

**Summer Training at
Columbia Asia Hospital Palam Vihar, Gurgaon
(April - June, 2013)**

- 1. A Study for Delay in Medication Dispensing in Pharmacy Department.**
- 2. A Study on Operation Theatre Utilization, Reasons for Delay in Planned Surgeries and Evaluation of Scheduling of Surgeries.**
- 3. A Study on Attrition in Various Departments, Level of Job Satisfaction for Nursing Personnel and Forecasting Attrition Trend in Various Departments for the Current Year.**

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**Under the guidance of
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**Post Graduate Diploma in Hospital and Health Management
2012-2014**



**Institute of Health Management Research,
Jaipur
2013**

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CERTIFICATE

This is to certify that Dr.Chitra Parmar, student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management and Research, Jaipur Batch 17th has undergone summer training at Columbia Asia Hospital, Gurgaon and has done following project:

- A study for delay in medication dispensing in Pharmacy Department
- A study on Operation Theatre utilization, reasons for delay in planned surgeries and evaluation of scheduling of surgeries.
- A study on Attrition in various departments, level of job satisfaction for nursing personnel and forecasting attrition trend in various departments, for the current year.

The candidate has successfully carried out the mentioned studies assigned to her during summer training from 8th April 2013 to 8th June 2013 and her approach to study has been sincere, scientific and analytical.

I wish her success in all her future endeavors.



Mr. Vijay Pratap Raghuvanshi
Assistant Professor and Mentor
IHMR, Jaipur



Dr. Ashok Kaushik
Dean, Academics and Student Affair
IHMR, Jaipur

COLUMBIA ASIA

8th June 2013

To Whomsoever It May Concern

This is to bring to your kind notice that Dr. Chitra Parmar was working with us as Trainee in the Operations Department from 8th April 2013 to 08th June 2013.

During her tenure with us we found her to be diligent and hardworking.

We wish her all the best in her future endeavors.

Yours Sincerely,

For Columbia Asia Hospital Palam Vihar, Gurgaon


Annie Mathen
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Also I seize this opportunity to express my sincere thanks to all the members of Pharmacy, Operation theatre and Human Resource department including Mr. Ravinder Reddy (Pharmacy Executive), Ms. Neha (Pharmacy Supervisor), Mr. Pradeep (OT Supervisor) and Mr. Nikhil Saini (HR Assistant).

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Abbreviations

AD	Actual Duration
CP	Customers attended by per pharmacist ratio
CSSD	Central Sterile Supply department
FM	Finance Manager
GM	General Manager
GRN	Goods Received Note
HOD	Head of the Department
HR	Human Resource
IPD	Inpatient Department
ICN	Infection control Nurse
LASA	Look Alike and Sound Alike
MRP	Maximum retail Price
NPO	Nil per os
NABL	National Accreditation Board for Testing and Calibration Laboratories
NABH	National Accreditation Board for Hospitals and Healthcare Providers
OP	Out Patients
OPD	Out Patient Department
OT	Operation Theatre
OR	Operation Room

PI	Physical Inventory
PO	Purchase Order
RN	Resident Nurse
SD	Scheduled Duration
ST	Scheduled Duration
TPA	Third Party Administration

1. Organization Profile

1.1 Columbia Asia company

The company is based in Kuala Lumpur, Malaysia and was founded in 1994. The company offers full-service hospitals built in neighbourhoods, rather than the central city. Columbia Asia is a chain of hospitals in Asia, with 23 medical facilities across India, Malaysia, Vietnam and Indonesia. Columbia Asia's target market is the fast-growing middle-income group. Columbia Asia hospitals are clean, efficient, affordable and accessible. The innovative design of Columbia Asia hospitals, from their manageable size to their advanced technology, is focused on creating the most positive experience for patients. Patient service, efficiency and medical excellence are all part of Columbia Asia's model to deliver the best medicine. Columbia Asia's highly skilled doctors and nurses deliver care in modern hospitals located close to where people live and work. Columbia Asia hospitals are specifically designed for the needs of patients and built for maximum comfort and efficiency. Patients benefit from advanced medical diagnostics, treatment and the personal care that only comes in facilities where the focus is on each patient. It provides excellent care at affordable prices. Their transparent rate structure for medical procedures allows patients to know in advance how much their care will cost. There are no hidden or extra charges. Columbia Asia hospitals are smaller in size, which helps keep costs down. With streamlined administration and fewer beds, the hospitals have an average patient stay of two days.

1.2 Columbia Asia, India

East

Columbia Asia Hospital - Salt Lake, Kolkata

West

Columbia Asia Hospital - Pune

South

Columbia Asia Hospital - Hebbal (Bengaluru)

Columbia Asia Hospital - Mysore

Columbia Asia Referral Center - Yeshwanthpur (Bengaluru)

Columbia Clinic - Doddaballapur

North

Columbia Asia Hospital - Patiala

Columbia Asia Hospital – Ghaziabad

1.3 Columbia Asia Gurgaon

Columbia Asia Hospital – Palam Vihar, Gurgaon, is a 90 bed multi specialty facility situated in an upscale locality of the National Capital Region. The hospital began its services in July 2008 and has already become a preferred healthcare service provider for the residents and corporate entities of Gurgaon. The hospital has international standard infrastructure and follows globally benchmarked standards of medical, nursing and operating protocols and is rapidly becoming the preferred healthcare destination for International Patients.

- **Mission:** Columbia Asia is pledged to deliver Effective and Affordable medical services in a Clean and Caring environment.
- **Vision:** Columbia Asia has clear vision: provide excellent, affordable care in modern facilities centred on patient's need.
- **Motto:** Customer first
- **Values:** Caring, Community Involvement, Excellence, Integrity and Team work

1.3.1. Services Available

Anesthesiology

General Surgery

Pediatric Surgery

Bariatric Surgery

Internal Medicine

Pediatrics & Neonatology

Cardiology (non-invasive)

Clinical Psychology

Cosmetic Dermatology

Dental Care

Dermatology

Endocrinology

Otorhinolaryngology [ENT] &

Head and Neck Surgery

Gastroenterology

Maxillofacial Surgery

Minimally Invasive

(Laparoscopic) Surgery

Nephrology

Neurology

Neurosurgery

Obstetrics & Gynecology

Ophthalmology

Orthopedic Surgery

Plastic & Reconstructive

Surgery

Psychiatry

Pulmonology (Chest Medicine)

Surgical Oncology

Urology

Vascular Surgery

1.3.2. Facilities Available

24-hour Services

Emergency Room

Laboratory

Pharmacy

Radiology

Ambulance

Ambulatory & Day Care

Daycare Surgery

Endoscopy

Dialysis

Cafeteria

Inpatient Dining

Outpatient Dining

Clinical Laboratory

Hematology

Histopathology

Cytology

Biochemistry

Microbiology

Clinical Pathology

Diagnostic Imaging

Digitized Radiography

Ultrasound and Color Doppler

Echocardiography

Digitized Mammography

CT Scan

Picture Archival

Communication System

Tele-Radiology

Preventive Healthcare

Comprehensive Health Screen

Cancer Screening

Special Clinics

Diabetes Clinic

Hypertension Clinic

Menopause Clinic

Multidiscipline Specialist

Clinics

8am to 8pm Outpatient Clinics

Nursing Units

Intensive Care

Isolation Care

Labor and Delivery

Neonatal Intensive Care

Nursery

Pediatrics

Physiotherapy

Physiotherapy

Operating Theatre

Major & Minor Surgery

Central Sterile Services

Department

Patient Accommodation

Room

Intensive Care Units

High Dependency Unit

1.3.3. Departments

The various departments of the hospital are shown in the table1.

Department	Business / Operation Hours
Marketing	Monday to Saturday 8:30am to 5:30 pm
Human resource	Monday to Saturday 8:30am to 5:30 pm
Customer care	24 hours
Pharmacy	24 hours
Radiology	24 hours
Laboratory	24 hours
Physiotherapy	Monday to Saturday 8:00am to 8:00pm Sunday 9:00am to 12:00noon
OPD	8:00am to 8:00 pm Staggered timing for various OPDs
Nursing	24 hours
Emergency	24 hours

Table 1: Showing various departments with their operation hours

2. Observational Learnings

There was induction in first two weeks of summer internship. During which one day was spent in each department where various observation learning were done.

2.1 Laboratory

The laboratory is a full service facility located on the ground floor near the OPD. It was NABL accredited. The various functional components of laboratory were Microbiology, Biochemistry, Hematology, Cytology, Histopathology, Immunology and Serology. The tests which were not available in-house were outsourced to Quest diagnostics or Dr. Lal Path Lab. Reporting of all the samples collected before 12 noon was done in evening at after 5:30 pm and for the samples collected after 12 noon the reporting was done on the next day after

11:30. On an average daily 140 to 150 patients come to the laboratory to avail various services. Software power lab was used in the laboratory.

2.2 Physiotherapy

This department assesses and treat people and gives suitable treatment to people with injury and disability to enhance mobility and quality of life. They also emphasize patient education to avoid injuries and maintain fit and healthy body. The services provided by the department include:

- Interferential therapy (IFT)
- Ultrasound therapy
- Short wave therapy
- Traction- cervical and lumbar
- Paraffin wax therapy
- Combination therapy
- Continuous passive motion
- Exercise therapy including post natal exercises

2.3 Marketing

The segment in which marketing is done includes Corporate, referral and International patients. The Unique selling proportion of Columbia Asia is the In-house café, Ethical practice and Uniform price rate policy. Columbia Asia hospital is associated with 108 corporates including public sector units and schools. It is also associated with nursing homes, clinics and doctors for referrals. Columbia Asia also serves international patients from different countries.

2.4 Customer care

The various processes in this department include Enquiry, Registration, Admission, Report dispatch and organizing health checkups. Wrong appointments and non availability of doctors can be a problem for this department at times. The quality indicators for this department are appointment time and Admission time.

2.5 Human Resource Department

The scope of services for this department includes:

- Job recruitment and analysis
- Assessment of application
- Interview processes
- Joining formalities
- Performance appraisal
- Compensation and benefit
- Employer engagement and relation
- Employee personal file
- Statutory compliance and Indent raising
- Training and development
- Management info system

Other processes that HR performs are Exit formalities, Medical insurance, Grievance handling, Sexual harassment policy, publishing event calendar. The table 2 shows the quality indicators of the Human resource department.

Indicator	Definition	Measures	Affects
Recruitment cycle time	Percentage of cases where there was a gap between employee completing notice period and new replacement employee joining the system	Process efficiency	Efficiency of hospital functioning
Attrition rate	percentage of employee who have quit the organization	Employee satisfaction and employee retention Percentage	Efficiency of hospital functioning
Training actualization and effectiveness	Act planned training & assessment of effectiveness	Employee development	Efficiency of hospital functioning
Internal promotion	No of vacancies which get filled by internal promotion	Employee growth	Employee satisfaction and Employee growth
Market updates of salary	Hospital salaries as benchmarked with the industry standards	Anomalies in salaries in comparison with local healthcare industry	Market standing in terms of salary & wages

Table 2 : Showing quality indicators of HR department

2.6 Emergency

The Department of Emergency Medicine at Columbia Asia hospital is well equipped to provide comprehensive emergency services to patients. The department has well trained consultants and doctors to handle any kind of emergency round the clock with the help of standardized protocols and procedures. A multidisciplinary trauma team is available specially to handle such cases. Fully equipped ACLS ambulances with ventilator support are available round the clock. The emergency department also provides therapeutic services like blood transfusions, nebulisation and antibiotic infusions on an outpatient basis. This department has 4 Beds and 12 nursing staff catering to the need of the patients in ER. Four medical officer provide under one chief medical officer provide 24 hour services.

