Management of high risk pregnancy is done safely and carefully here.

Specialities:

Accident & Emergency:

The Department of Accident and Emergency care is a 24-hour fully-equipped medical centre which caters to all kinds of accident victims and emergency cases. After providing this initial, but very critical medical help the patient is shifted to the required specialised department for further treatment. If not required, the patient is discharged after the emergency is treated and the required medication is given.

The department is responsible for informing the Police in case of trauma, Poisoning, Suicide, Homicide, rape, assault etc and notification of all noticeable disease to BMC.

There were 5 Beds two of these are well equipped with defibrillators, Capnograph, Monitors, Ventilators, suction apparatus and other life support systems managed round the clock by efficient doctors and sisters.

There are 3 Ambulances, One with ACLS and two with BLS facility.

Staff:

6 Resident Doctors, 1 In charge, 11 Nurses.

Clinical Services:

Outpatient Department:

OPD is one of the most important departments of Hospital it is the first contact point patient and hospital.

OPD department of Manipal Hospital is divided into two parts:

OPD 1- Ground Floor with 18 Consultation rooms

OPD 2- First Floor with 18 Consultation rooms.

Access to OPD Services:

All patients who visit the Hospital first time for consultations/other services registration form is been generated with CR number present on the form.

OPD Appointment:

Appointment can be fixed over the telephone to the call centre or personally to the reception counter. (QUICKWELL Appointment system)

QUICKWELL Appointment system:

It is new software developed by Manipal Hospital where patient can fix their appointment on call to Toll free number and a particular time slot is issued to patient from doctor's consultations hours.

In Patient Department:

In patient department of Manipal hospital is spread over ground floor, first, second and third floor they are as follows:

Table 1 Floor Wise Bed Distribution of Manipal Hospital

Floor	**Ward**	**Number of Beds**
Ground	Male, Female, Surgical, Oncology	66 Beds
First	Neonatal ICU	6 Beds
Second	MICU, HDU, Neuro ICU	38 Beds
Third	Semi Deluxe / Deluxe	12 Beds

Each IPD has a patient call monitor to respond immediately to the patient call from the respective beds of semi deluxe/deluxe rooms.

Manipal SEAROC

Manipal SEAROC Comprehensive Cancer Centre is a centre of excellence for cancer care and adopts a multi-disciplinary team approach. It hosts full-fledged departments of Surgical Oncology, Radiation Oncology, Medical Oncology and Clinical Haematology, all co-existing with the entire gamut of super-specialties such as Neurosurgery, Plastic and Reconstructive Surgery, Urology, Maxillofacial Surgery, Histopathology, Nuclear Medicine, Immunology, Transfusion Service and state-of-the-art Intensive Care Unit. In addition, this centre also offers Palliative Care and Preventive Oncology services. In short, the Manipal SEAROC Comprehensive Cancer Centre is a one-stop solution, which provides comprehensive cancer care.

Support Services:

Lab Science Department:

It is a state-of-the-art Laboratory Diagnostic facility for the comprehensive diagnosis of Clinical Pathologic, Haematological, Histo and Cytopatholoic and Microbiological diseases and the highest quality of clinical care for our patients with the latest available Diagnostic Equipment. The hospital's in house laboratory has an extensive test menu meant to cater to the hospital's vast range of super specialties. The laboratory attempts to provide under one roof, a range of tests, numbering over 1000, based on 95 technologies, covering most diseases known to man. The department participates in and holds many Continuing Medical Education (CME) programmes and conferences.

CSSD:

Introduction:

The Department is located in basement adjacent to Laundry services. Department is divided into 3 parts: dirty area, clean area and sterile area.

Different types of sterilizers are present they are as follows:

- Steam Autoclave (manually operated)
- Ethylene Oxide Sterilizer for disposable items.

The department is also responsible for maintaining sufficient stock level of all surgical instruments, drapes and other accessories required for surgical procedure in good condition. Following types of items are sterilized:

- Surgical Instruments
- Catheters (rubber)
- Linen
- Dressing materials
- Laparoscopic instruments
- PVC Tubing's etc

Standard Operating procedures:

Cleaning activity – Floor mopping, surface cleaning, AC Duct cleaning-2.5 % hygenol

Quality Checks – each cycle graph is analysed, Colour change of biological indicator, colour change of indicator of Ph

Resterlization of CSSD Goods.

Imaging Department:

Imaging Department is a diagnostic department where various investigations of the patients are done. Both IPD &OPD patients come for investigation either through an appointment or walk in patient.

Imaging department can be divided into 5 sections namely:

- X ray (general radiology)

- Ultrasonography
- Computed Tomography Scan (CT Scan)
- Colour Doppler
- MRI(Magnetic resonance Imaging)

Imaging department is located in the basement. The reception counter for registration and billing of all investigation are taking place at main Registration counter at ground Floor.

Objectives of the department:

- To do quality imaging using all necessary safety measures in radiation
- Perform quality reporting and interacting with clinicians on regular basis through follow ups.
- Monitor work of all technicians on regular basis to maintain as well as improve quality
- Interact with bio medical department on regular basis for upkeep of all equipments.

Cath Lab:

The department deals with services which can be both diagnostic for detection of the disease and therapeutic, on the basis of diagnostic findings. It covers mainly

- Coronary Angiography(radial, femoral packages)
- Intra aortic Balloon Pump(IABP)
- Temporary pacemaker
- Cardiac catheterization
- Pericardial tapping
- Aerogram
- Combo Coronary Angiography
- Balloon angiography
- Permanent pacemaker
- Valvuloplasty.

Activities Performed:

- Audit on Pressure sore
  10 samples were collected from MICU and their file was audited for the parameters relating to Pressure sore and also on the knowledge of the present staff on pressure sore.

- Audit on Signage's
  A list was prepared for signage's present in each floor of the hospital and recommendations for putting new signage's were put forward.

- Audit on Discharge
  10 samples were collected from different wards and their discharge process was audited.

- Audit on Crash Cart
  Crash cat of different wards were audited for their proper arrangement and also about the knowledge of the present staff in arranging the crash cart.

- Attended Basic Life Support Meeting

- Conducted word search activity for the staff on the occasion of International Nurse's Day celebration.

- Volunteered on Mother's day celebration seminar conducted by the hospital.

- Volunteered on Women Health Seminar conducted by the Hospital.

- Listing of blood bank equipments.

PROJECT REPORT

TIME MOTION STUDY ON INPATIENT DRUG INDENT

Introduction

Medication turnaround time is defined as the interval from the time a medication order is written (electronically) to the time the medication was delivered to the wards.

Monitoring medication turnaround time in inpatient settings allows organizations to measure the impact of their quality on the increased efficiency of patient care.

The main function of the pharmacy department in the hospital is to make right drug available at the right time. Hospitalized patients may experience delays in care due to delays in medication administration. Delays can affect mortality and morbidity and that is why continuous monitoring and co-ordination between the staff members is required for smooth running of the process of pharmacy.

Turnaround time (TAT) is the total time taken between the submission of a process/task for execution and the return of the complete output to the customer/user. Moreover, it can be broken down into four phases:

Table 2 Process Flow

Ward sent time: The total time in the ward from indenting the drugs to receiving them.