Services Available

- 24/7 ambulance services
- Patient retrieval
- Minor procedures
- Resuscitation and stabilization
- Life support
- Outpatient therapeutic services
- Poly trauma
- Accident and emergency
- Emergencies due to any disorder

2.7 Radiology

The radiology department is located on ground floor and provides the following modalities:

- Ultrasound
- CT scan
- Mammography
- X ray
- MRI

Picture archiving and communication system (PACS) is used in the department, it is a medical imaging technology which provides economical storage, and convenient access to,

images from multiple modalities. With the help of InstaRad within seconds, radiologists and referring physicians access high quality, diagnostically useful, compressed and decompressed radiographic images such as X-rays, CTs, MRIs, ultrasounds and other modalities from any place, at any time, and over internet connections of any bandwidth. The specialist analyzes the radiographic image and sends back the diagnosis/report within minute. InstaRad improves the quality of patient care by saving time and money.

2.8 Nursing

The nursing staff is responsible for the care throughout the stay of Inpatients. The nursing team is trained to address queries about the treatment and stay. The nursing staff is trained to provide quality and specialized care to the patients

2.9 Inpatient Department

The Inpatient department is divided into four wings. P wing for Pediatric cases with 13 beds. W wing for female patients has 16 beds, NICU (neonatal intensive care unit) catering to the need newborn has 4 beds. S wing has 23 beds including 6 day care beds, is for surgical patients and M wing has 14 beds for medical patients. The rooms were single sharing, twin sharing and triple sharing and rooms with four beds were also there. Suites were also available

3. Projects

During summer training of two months three projects were done in pharmacy, Operation theatre and Human resource department. The title of the projects are

- A study on reasons for delay in dispensing medication in pharmacy department.
- A study on utilization of operation theatre and reasons for delay in planned surgeries
- A study on Attrition in various departments. Level of job satisfaction for nursing personnel and forecasting attrition trend for the current year.

A study on reasons for delay in
dispensing medication in pharmacy
department

4. Introduction

Pharmacy in Columbia Asia is located on ground floor near the entrance and provides 24 hour services.

4.1 Organogram

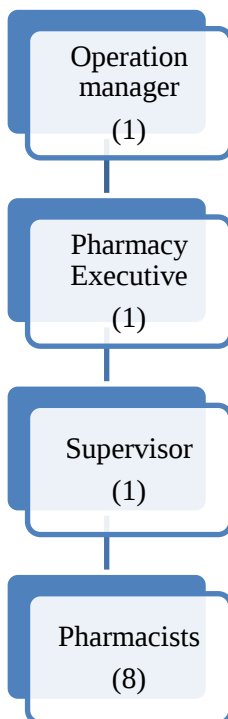


Figure 1: Organogram of Pharmacy Department

4.1 Shift Timings and staffing

Shift	Timings	Pharmacists per shift
Morning	0800hrs to 1630hrs	1
General	0900hrs to 1800hrs	2
Evening	1130hrs to 2000hrs	2
Night	2000hrs to 0800hrs	1

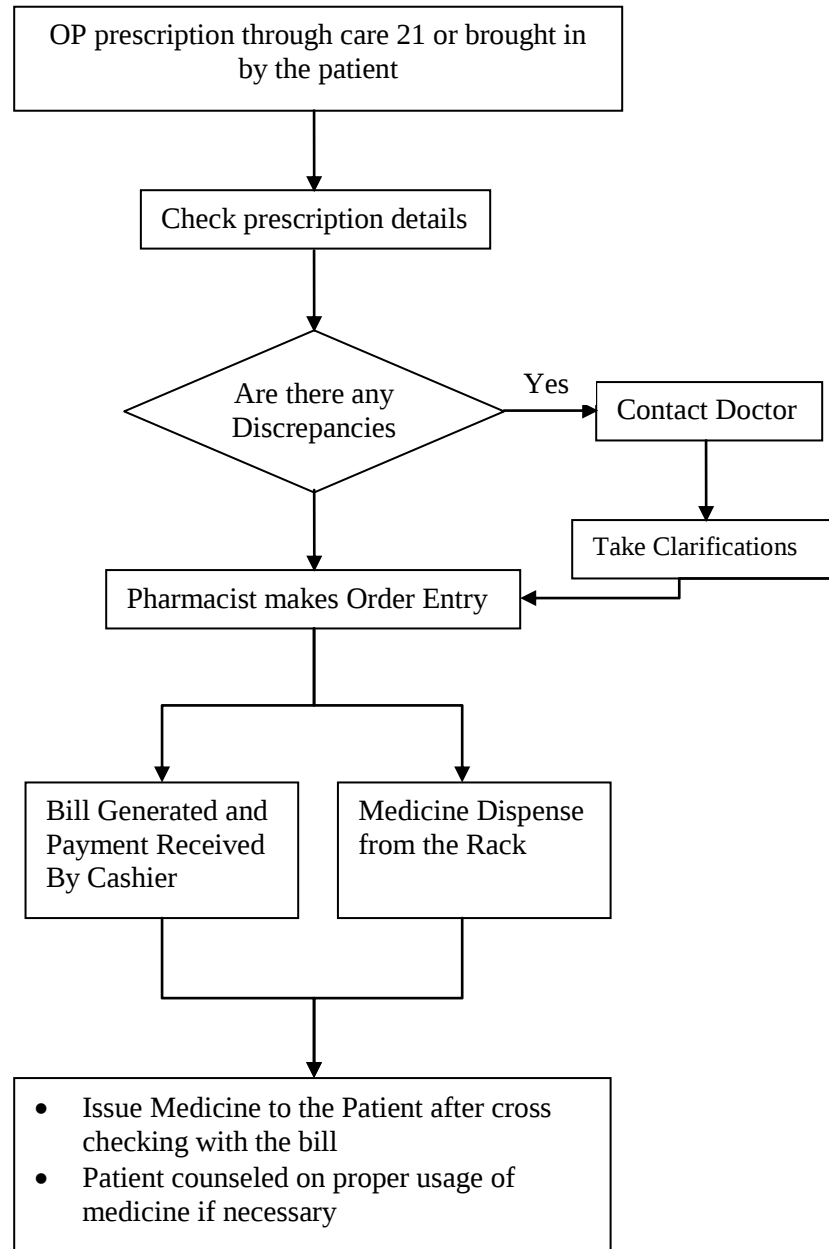
Table 3: Pharmacy Staff and Shift-Timings

One cashier is always there except during the night and supervisor and executive are there in general shift only.

4.3 Processes in Pharmacy department

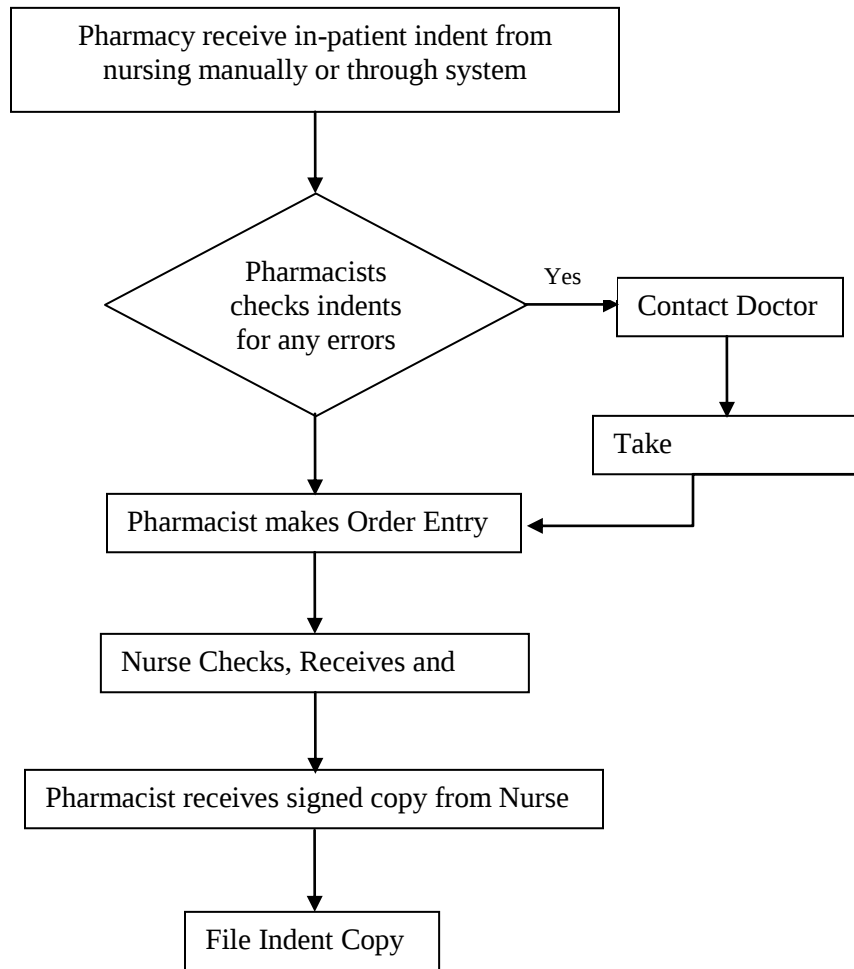
1. OP dispensing
2. IP dispensing
3. Medicine Refund
4. Wing transfer
5. Procurement
6. Receive and return to vendors
7. Inventory Control
8. Medicine Arrangement
9. Stock Checking

4.3.1 OP Dispensing

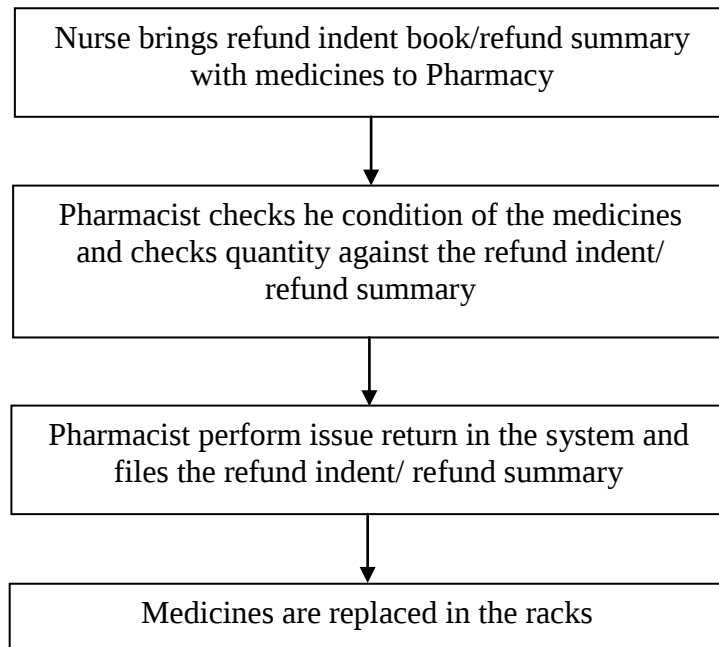


OTC dispensing is done in the same way as OP dispensing. New MRN number is created if the customer does not have one. Prescription is mandatory for the dispensing of high risk medicines.