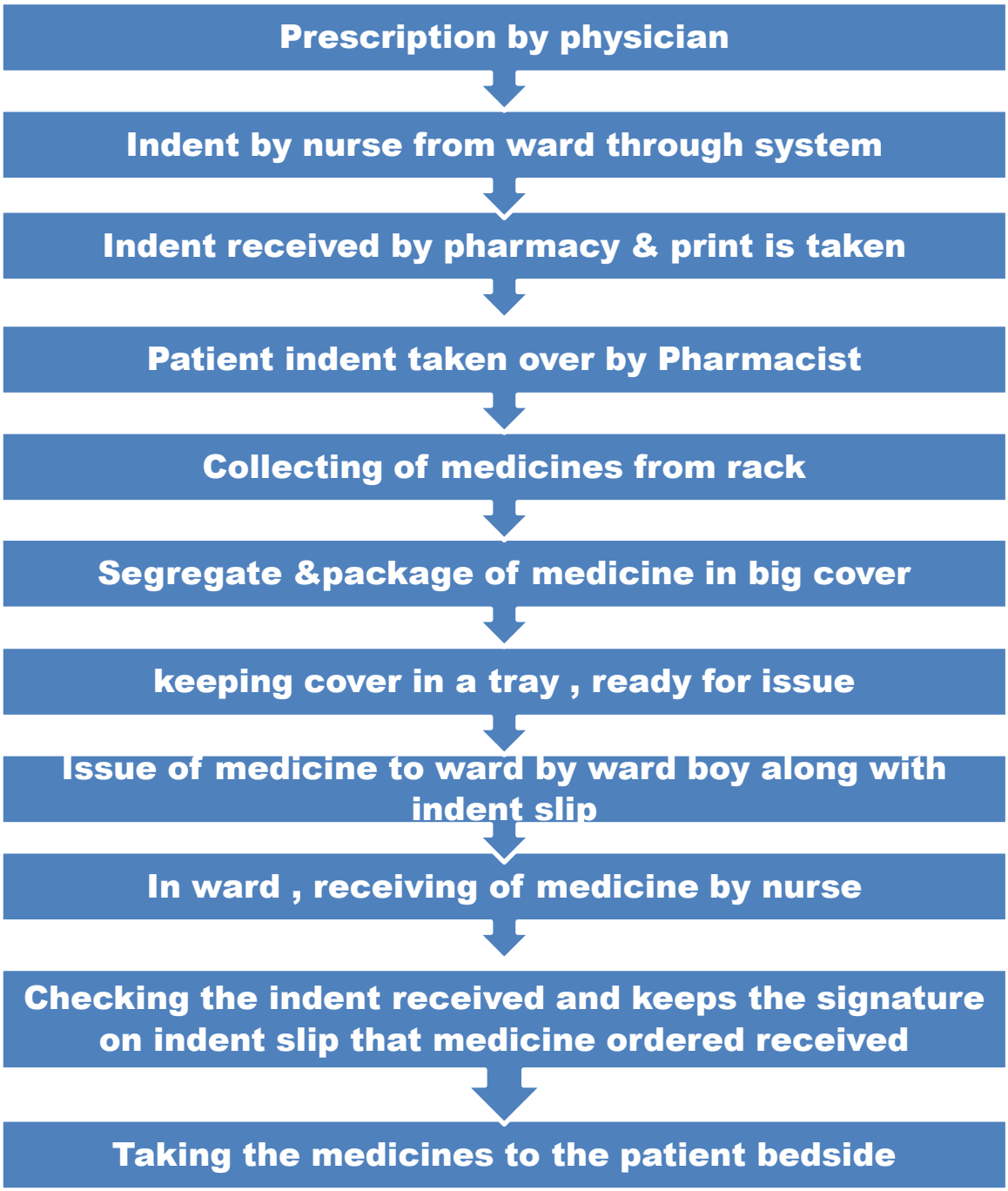
Pharmacy acknowledges time: The time taken by the pharmacy to acknowledge the medication order, after it is indented from the wards.

Pharmacy sent time: The total time taken by the pharmacy after acknowledging the order till keeping it ready for delivering.

Pharmacy dispatch time: The total time taken by the pharmacy to reach to the wards.

Medication process: The process starting from the nurse indenting or placing order for medicines in system (HMIS) till ward boy supplying the medicines in the respective wards.

Medication process flow



Research rationale :

This study can be used to built and strengthen internal administration and nursing support.To set guidelines of TAT for inpatient drug indent and to improve patient care.

Reducing medication turnaround time can improve efficiency, patient safety, and quality of care in the hospital setting

Objectives of the study

The main objective of the study is to observe the time taken by pharmacy to supply drugs to the wards.

- To study the flow of drug indent from the wards
- To find peak hours of drug indent order
- To find average time spent by a nurse in a day to indent drugs
- To calculate total no. of indents in a day
- To find the pharmacy consumption of different departments

METHODOLOGY

This study is an exploratory study to examine the processes involved in the storage, maintenance, distribution and disposal of drugs to different wards of a hospital.

Data Type

- **Primary data:**

Data is collected through direct observation.

- **Secondary data:**

The study is mainly based on the data provide by case sheets, ward indenting system, pharmacy department, and nurse stations.

Tools used: (annexure)

Pre designed check list. Check list was prepared to collect the primary data i.e. the time taken by pharmacy to acknowledge the order and time taken by it to provide the ordered drugs to the wards. The data collected is used to calculate the four parameters.

Sample Size

To determine the Turnaround time for inpatient drug indenting at Soni Manipal Hospital, Jaipur, a time motion study was performed and sample of 90 patients were collected ,30 patients each from general ward, MICU and OT.

Sampling Design:

- Random Sampling Method.

Research begins with some population, which we wish to study. Sometimes the population is so small that we can simply study it all. In such cases we can just collect data from each member of the population without any need for sampling.

And, of course, our results will be as accurate as description of the population as our data gathering method allows. However in most cases the population is so large that we are prevented by considerations of time or effort from examining every individual. In such cases we often turn to sampling.

Keeping this in mind **Random sampling method** was chosen to survey the population so that accuracy and reliability of the data and analysis can be ensured.

PARAMETERS:

- Ward sent time
- Pharmacy acknowledges time
- Pharmacy taken time
- Pharmacy dispatch time

Limitations of the study

- The study was only limited to inpatient pharmacy. It does not cover OPD pharmacy.
- Time taken for administration of drugs by the nurse after receiving the ordered medicines is not considered.
- Drug indent for OT is sent in the evening and is received by the OT staff next morning

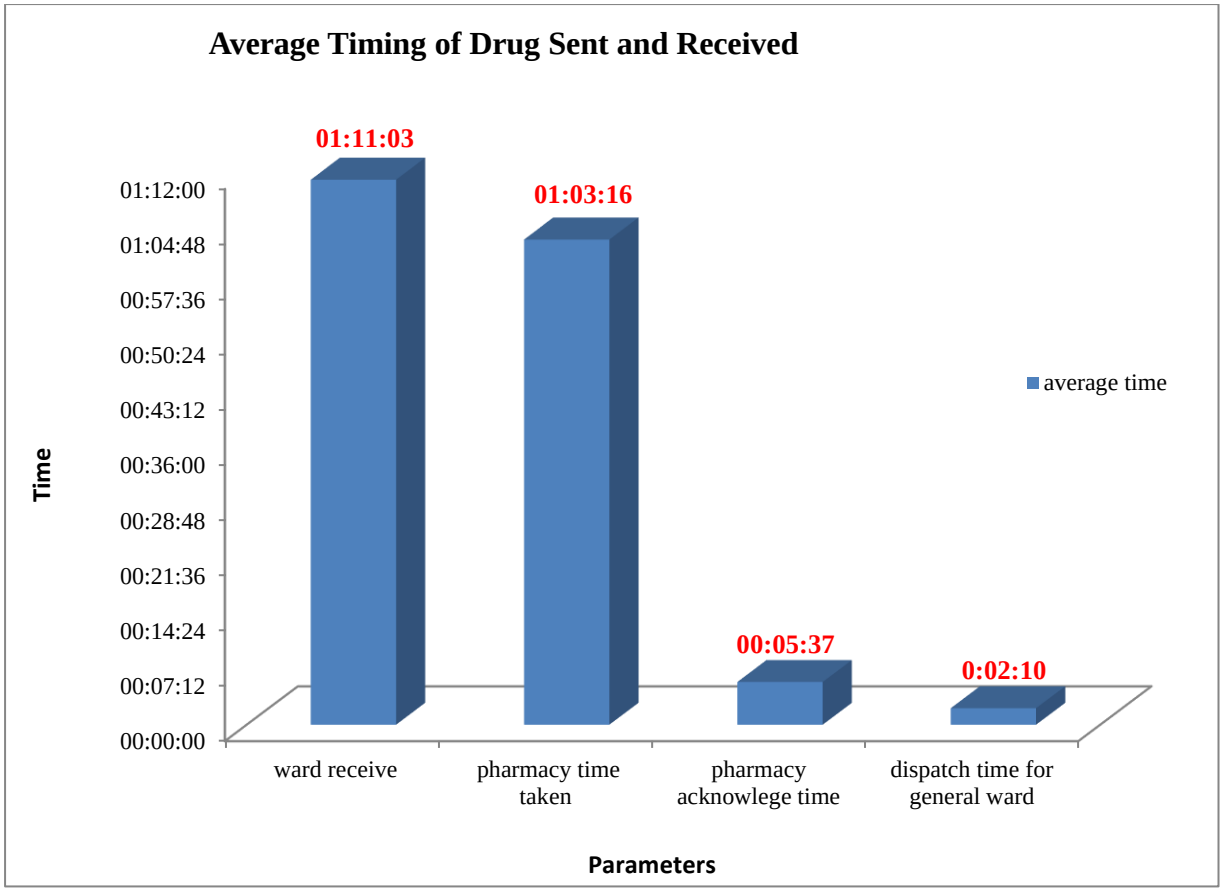
DATA ANALYSIS AND INTERPRETATION

Data set consists of CR no. date, ward sent time, pharmacy acknowledge time, pharmacy sent time, ward receive time, ward difference, pharmacy acknowledge difference, pharmacy sent to ward receive difference, drug return, ward sent time, pharmacy acknowledge time, pharmacy sent time, ward receive time, ward difference, pharmacy acknowledge difference, pharmacy sent to ward receive difference.

Data was analysed using MS EXCEL.

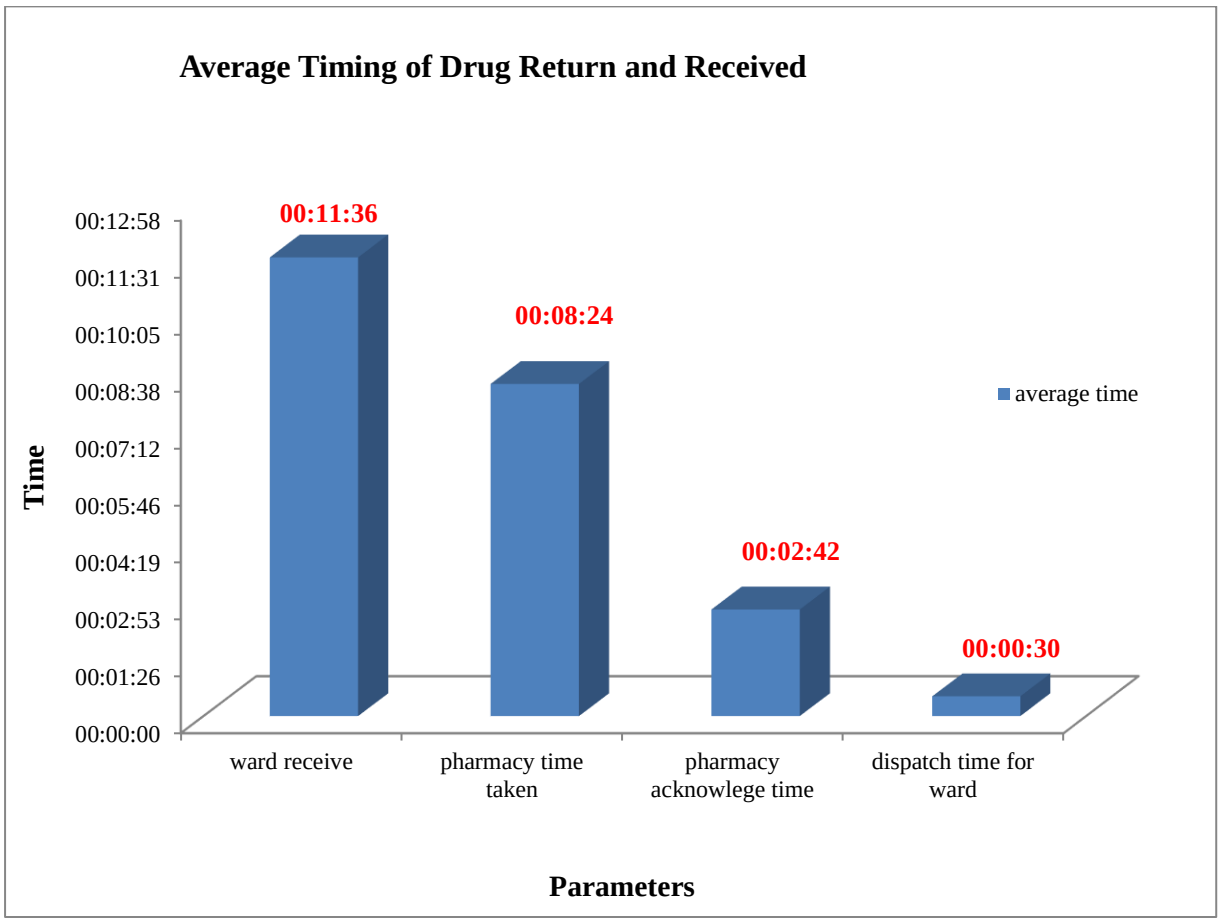
General ward

Figure 1 Average Timing of Drug Sent and Received



The average time taken to supply drugs to general ward was 1:11:03 ;average time taken by pharmacy to acknowledge the indent was 0:05:37;average time taken by pharmacy to collect and keep the drugs ready was 01:03:16; average time for delivery of drugs after collection was found to be 0:02:10

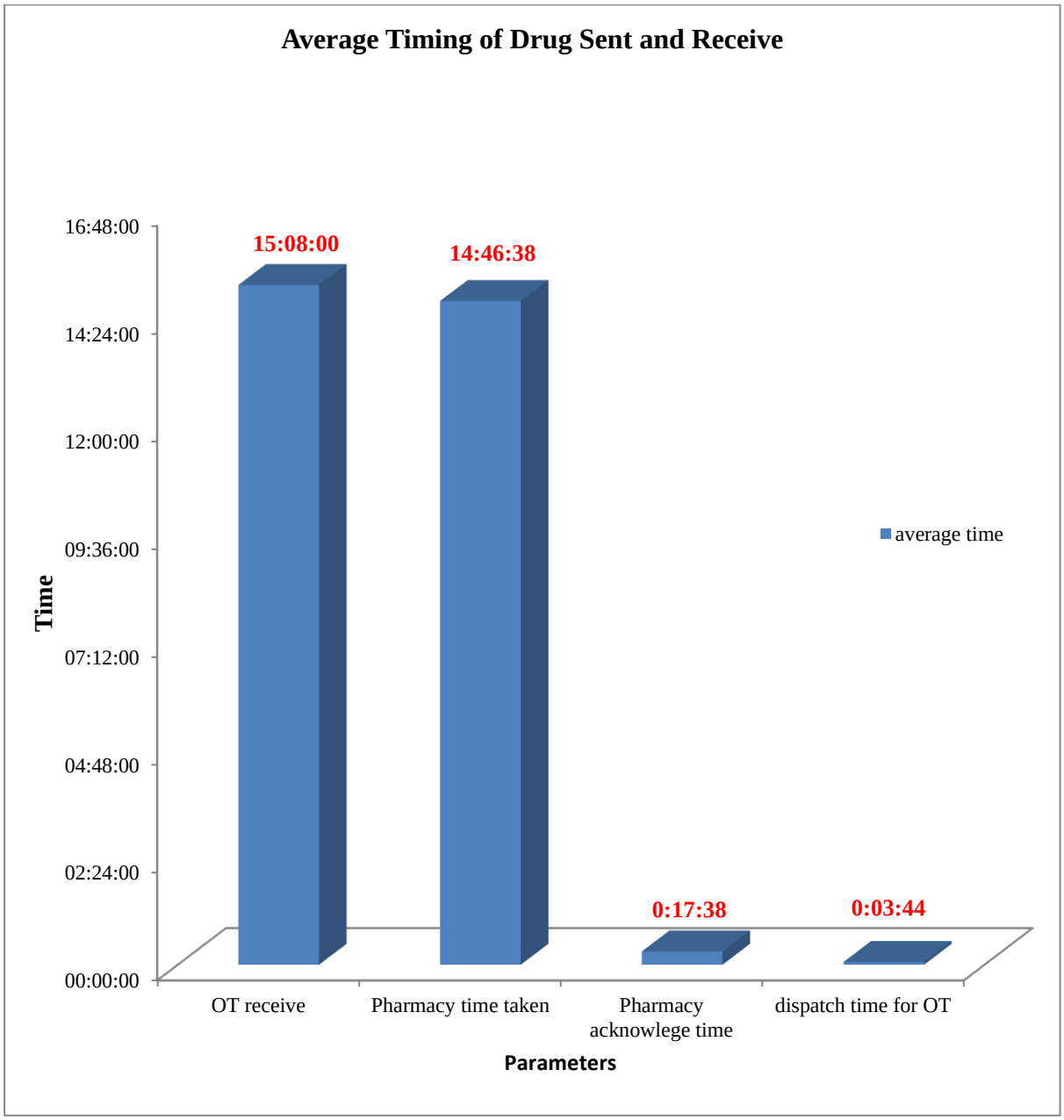
Figure 2 Average Timing of Drug Return and Received