4.3.2 IP Dispensing

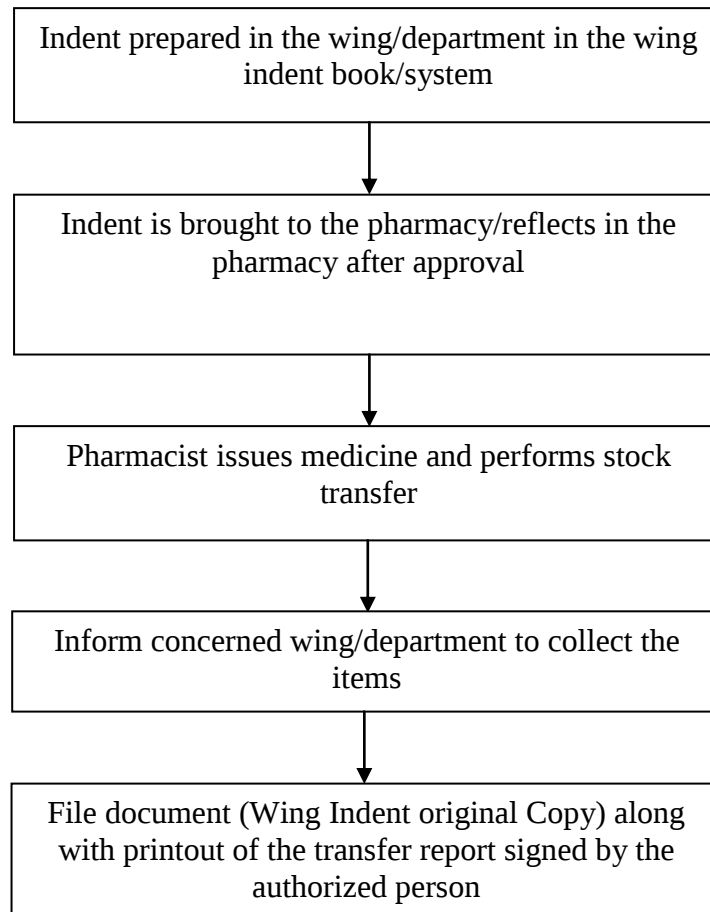


4.3.3 *Medicine Refund*



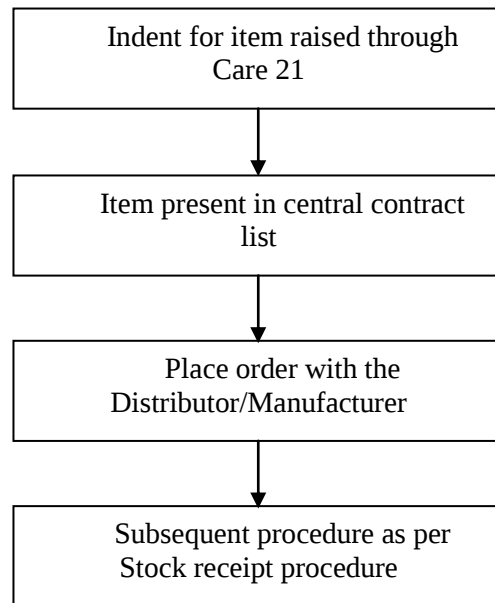
OP refund of medicines is done in the above mention way in addition to it a credit note is issued which can be redeemed from finance or the amount is deposited in the MRN of the patient .