The average time taken by general ward to receive the return drugs was 0:11:36; average time taken by pharmacy to acknowledge the indent was 0:02:42; average time taken by pharmacy to collect and keep the drugs ready was 0:08:24; average time for delivery of drugs after collection was found to be 0:0:30

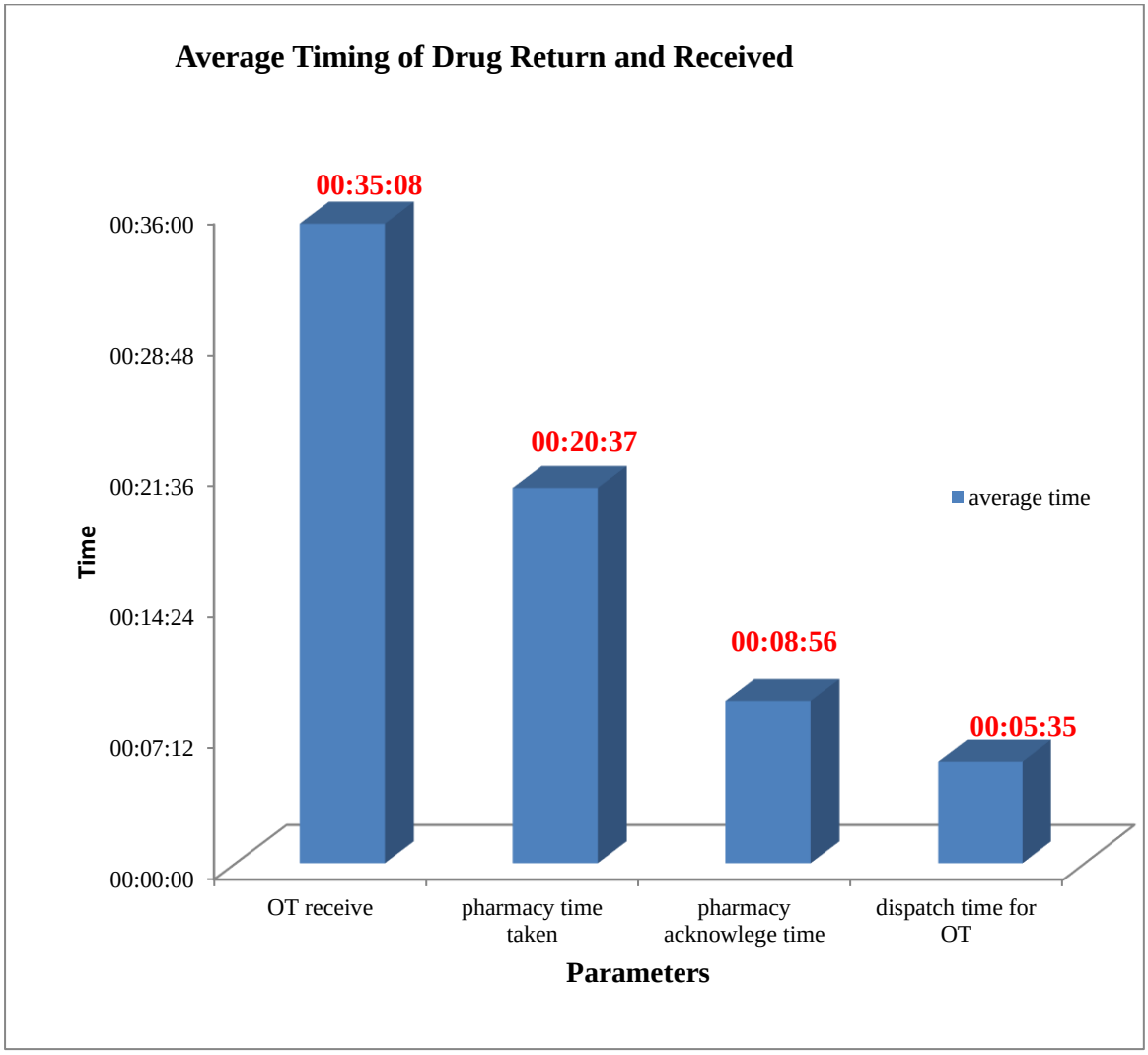
Operation theatre

Figure 3 Average Timing of Drug Sent and Received



The average time taken to supply drugs to OT was 15:08:00 ;average time taken by pharmacy to acknowledge the indent was 0:17:38;average time taken by pharmacy to collect and keep the drugs ready was 14:46:38; average time for delivery of the drugs after collection was found to be 0:03:44.

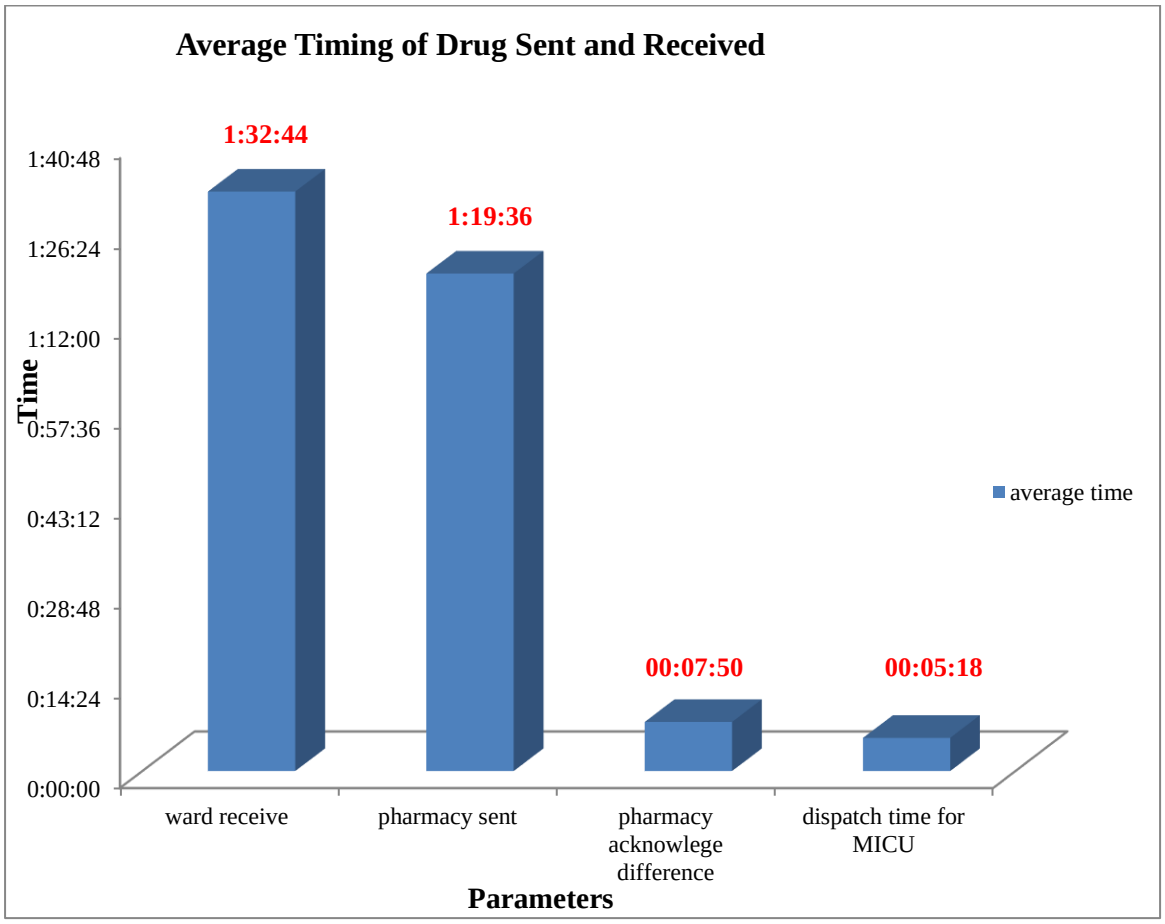
Figure 4 Average Timing of Drug Return and Received



The average time taken by OT to receive the return drugs was 0:35:08; average time taken by pharmacy to acknowledge the indent was 0:08:56; average time taken by pharmacy to collect and keep the drugs ready was 0:20:37; average time for delivery of drugs after collection was found to be 0:05:35