4.3.4 Wing Transfer

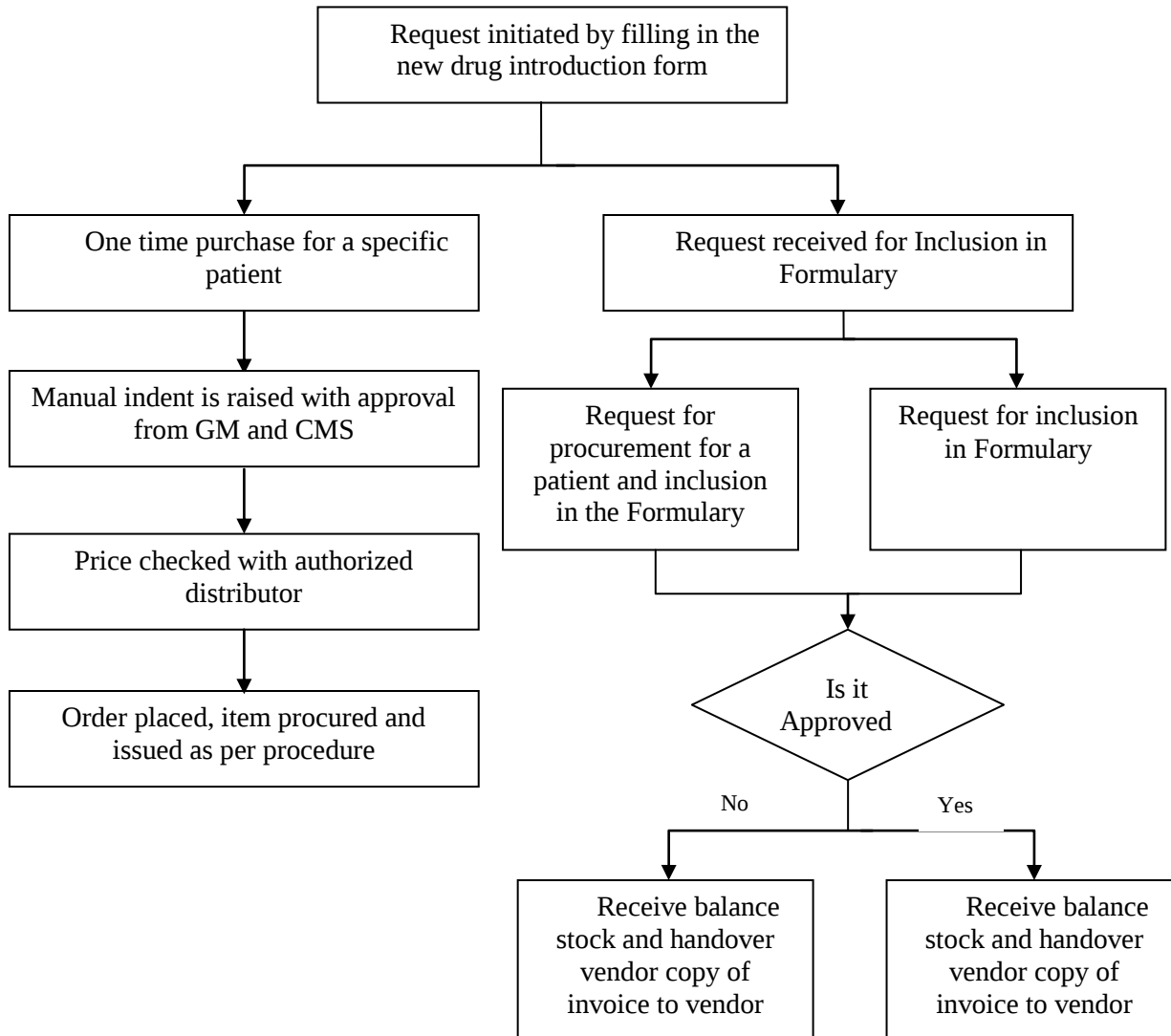


4.3.5 ***Procurement***

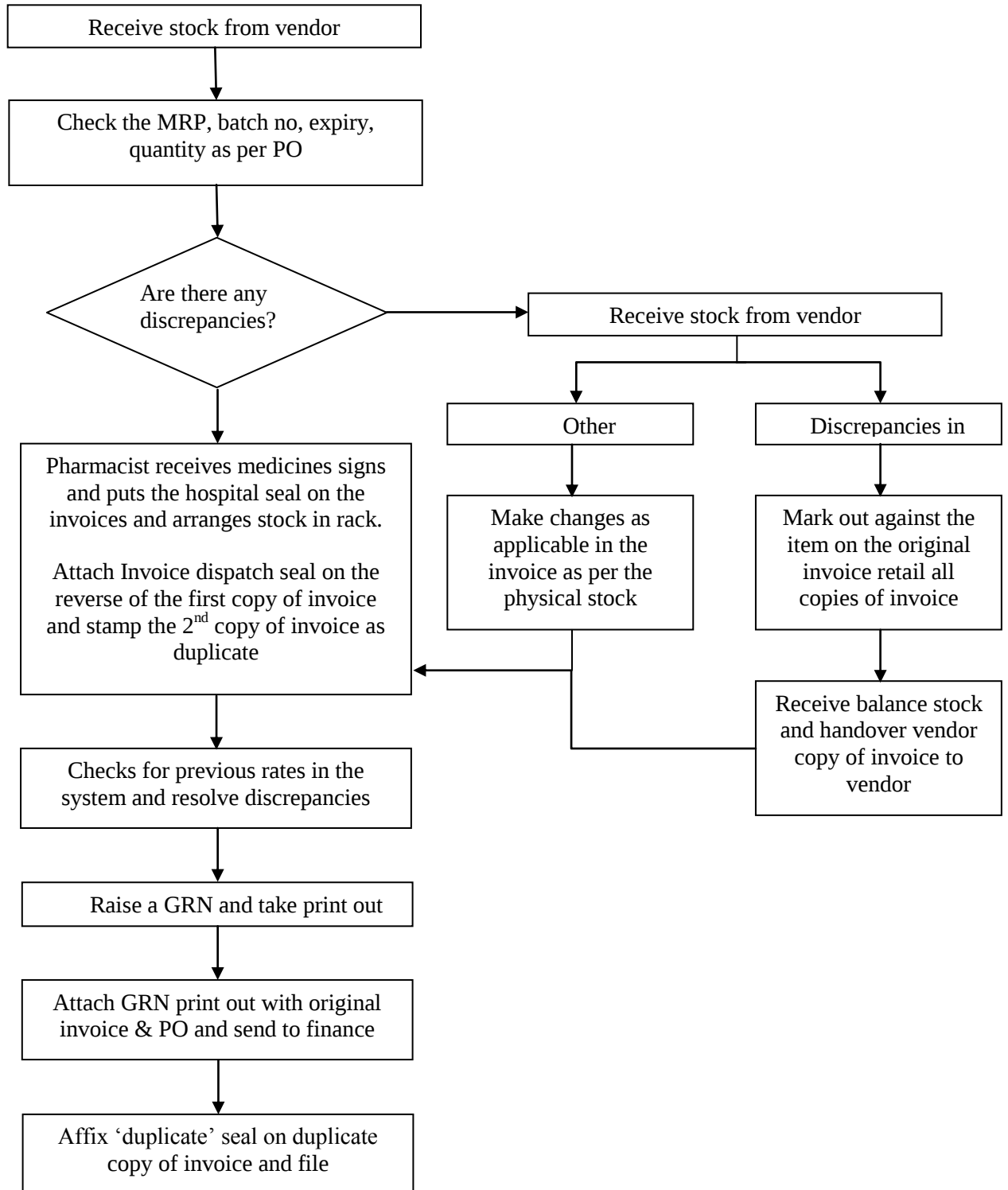
I. When item is in the formulary



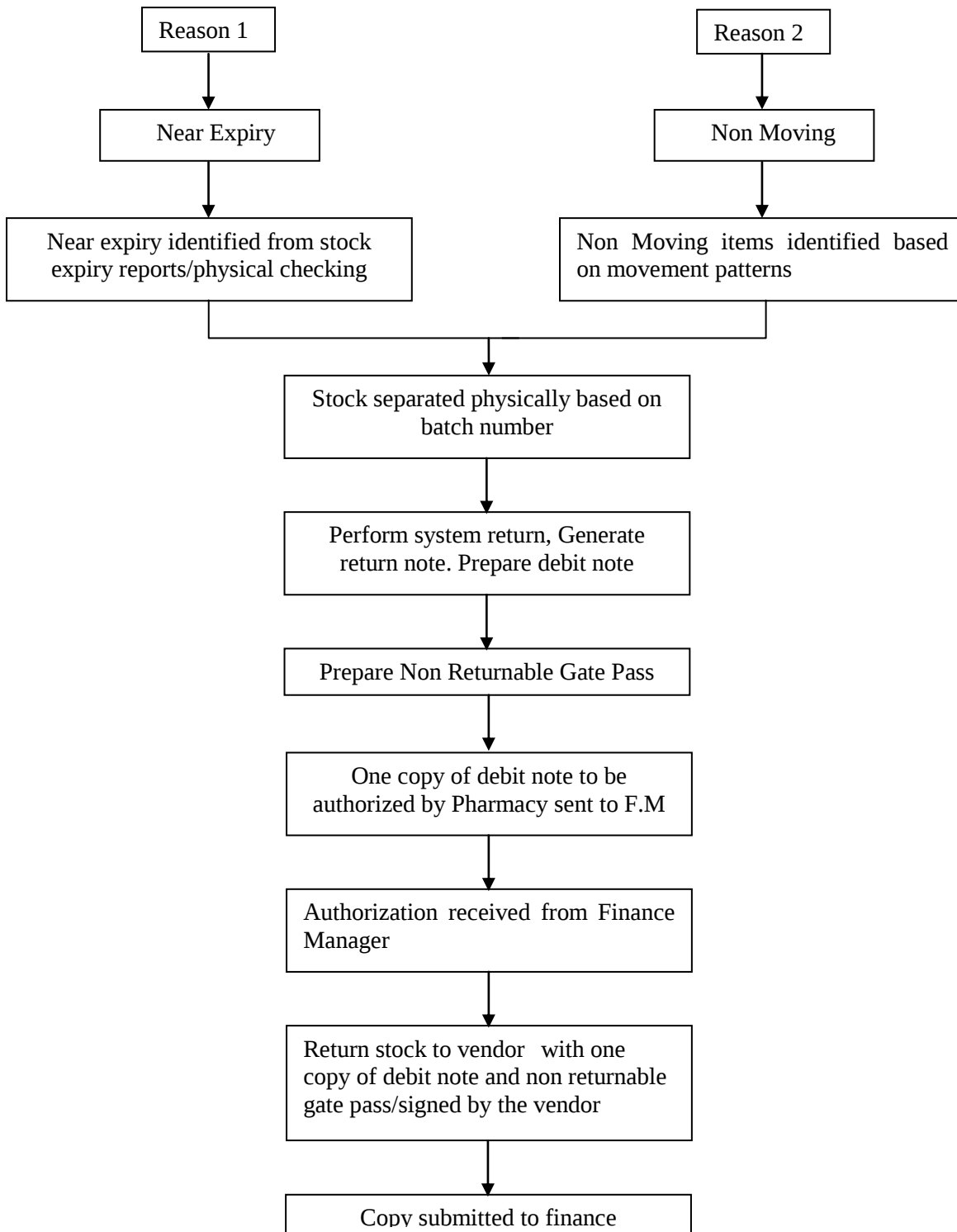
II. When the item is not in formulary



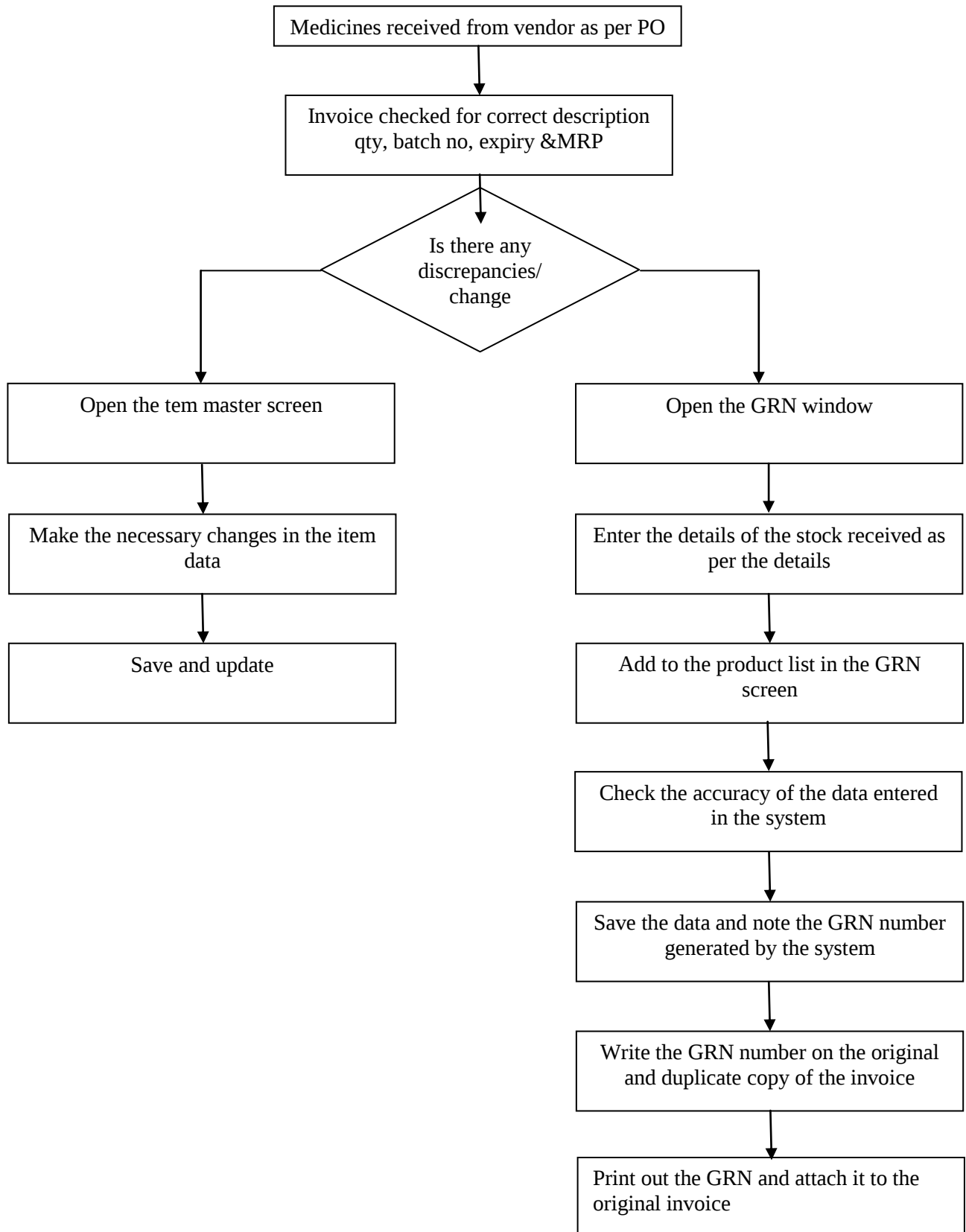
4.3.6 Receiving Stock from the Vendor



4.3.7 Returning stock from Vendor



4.3.8 Preparation of GRN



4.3.9 Inventory Control

Analyzing fast moving, slow moving and non moving items, daily sales and reorder level helps in inventory management.

4.3.10 Medicine Arrangement

The arrangement of medicines is in Alphabetical order, form wise and strength wise. LASA are arranged separately to avoid errors.

4.3.11 Stock management

General points

1. Responsibilities
 - i. For conducting the stock count – HOD
 - ii. For releasing the monthly stock count planner – Finance Manager
2. Determine ABC stock at beginning of the year and be verified every six months
3. Categorize stocks into ABC on the parameters given below

Class	Percentage of value	Periodicity
A	70	Once every fortnight
B	20	Once in two months
C	10	Once in six months

Pre-physical Inventory (PI) task

1. Monthly stock count planner is released by Finance department for each department
2. Prepare GRN for all receipts of stocks from vendors in case of store PI
3. Complete all inter department store stock transfer.
4. Complete all consumption entries if any pending
5. Ensure that all OE are done.
6. Arrange the stock on shelves.
7. Avoid movement of stock during stock count process

During PI

1. The stock will be recorded in enclosed format.

2. Make a team of 2 persons, one to count and other to update the sheet.
3. Ensure that the products variants are not mixed together where the packaging and size are similar.
4. Segregate the variants arrange them properly and count accordingly
5. On completion of the stock count process. The stock take recording sheet will be signed off by the HOD and filed.

Post PI

1. The HOD will analyze all variances and record the action taken for each item
 - a. When the variance can be traced to the following reasons suitable action will be

Reason for variance	Corrective Action
Stock issue is not done in the system but the item has been physically issued to the department	Stock issue is done to department after confirming with the department Head
Use of 'Others' code	Show self consumption to department
Department transfer not done	Department transfer is done to department after confirming with department head

- b. Where variance cannot be traced the following procedure is applicable
 - i. Recount the items next day.
 - ii. If the variance still exists, exception reporting will be done every Monday for the stock check conducted in the previous week.
 - iii. The exception report will be analyzed by the GM, FM, HOD and stock adjusted entries passed every week.

Sample verification audit by cross functional team/Finance Manager

- i. Responsibility – FM/ GM
- ii. Sample will be selected randomly.
- iii. The stock take recording sheet will be signed off by the HOD and the auditor and filed with FM.

- iv. Any variance will be inspected and adjusted after approval of the GM.

4.3.12 Quality Indicators

<i>S. No</i>	Indicator	Definition	Measures	Affects
1.	Percentage of stock out including emergency drugs	Number of prescriptions which cannot be honored due to stock out	Inventory Management	Customer satisfaction Patient care
2.	Local purchase of drugs	Number of drugs purchased outside formulary	Adherence to protocol Adequacy of formulary	Hospital cost
3.	Usage of 'others' code	Number of order entry done using 'others' code	Adherence to protocol	Inventory Control Hospital cost

Table 4: Quality indicators of pharmacy department

4.3.13 Statutory Compliances

1. The Pharmacy department will operate within all applicable legislature, regulation and licensure and requirements.
2. All laws regulations, directives, guidelines and licensure requirements of drug control department and Excise department will be met and followed.
3. The department will have at all the times a valid and current pharmacy license issued by the drug control department, which will be posted in public view.
4. All pharmacists must maintain valid and current registration with the State pharmacy Council according to law and Columbia Asia policy. A photocopy of current registration certificate of pharmacist shall be kept in pharmacy file.

5. A current copy of pharmacist related legislations and applicable rules will be available in the pharmacy department at all the time.
6. All required records will be maintained by the pharmacy department, including narcotics requisition (1 year), record book.
 - a) Licenses:
 - i. Retail licenses- Form 20 and Form 21
 - ii. Wholesale drug license – Form 20B and Form 21B
 - iii. Narcotic license – Form v
 - b) Registration Certificates :
 - i. State pharmacy Council Registration certificate
 - c) Acts :
 - i. Pharmacy Act, 1948
 - ii. Drug and Cosmetic Act, 1940
 - iii. Narcotics and psychotropic Substances Act, 1985
 - iv. Drugs and magic Remedy Act, 1954
 - v. The medicinal and Toilet preparation (Excise duties) Act, 1956

4.3.14 Guidelines for dispensing of medicines

Dispensing of medicine will be done in a manner that ensures quick and efficient patient care and minimizes error.

1. Inpatient dispensing
 - a) Pharmacy items will be dispensed only by the pharmacist.
 - b) Stat doses and discharge medicines will be given first priority for dispensing.
 - c) Prescription and indent must be read carefully.
 - d) Ensure the correct dose and dose form for the specific patient.
 - e) Check all items for expiry date before dispensing.
 - f) Sign on dispensed column after dispensing.
 - g) Dispensing/ issue of items for wing stocks will be done against the wing indent.
 - h) For narcotics prescription nursing unit stock must be used.
2. Outpatient dispensing

- a) It is the policy of the hospital that proper procedure for outpatient dispensing are followed and patient are counseled on the effective use of the medication.
 - b) Prescription error should be informed to the doctor.
 - c) Patient details entered into the dispensing module should be based on patient MRN.
 - d) Drug ordered should be entered with correct name, strength, dose form and quantity ordered.
 - e) Check all items for expiry date before dispensing.
 - f) Check bill before dispensing any item.
 - g) Name of the patient must be confirmed before issuing medicines.
 - h) Only the pharmacist should dispense the medications and sign on the bill before handing over the medicines to the patient
3. Detection of occurrences
- a) Dispensing must be done intelligently to detect the occurrences of
 - i. Drug-drug interaction
 - ii. Drug food interaction
 - iii. Unintended dosage change
 - iv. Medication duplication
 - v. Possible misuse or abuse of dangerous drug or psychotropic substance
 - b) If .any occurrences have been detected please contact the doctor for appropriate course of action and report it in incident report form.

5 Rationale

Pharmacy department in any hospital is a revenue generating department with the margin of about 25% for OP and OTC medicines and about 45% in IP medicines. The services provided by the hospital will be incomplete if medicines are not dispensed in a manner that is quick, efficient and error free. Prolonged waiting time leads to dissatisfaction and resentment in the patients. And at times patient leaves the hospital without taking the medicines because of long waiting time and in long run such incidences affects the OPD of the hospital as patient expects hospitals to be the one solution for all their health needs.

6 Objectives

General

- To identify the reasons for delay in the OP and OTC dispensing during the peak hours in Pharmacy department in Columbia Asia, Gurgaon.

Specific

- To assess the effect of each reason in prolonging the turnaround time for customers (OP and OTC) coming to pharmacy counter during the peak hours.
- To provide suggestion to reduce the Turnaround time during peak hours in pharmacy department.
- To estimate the number of prescriptions honored in specified interval of response time, Pharmacist's time, Cashier's time and Total time to Honor the prescription.

7 Methodology

This study was of descriptive type.

Sample design

- **Sampling Method:** Non Probability Sampling
- **Sampling type:** Convenient Sampling
- **Sample Size:** A sample size of 560 dispensing orders was taken.
- **Procedure:** Study was conducted on the basis of collation of statistical data and on the observations as well. The Primary data was collected silently by observing the customers coming to the pharmacy from the time they appeared at the counter till the time they leave after making the payment and collecting the medicines .The data was analyzed with help of Microsoft excel. Both OP and OTC dispensing were observed during the peak hours. Interaction with the pharmacists and the cashier helped to assess the reasons for delay in the entire procedure.

8 Data Analysis and Interpretation

8.1. Peak time

30 days data for the month of April 2013 was analyzed to study the pattern of footfalls in pharmacy.

Analysis: As evident from the above graph in figure 2 two PEAK times emerged out of

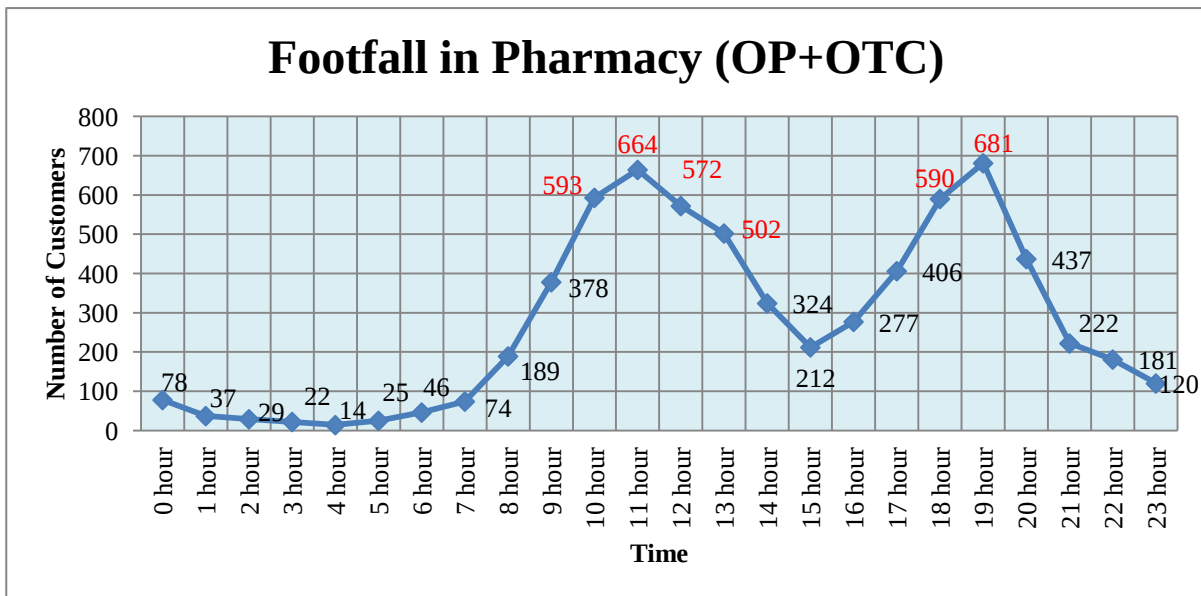


Figure 2: Footfall in Pharmacy (OP and OTC)

the analysis that is between 10AM to 2PM and 6PM-8PM. So to find out the reasons for the delay in honoring OP and OTC prescription morning peak time was chosen and data was collected to identify and analyze the reasons.

8.2. Breakup of Customers in Pharmacy department

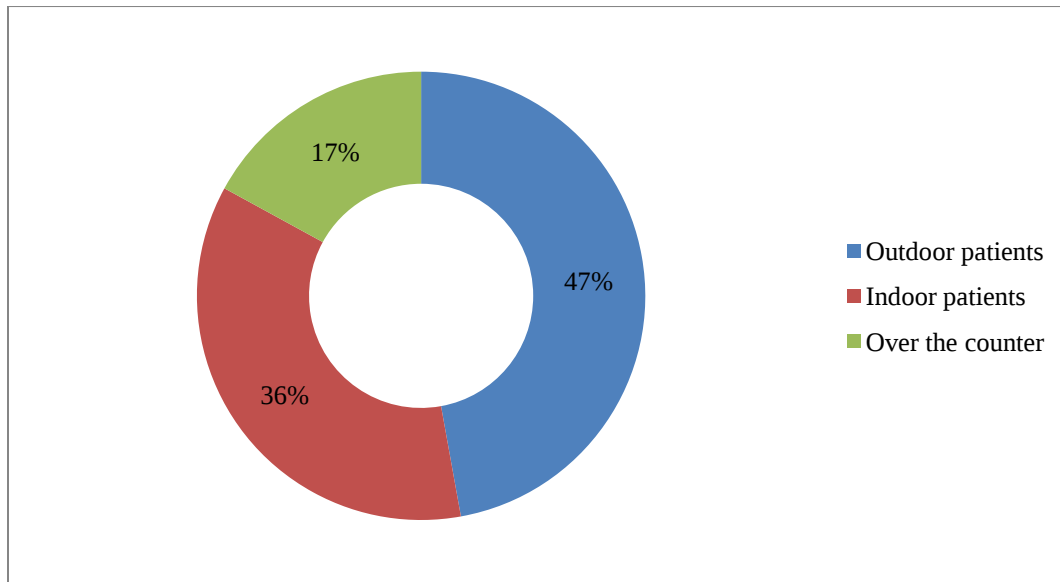


Figure 3: Break up of Customers in Pharmacy

DESCRIPTION	COUNT
Out patients	4902
In patients	3722
Over the counter	1771

Table 4: Types of Pharmacy customers

Analysis: Pie chart in figure 3 shows the breakup of the customer type in the pharmacy. OP and OTC account for 47% and 17% of the entire dispensing in the pharmacy department respectively. Whereas IP dispensing was 36%. Therefore it can be concluded that both OP and OTC dispensing contributed about 64% of the total dispensing in the pharmacy.

8.3.Reasons for delay

During the process of data collection various reasons were identified. These reasons were clubbed into various codes which helped in data analysis. The description of the reasons is as follows.

8.3.1. Reason Type

- R1.This code was used for re order (medicine may or may not be in the prescription) when first order entry was closed there by prolonging the entire process. This code was used when pharmacists forgets to ensure that there is nothing else that customers demands.
- R2.This code was used for the medical supply items that need to be brought from the store in the basement there by taking more time.
- R3.This code was used when during the peak hours when response time was 4 minutes or more and only one pharmacist on the counter was there to honor the prescription.
- R4.This code was used when delay was at pharmacist's end.
1. Slow order entry and the pharmacist could be more efficient in the whole process.
 2. Extra time taken to rectify wrong order entry, wrong prescription in terms of medicine or dosage or strength.
 3. Taking customers without turns.
 4. Taking time to search MRN.
 5. When there was no pharmacist on the counter for reasons other than getting medicines from the racks and has to be called.
- R5.This code also suggests the delay at the pharmacist's end but for reasons that are unavoidable. The reasons are as follows
1. Time needed to confirm the medicines or substitutes from the doctor or any other information required by the patient.
 2. Customer taking time to understand the prescription and causing delay for reasons like busy on phone, confirming some medicines which he already has or taking time to decide which medicines he or she requires.
 3. Return of medicines
 4. Despite being asked customer makes reorder after the order entry of first prescription was done.

R6. This code was used when there was delay at cashier's end. The reasons can be

1. Cashier is slow in process and could be more efficient.
2. Debit of wrong amount
3. Customer sent to main cash counter
4. Discount and other payment details not known
5. Instances where there is scope of improvement in soft skills.