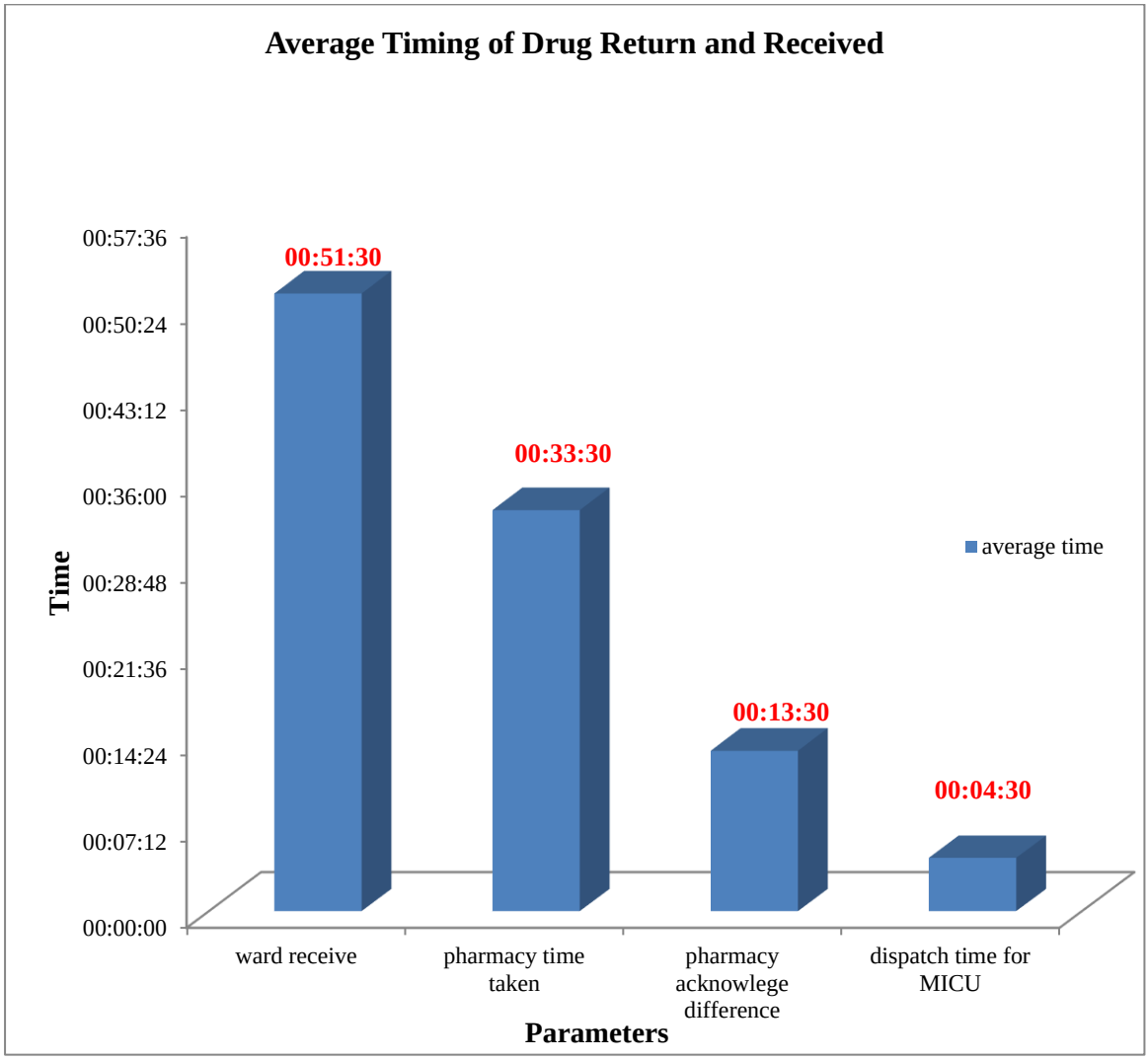
Medical intensive care unit

Figure 5 Average Timing of Drug Sent and Received



The average time taken to supply drugs to MICU was 1:32:44 ;average time taken by pharmacy to acknowledge the indent was 0:07:50;average time taken by pharmacy to collect and keep the drugs ready was 1:19:36; average time for delivery of drugs after collection was found to be 0:05:18

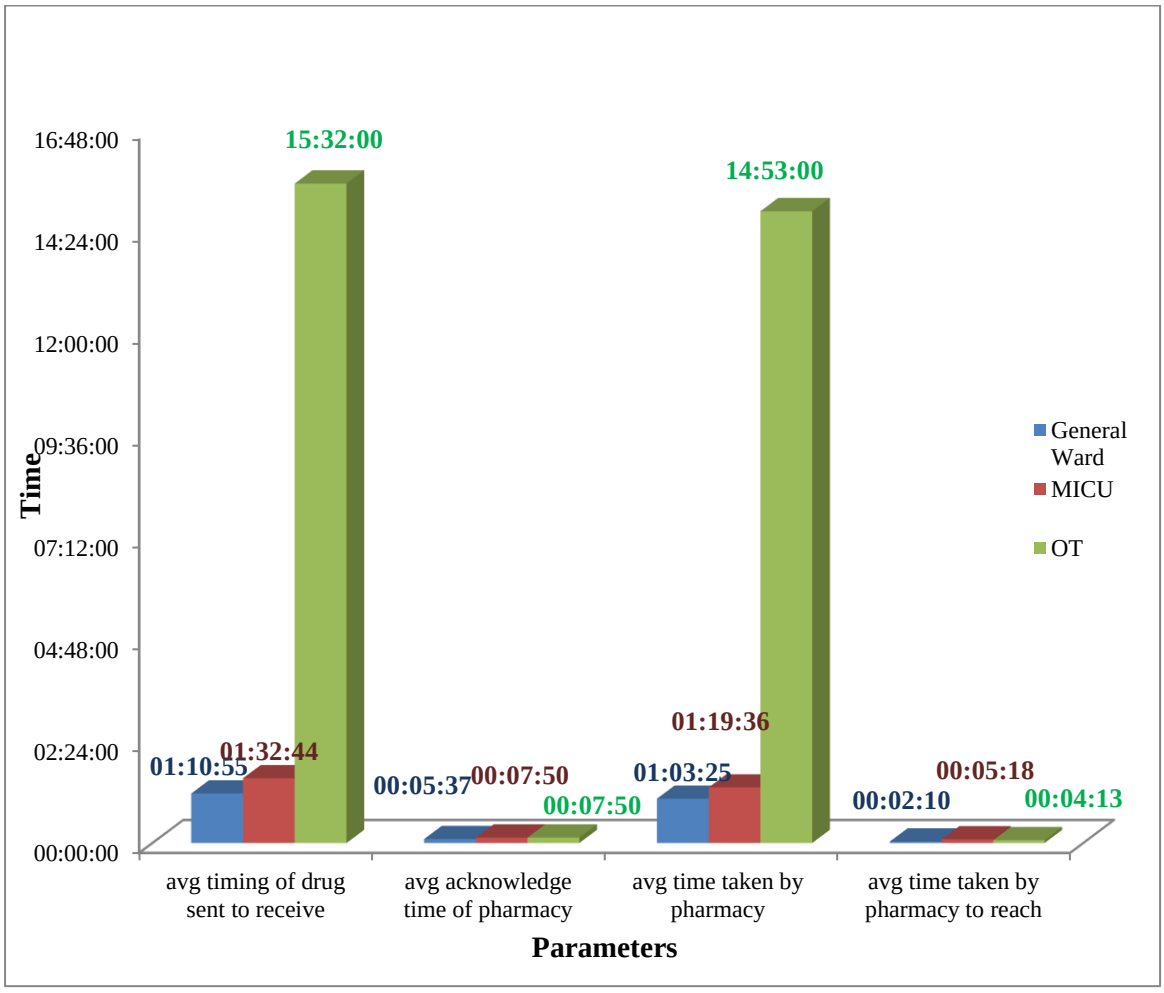
Figure 6 Average Timing of Drug Return and Received



The average time taken by MICU to receive the return drugs was 0:51:30; average time taken by pharmacy to acknowledge the indent was 0:13:30; average time taken by pharmacy to collect and keep the drugs ready was 0:33:30; average time for delivery of drugs after collection was found to be 0:04:30

Comparisons Of The Three Wards For The Supply Drugs

Figure 7 Comparison of The Three Wards For The Supply Drugs



Average timing of drug sent to receive is maximum in OT (15:08:00) followed by MICU (01:32:44) and then general ward (01:11:03)

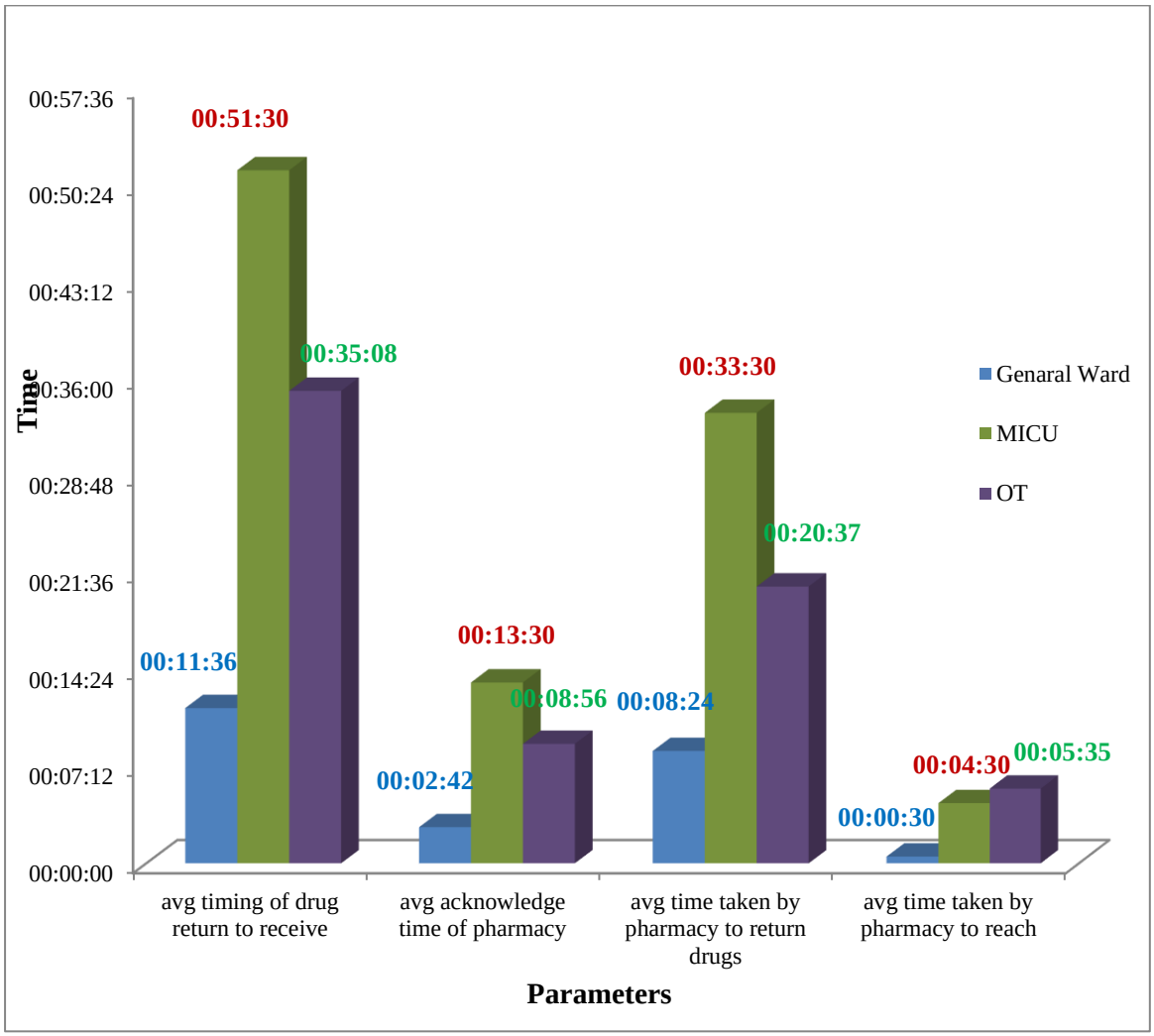
Average acknowledgement time of pharmacy is highest in MICU (0:17:38) followed by OT (0:07:50) and general ward (0:05:37)

Average time taken by pharmacy is highest for OT (14:46:38) followed by MICU (01:19:36) and general ward (01:03:16)

Average dispatch time is highest for MICU (0:05:18) followed by OT (0:03:44) and general ward (0:02:10)

Comparisons Of The Three Wards For The Return Drugs

Figure 8 Comparison of The Three Wards For The Return Drugs



Average timing of drug sent to receive is maximum in MICU (0:51:30) followed by OT (0:35:08) and then general ward (0:11:36)

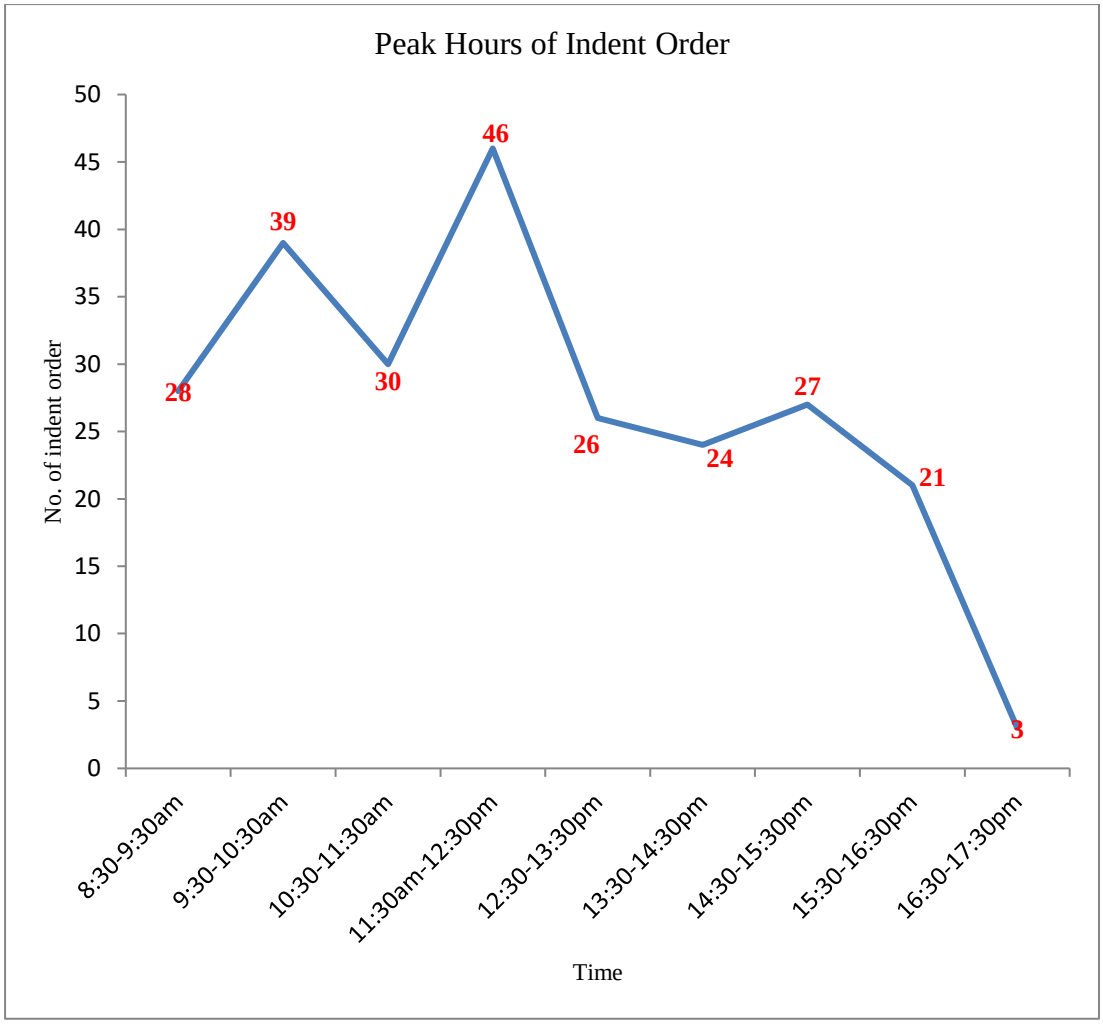
Average acknowledgement time of pharmacy is highest in MICU (0:13:30) followed by OT (0:08:56) and general ward (0:02:42)

Average time taken by pharmacy is highest for MICU (0:33:30) followed by OT (0:20:37) and general ward (0:08:24)

Average dispatch time is highest for OT (0:04:30) followed by MICU (0:05:35) and general ward (0:00:30)