R7. This code was used when there was delay at cash counter for reasons like

1. Technical issue with Software
2. Card swipe machine delay
3. Credit/Debit card not working
4. Change not available

8.3.2. Instances per Reason

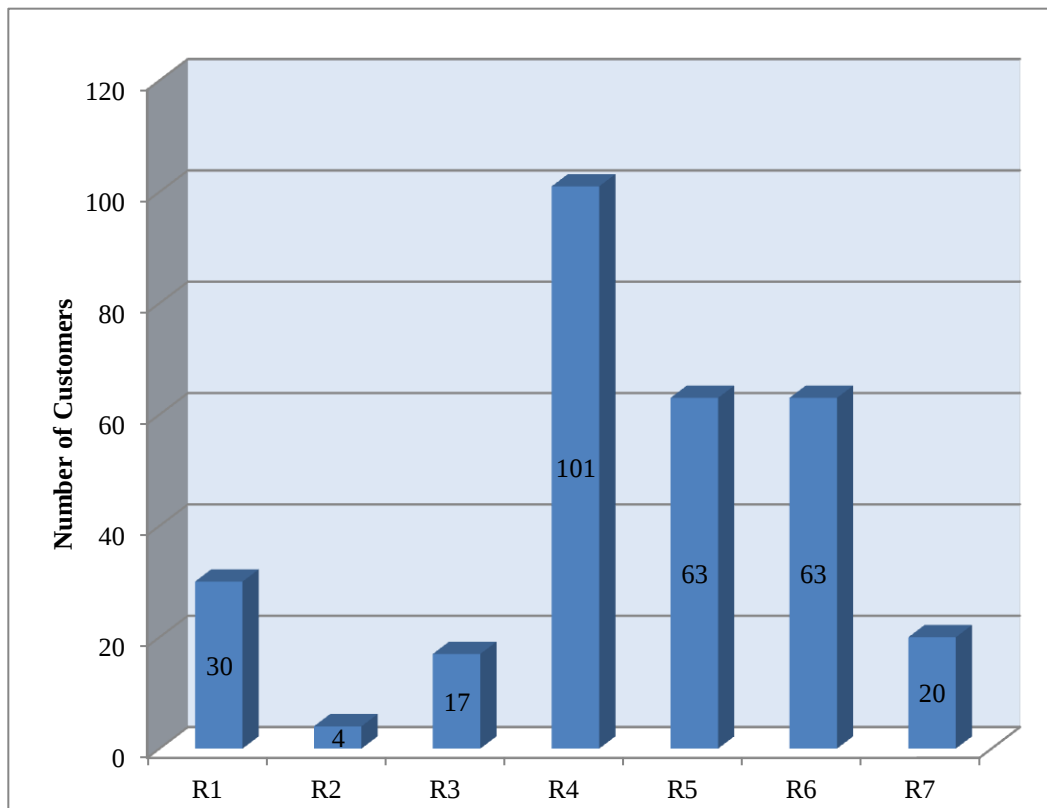


Figure 4 : Instances per Reason

Reasons	R1	R2	R3	R4	R5	R6	R7
Instances	30	4	17	101	63	63	20
Percentage	10	1	6	34	21	21	7

Table 5: Instances and Percentages for each reason for delay

Analysis: It is evident from the graph in figure 4 the highest number of incidences where the delay in Turnaround time was due to R4 as 101 instances of delay out of total of 560 captured opportunities occurred because of it .On the second spot there were two reasons we viz. R5 and R6 which were responsible for prolonging the turnaround time followed by R1 which delayed 30 medication order opportunities and then R7 was the cause in 17 instances.R2 was responsible only for a insignificant incidences of delay.

8.3.3. Percentage breakup of the reasons

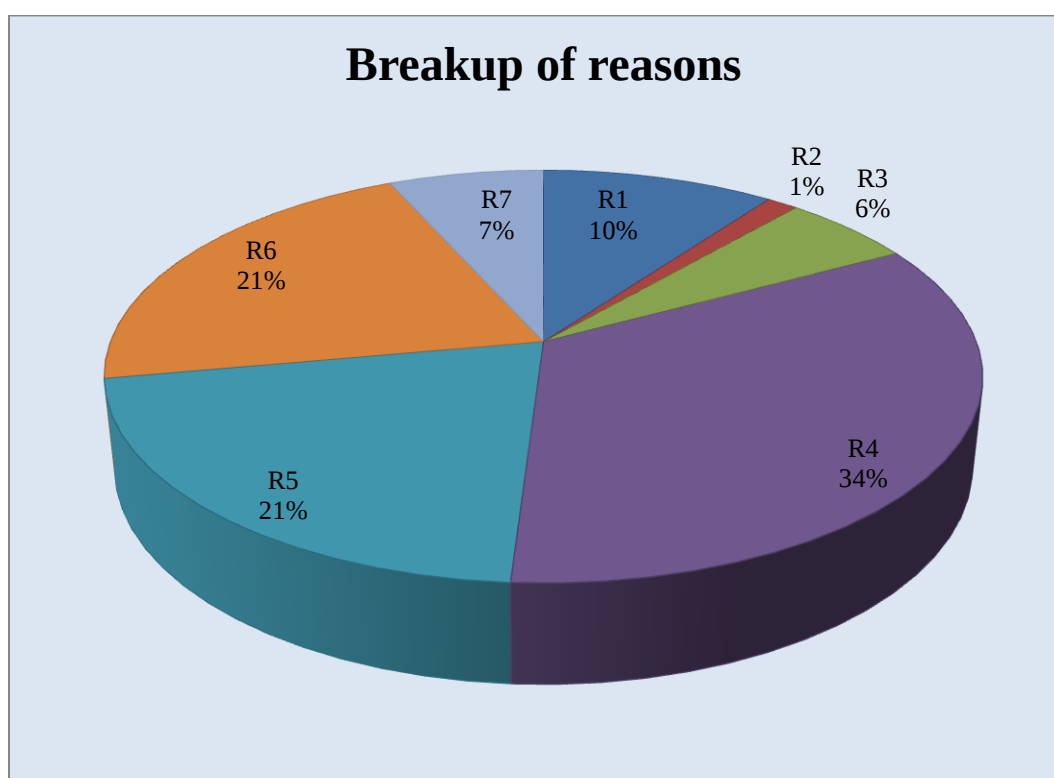


Figure 5: Percentage Breakup of reasons for delay

The framing of the codes of reasons for delay were done diligently. R1 accounted for about 10% of the total reasons for delay where the patient made re order after the first order entry was done. This may not directly but in a way shows the softer skills of pharmacists whether he/she ensures what all they want from the prescription and any other medication apart from

it. R2 accounted for just 2% which is not of much significance. The code R3 was 3% of the total reasons for delay but reflects the shifts pattern and manpower in the Pharmacy department. The Code R4 entails the situations that assess the efficiency of the pharmacist in the process of getting the medicines from the racks, doing the order entry quickly and with minimum error. The figure 5 shows the 34% of the delays were due to R4 which highlights the training needs of the pharmacists. Although R5 also depicts the delay at the dispenser's end but it comprises of unavoidable circumstances. Similarly R6 which caused 21% of the delays represents the efficiency of the cashier and R7 represents the reasons in certain situations which are beyond the control of cashier or are circumstantial but can be overcome to some extent by proper management.

8.4. Time Taken To Honor Prescription

It is the total time taken from the time customer comes to pharmacy and leaves the counter after collecting the medicines and making the payment.

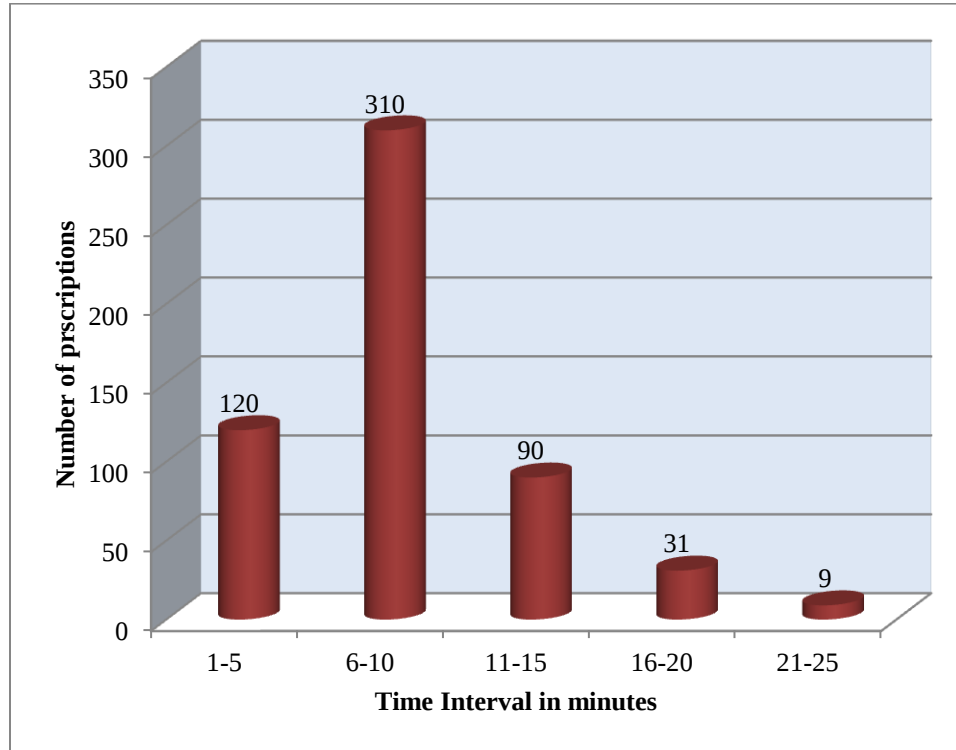


Figure 6: Number of prescriptions honored in specified time interval

Time Interval	1-5	6-10	11-15	16-20	21-25
Number of prescription honored	120	310	90	31	9
Percentage	21	55	16	6	2

Table 6: Number of prescription honored in specified time interval

This graph in figure 6 shows Turnaround time for the customers from the time they come on the counter and leave after making the payment and collecting medicines. 55% of the prescription orders were honored between 6 to 10 minutes. 21% of the prescriptions were honored in 1 to 5 minutes. 16% of the prescription took time between 11 to 15 minutes. And 2% prescriptions were turned around in 21 to 25 minutes.

8.5. Pharmacist's Time

Pharmacist's time is the time elapsed when the customer comes to the pharmacy till the time his/her medication are given to the cashier for the billing .Alternatively it is the time taken by the pharmacist to attend the customer (Response Time)to get medicines from the racks and do the order entry.