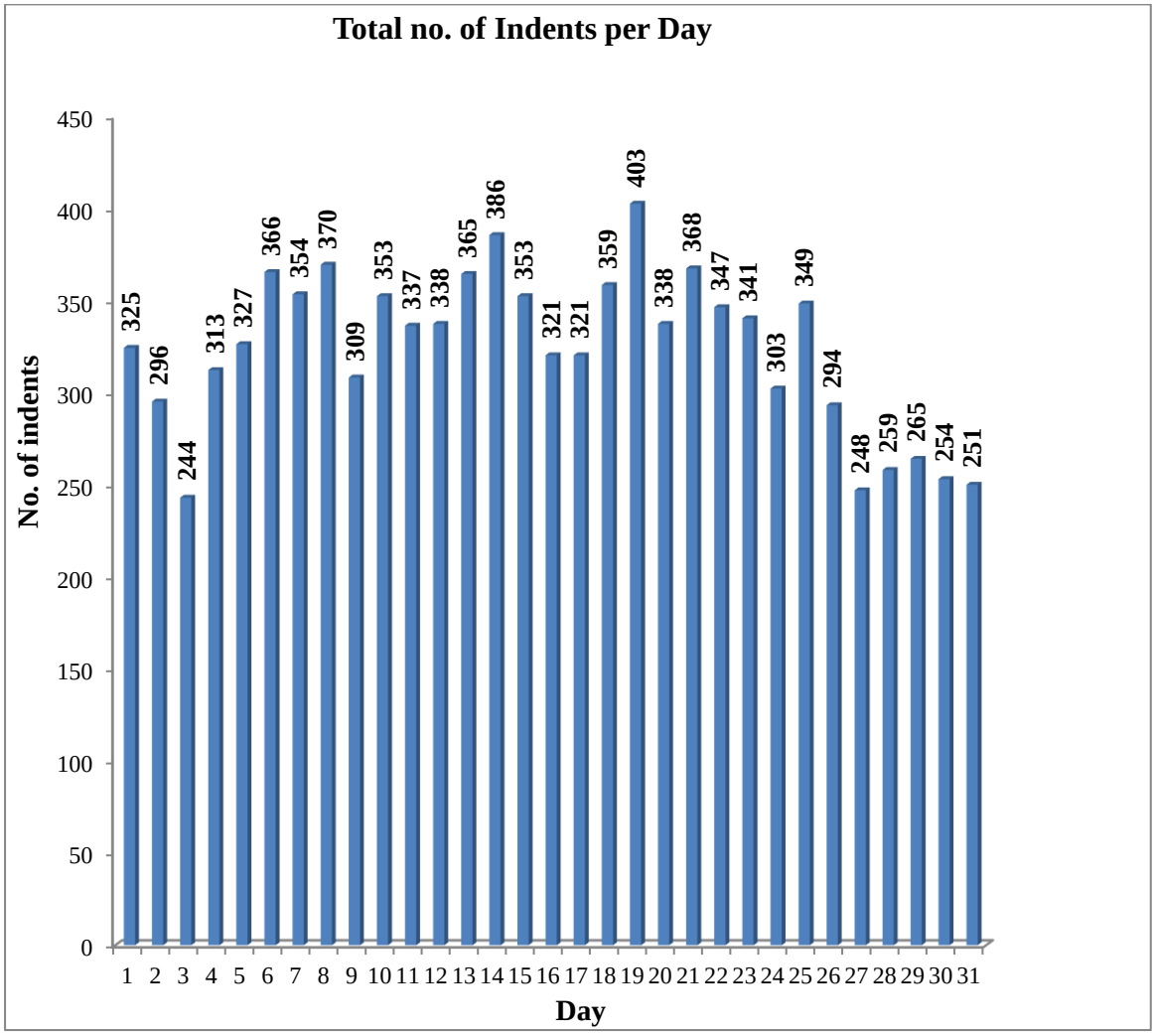
Peaks Hours of Indent Order

Figure 9 Peak Hours of Indent Order



*The following data was collected from general ward and MICU.

Figure 10 Total no. Of Indents per Day



The data was collected from May 1 to May 31.

Average no. of indent in a day-325

Average no. of patient in a day - 96. Average no. of indent per patient in a day-3

Average time spent by a nurse to indent drugs in a shift

On an average 1 minute is taken by the nurse to indent 1 item from the pharmacy.

According to the analysis a nurse spend an average of 13minutes 38 seconds in a day on a computer to indent drugs.

They spent 2.84% of their total duty time on indenting drugs

Total Pharmacy Consumption of Different Wards

Table 3 Total Pharmacy Consumption

Names of Ward	Total Consumption (in qty)	Total Consumption (in cost) in Rs.
Female ward	9,435	56,826.00
Male ward	9,108	51,099.33
Surgical ward	8,201	55,654.00
Onco ward	4,533	40,731.00
NICU	896	8,933.00
HDU	9,406	66,288.00
ICU2	20,018	1,40,856.00
OT	15,512	3,94,060.00
CCU	9,235	2,33,435.00
Dialysis	14,843	9,14,581.00
Blood bank	4,644	15,396.00
Deluxe	7,630	49,315.00
Cath lab	1,645	1,86,972.95

Figure 11 Total Pharmacy Consumption (in qty)

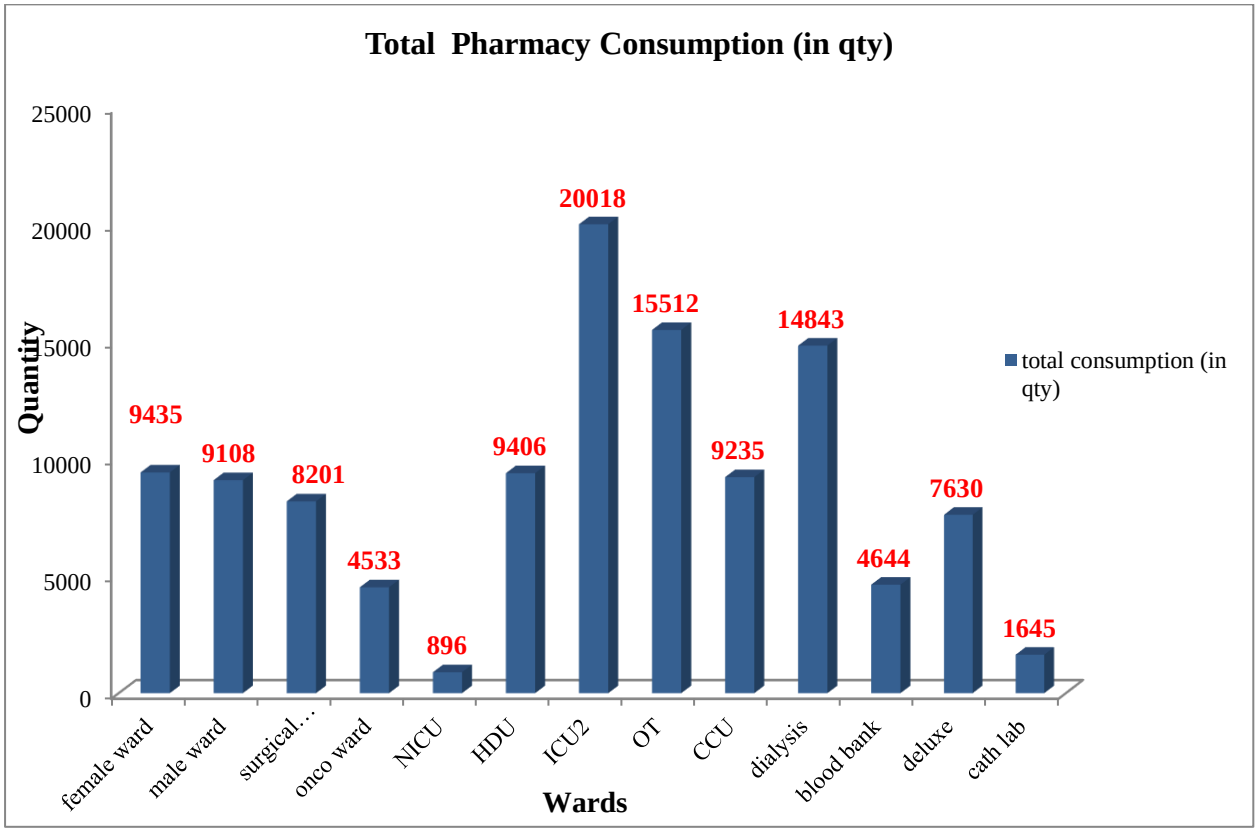
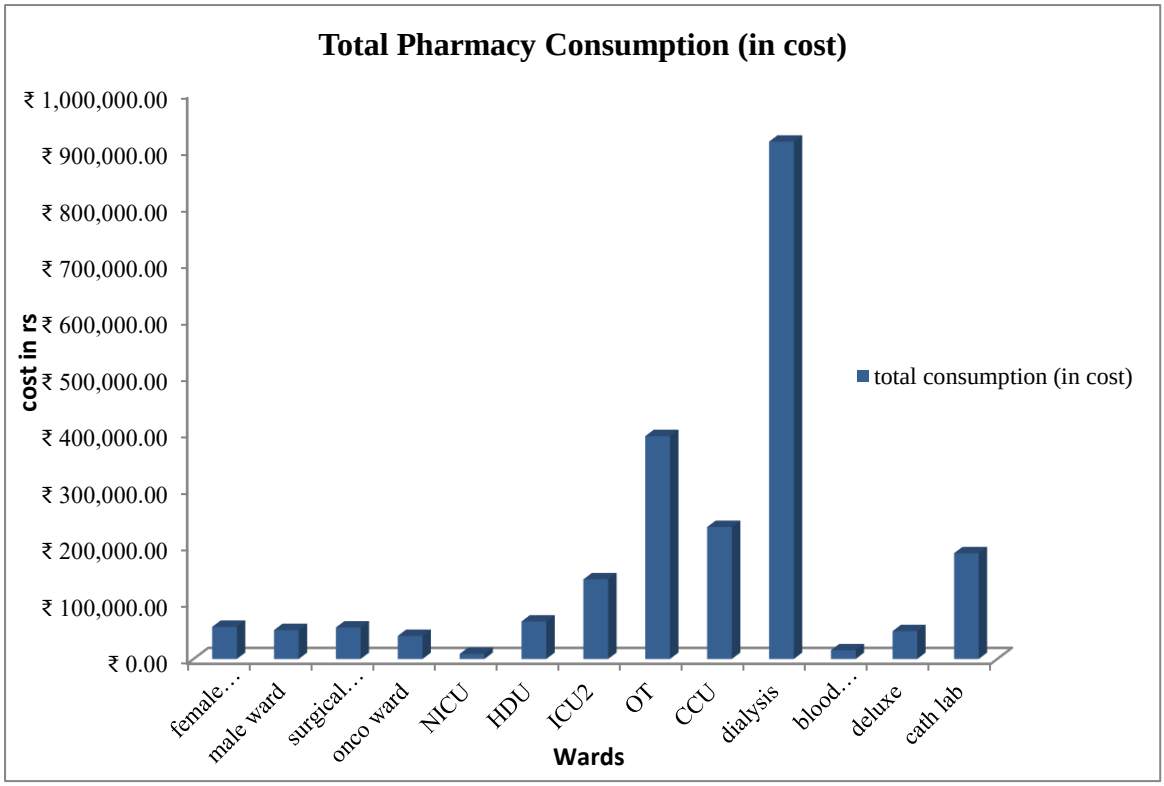


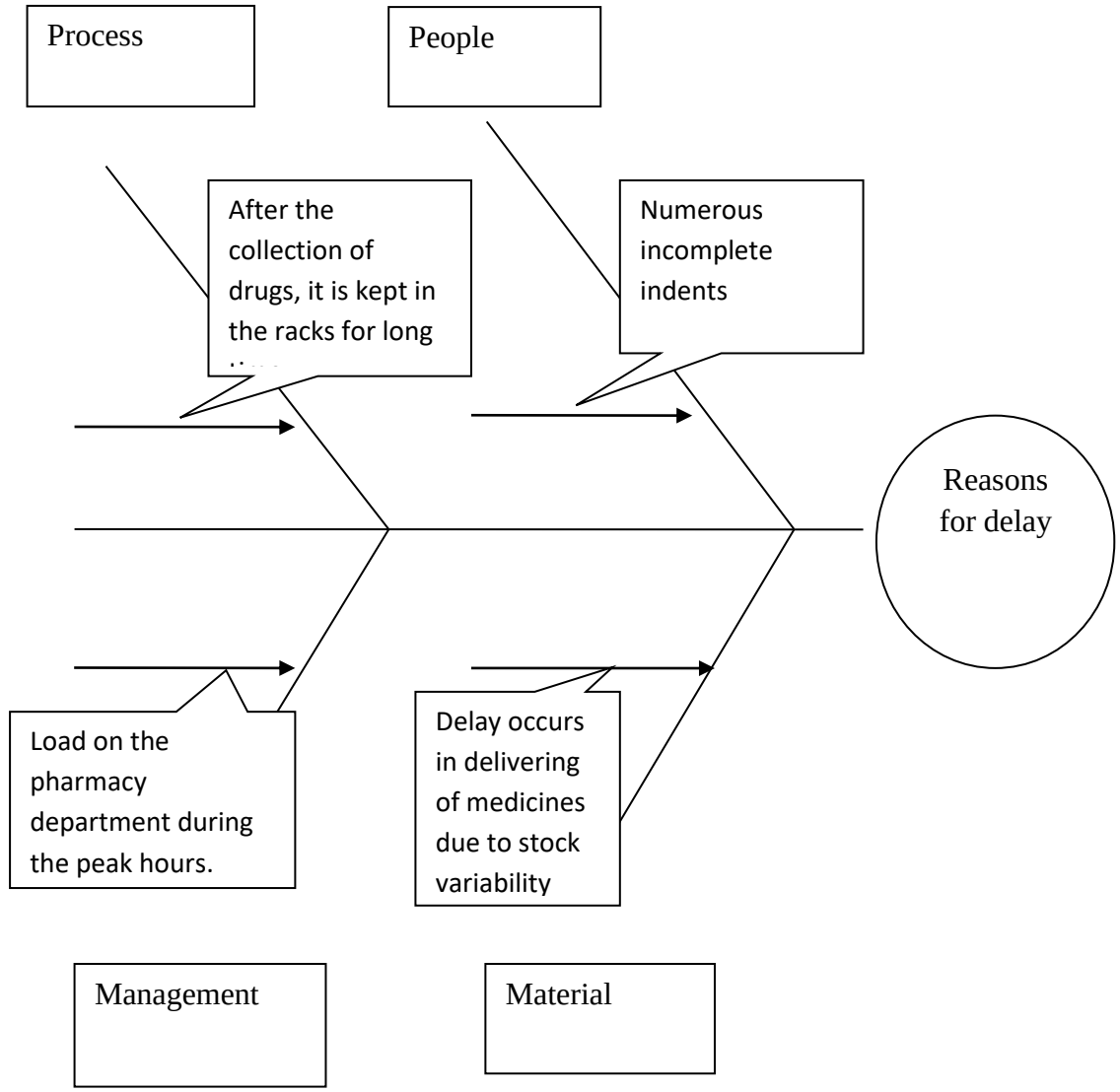
Figure 12 Total Pharmacy Consumption (in cost)



Maximum consumption in terms of cost is highest for dialysis, followed by OT and then by CCU and the least by NICU

Reasons For Delay

Figure 13



SUGGESTIONS

The hospital should establish TAT for normal indents, new admission indents and urgent indents.

In case of new admissions indents, urgent indents the system should show the status and should be highlighted.

For normal daily indent, timing can be fixed for indenting

The nurse ordering the drugs for patient should indent the complete order (bulk order) at once, instead of indenting numerous incomplete orders.

Training of the nursing staff and the pharmacy staff.

Drug indent for OT is sent in the evening and drugs are sent to the ward in the morning. Drugs should be supplied to the OT in the night itself, so that the night staff can check and replace the drugs if needed and keep the drugs ready in the morning before the operation.

Inbuilt pharmacy in OT.

Track the drug-when the nurse generates the drug indent, the system will generate the location of the drugs and attach it to the drug indent, so when the pharmacy acknowledges the drug indent, it knows the location of the drugs.

When nursing staff sign the order, it should be signed with time and employees ID so that the time of medicines reaching the drug can be noted and the person receiving the drug is known in case of any discrepancy.

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ANNEXURE

Data collection checklist

Table 4

Ward name		
Patient name		CR no
Ward sent time		Pharmacy acknowledge time
Ward receive time		Pharmacy sent time
Return drugs		
Ward sent time		Pharmacy acknowledge time
Ward receive time		Pharmacy sent time