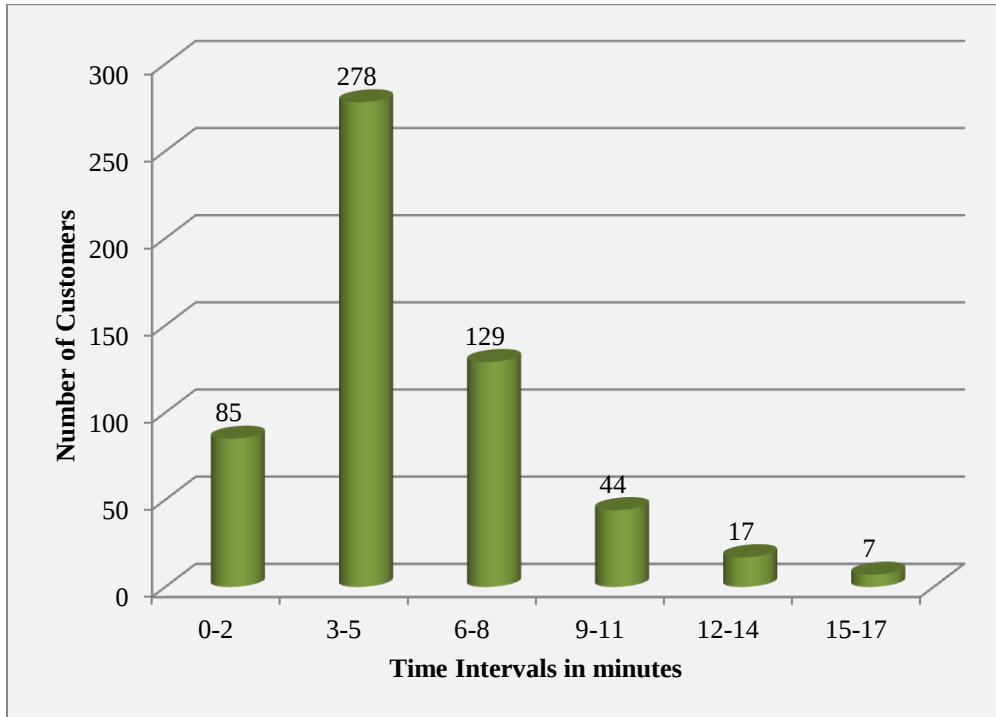


Figure 7: Number of Customers attended by the pharmacist in the specified Time interval

Time Interval	0-2	3-5	6-8	9-11	12-14	15-17
Instances	85	278	129	44	17	7
Percentage	15	50	23	8	3	1

Table 7: Number and percentage of Customers attended by the Pharmacist in the specified time interval

8.6. Cashier's Time

It the time taken by the cashier to free the customers from the billing counter. Alternatively it is the duration between the time when the cashier receives the medicine and the customer leaves the cash counter after making the payment

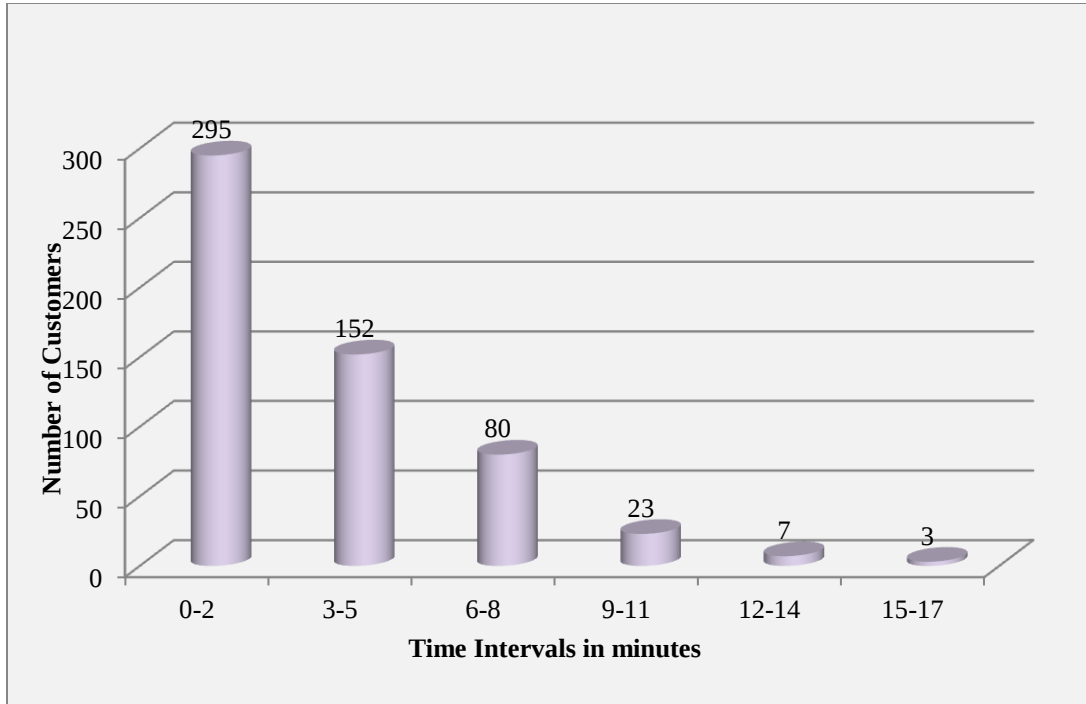


Figure 8: Number of Customers attended by the Cashier in the specified Time interval

Time Interval	0-2	3-5	6-8	9-11	12-14	15-17
Instances	295	152	80	23	7	3
Percentage	52.7	27.1	14.3	4.1	1.3	0.5

Table 8: Number and percentage of Customers attended by the Cahier in the specified Time interval

Analysis: About 52.7% Customers were attended by the Cashier within 2 minutes.27.1% were dealt in within the time interval of 3 to 5 minutes. For 14.3% cashier took 6 to 8 minutes. For small percentage of 1.3 cashier took 12 to 14 minutes and 15 to 17 minutes was taken by the cashier to free 0.5% of the customers.

8.7. Response Time

It is the time taken by the Pharmacist to attend the customer. Hence it can be defined as the duration between the time when the customer comes to the counter and the moment pharmacists enquires about his/her order.

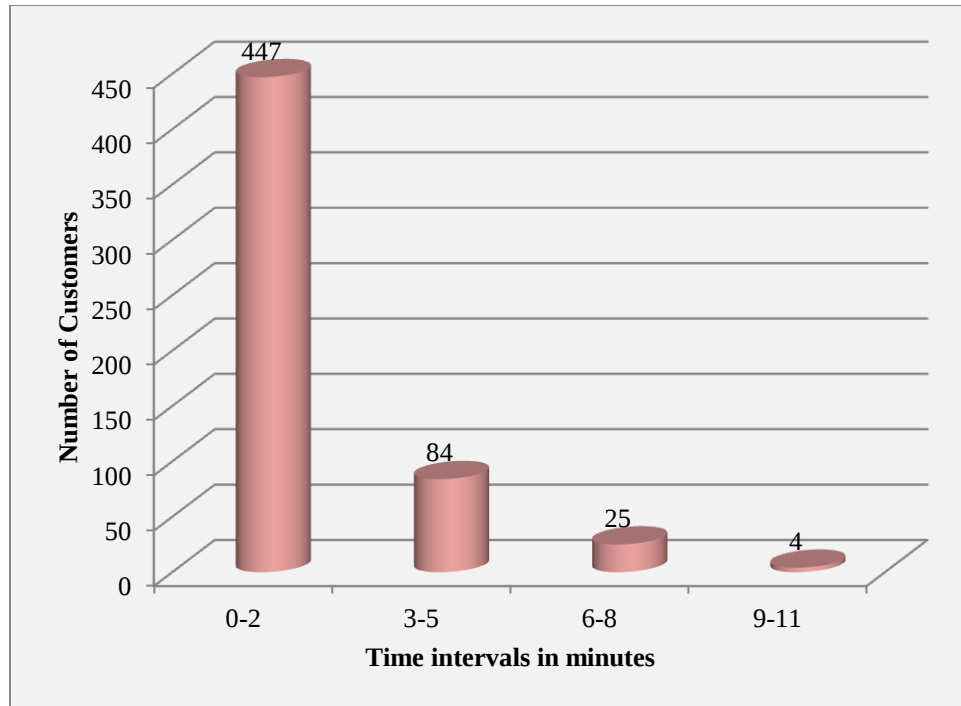


Figure 9: Number of customers attended in a specified Response Time interval

Time Interval	0-2	3-5	6-8	9-11
Instances	447	84	25	4
Percentage	80	15	4	1

Table 9: Percentage and number of customers attended in a specified Response Time interval

Analysis: The Graph in figure 9 shows the response time it is the time duration when the customer comes to the pharmacy counter till the time he is attended by the pharmacist. About 80% of the customers were attended within 2 minutes. 15% customers were responded to in 3 to 5 minutes and 4% customers were attended in 6 to 8 minutes and just 1% were attended in 9 to 11 minutes.

8.4. Customer pharmacist ratio during the peak hours

A graph was plotted with the footfall and the pharmacists available in the peak hour to assess customer per Pharmacist ratio.

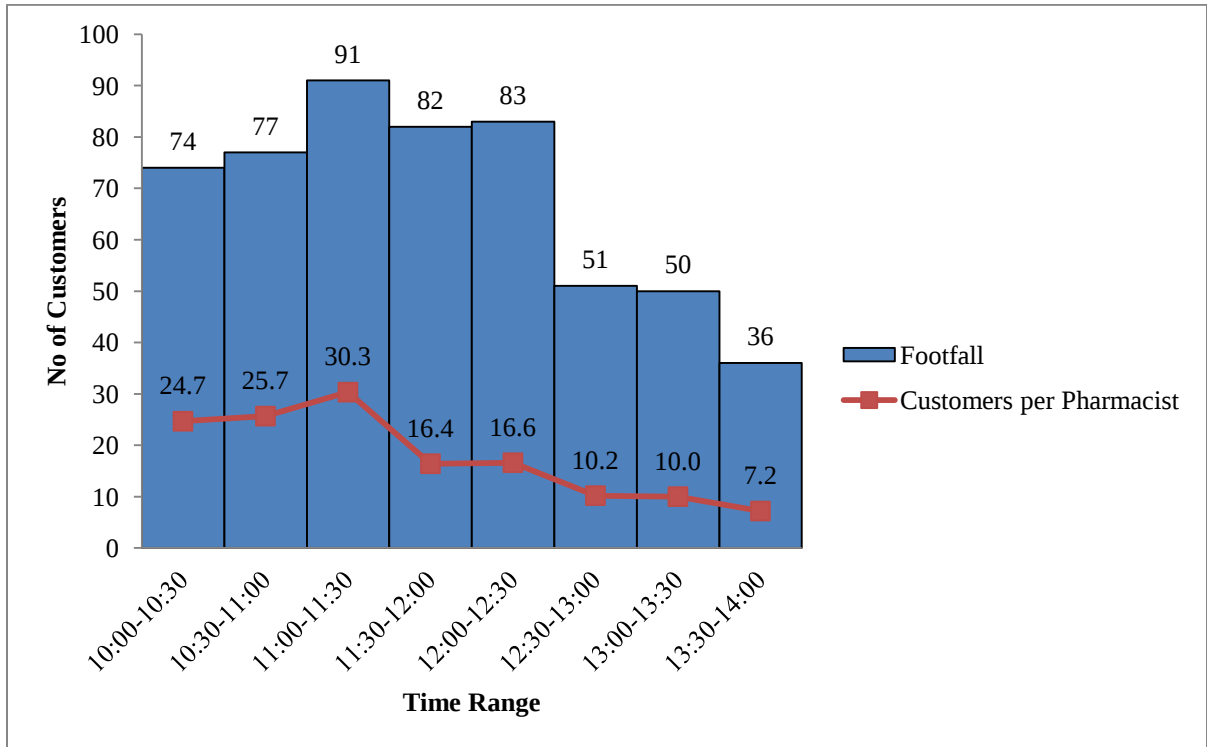


Figure 10: Customer per pharmacist ratio during peak hours

Time Interval	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	12:00-12:30	12:30-13:00	13:00-13:30	13:30-14:00
Footfall	74	77	91	82	83	51	50	36
No. of Pharmacists	3	3	3	5	5	5	5	5
Customers per pharmacist	24.7	25.7	30.3	16.4	16.6	10.2	10.0	7.2

Table 10: Customer per pharmacist ratio during peak hours

Analysis: The graph in figure 10 shows variation in the customer pharmacist ratio. The ratio shows slight variation from 10:00 to 11:00 from 24.7 to 25.7. Then the figure shoots to 30.3 in the time interval of 11:00 to 11:30 which is the highest in the peak hours and may be the cause for delay. From 11:30 to 12:30 the ratio ranges from 16.4 to 16.6. From 12:30 to 13:30 the ratio changes from 10.2 to 10.0. And in the interval between 13:30 to 14:00 the ratio is 7.2. As the time interval 11:00 – 11:30 shows the highest ratio which means there was less number of pharmacist available to attend the increasing customer load. A graph between the time interval and instances of delay was plotted to establish the relation between the two.

9. Conclusion and Suggestions

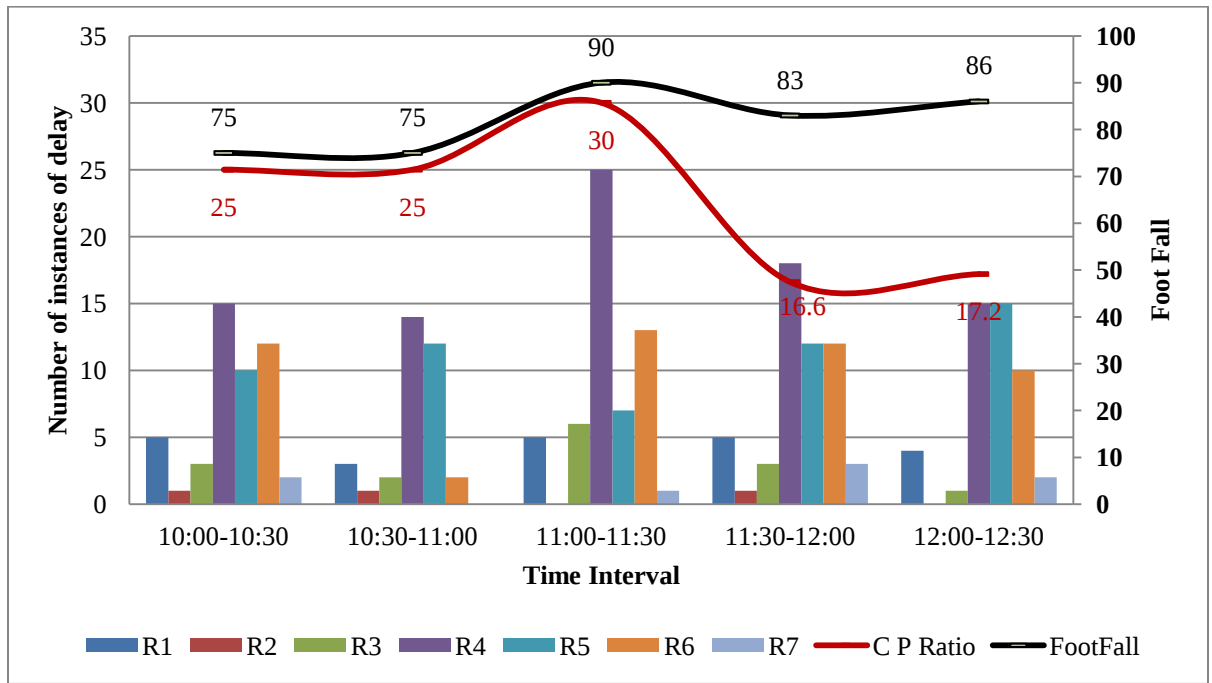


Figure 11: Relationship of reasons for delay with Customer per Pharmacist ratio and footfall

Reason	R1	R2	R3	R4	R5	R6	R7	Total	C P Ratio	FootFall
10:00-10:30	5	1	3	15	10	12	2	48	25	75
10:30-11:00	3	1	2	14	12	2	0	34	25	75
11:00-11:30	5	0	6	25	7	13	1	57	30	90
11:30-12:00	5	1	3	18	12	12	3	54	16.6	83
12:00-12:30	4	0	1	15	15	10	2	47	17.2	86

Table 11: Showing Instances per reason in specified time interval with Customer per pharmacist ratio & footfall

During the interval between 10:30 to 11:00 when Footfall is less, CP ratio is also low and there is significant difference between R4 (delay at pharmacist's end) and R6 (delay at cashier's end) and the instances of delay are low. But in the interval between 11:00 to 11:30 when footfall increases and CP ratio also increases as a result the instances of R4 delays also increases but at the same time there is shooting of instances of R6 increases. This can be attributed to the explanation that actually during this phase as the waiting times increases and queuing occurs pharmacists who are busy in the other work of the department come to tackle the rush of customers unknowingly they start taking prescription randomly instead of first come first serve basis and start bringing the medicines from the racks quickly in order to lighten the work load. This creates a back log of prescription where order entries or the payments are yet to be taken. This finding can be corroborated by the graph in figure 11. So due to this practice even one more pharmacist does no good rather there is dissatisfaction in the customers not only because of delay but due to dispensing of medicines out of turn and delay at cash counter.

1. To overcome this problem pharmacist's task should be divided at least for the peak hours one pharmacist should do the order entries and explain the prescription to the patient and other one should get the medicines from the racks this will avoid bottleneck at the cashier's end.
2. For the delays occurring between 11:00 to 11:30 due R4 the timings of general shift should be made from 11:00 AM. This will ensure availability of one more pharmacist before the rush hours and will reduce the delays.
3. The pharmacist who comes in the shift from 11:00 AM to 8:00 PM should be experienced and skilled has that person has to deal with two peak hours.
4. Pharmacist should be instructed to ensure the desired medication (strength and dosage) and any other item that customer needs before leaving to get the medicines from inside. This will avoid re order delays (R1) which accounted for 10% of the delays.
5. Pharmacist should ask the patients to be in queue and if the queue is long acknowledge the customers standing and ask for time and attend them turn wise.
6. Cashier can be more efficient and there seems to be scope for improvement in their soft skills as well.

7. The printer for the cashier which is used for print out of the cash receipts can be placed on the left side of the cashier. This will serve two purpose firstly there will be ample space for pharmacist to keep the medicines which are to billed and they would not get mixed and will be in order they should be billed. Secondly it will become convenient for the cashier also. Patient will enter the counter from right side and leave from the left side after collecting payment details.
8. The counter in Pharmacy department serves three purposes viz. dispensing of medicines, dispatching prescriptions and cash counter for payment. But almost every person who comes to the counter needs to be directed where to go for desired services because the signage is not at level which is easily visible. This small change can make a difference.
9. One pharmacist should always be there at the counter calling pharmacist from inside does not cast a good impression on the customers. Moreover to have the print out of the prescription at pharmacy is good idea but the underlying motive fails when the Customers are not attended properly.
10. There are very few instances of medication error but if the Pharmacist can be more efficient and slight changes are made this will smoothen the process of dispensing and will reduce the customer dissatisfaction which is becoming a cause for concern in the department.

10. *Limitations*

1. Only morning peak hours were considered for the study.
2. The time was taken in minutes for more accuracy time could be recorded up to seconds also.

A study on utilization of operation
theatre and reasons for delay in
planned surgeries

11. Introduction

OT is situated on the ground floor near Emergency. There are four Operation theatres. OT IV is slightly smaller in size and usually used for infected and emergency cases. Rest are almost of the same size and are not specialized for a particular procedure. There are 2 pre-operative beds and 4 post operative beds.

11.1. Staffing

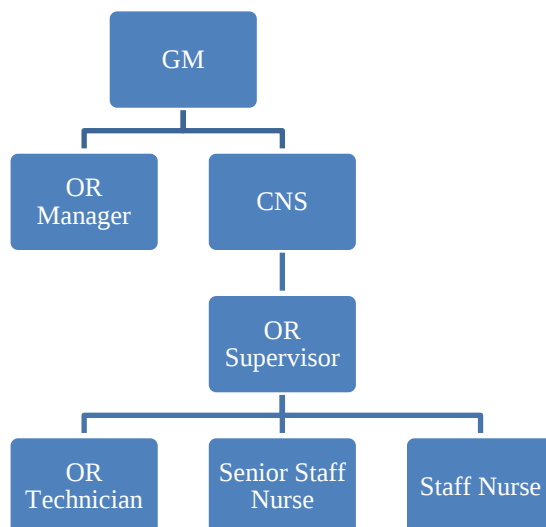
Technician	6
Nurses	13

Table 12: Staff details of OT

Shifts	Timings
Morning	0730 hours-1430hours
Evening	1430hours-1930hours
General	0800hours-1700hours
Night	0730hours-0730hours

Table 13: Shift Pattern

11.2. Organogram



11.3. Department Processes

Pre-anesthetic check up	Usually done by the anesthetist in the wards and in special situations may be done during handover at the OT. At this time patients relatives will be briefed, availability of blood and blood products will be confirmed and written consent will be obtained from the patient
Pre-operative care	After admission to the OT the patient will be held in pre-operative holding area. The surgeon will visit the patient and complete the pre-operative holding area for more than 1 hour before surgery.
Surgical procedure	Surgeries are performed various specialties
Post operative care	Once the surgery is done the patient is held in the recovery for observation and discharge from recovery room is based on specific criteria
Resuscitation	In the event of code blue in OT every attempt will be made to resuscitate the patient if after 5 minutes there are no signs of improvement then the patient is shifted to ICU, resuscitation will not cease during the transfer to ICU.

Table 14:Processes in OT

11.4. *Scheduling of Surgical Procedures*

Operation theatre can function 24 hours, But routine timing are 8AM to 8PM from Monday to Saturday.

- Elective cases should be scheduled well in advance if there are any questions about the surgical procedure time, the person scheduling the procedure shall verify the time with the surgeon .In case of cancellation or changes in the schedule the surgeon must notify OT manager or OT supervisor as early as possible .OT Manager/Supervisor shall be responsible for verifying scheduling and making OT list.
 - In the events of elective surgeries requiring to be performed apart from these hours and on Sunday. The nurse receiving such posting shall intimate the OR Manager and anesthetist
 - Emergency procedures shall take precedence over all selective procedures. The Surgeon with an emergency situation shall notify the OR Manager and emergency will be accommodated in the 1st available room. Any question regarding the urgency of the procedure will be referred to the Surgeon involved. In case of disagreement the anesthetist will be notified to assist the decision.
 - Unscheduled cases shall not be given priority over scheduled cases unless emergent
 - Contaminated /Infected patients shall be scheduled last or in a dedicated OR if available
 - The scheduling personnel are responsible to schedule cases as accurately as they can be taking into consideration time, personnel and equipment requirement. Every effort should be made to accommodate surgeons request, if possible
- a) Protocol for scheduling of operating case
- i. An emergency list will be on first come first serve basis depending on the degree of urgency operating surgeon or designee shall be responsible for posting cases.
 - ii. First theatre shall only be opened when a life saving procedure is to be performed.

b) Local Cases

- i. Local cases will be booked under individual consultant time slot.
- ii. Added cases will be done on a 1st come 1st serve basis, depending on the availability of the operating room time.

11.5. *Infection Control Surveillance*

1. Done By ICN.
2. Reports shall be available with ICN and OR manager.
3. Positive report is informed to HOD and measures shall be taken to close the OR, disinfect and repeat culture.
4. Fogging shall be done weekly and after infective surgeries.
5. Records shall be maintained for surveillance and fogging.

11.6. Indicators Quality

Following are the quality indicators of the OT

Indicator	Definition	Measures	Affects
Modification of anesthesia plan	Percentage of total anesthesia cases when final anesthesia given to the patient varied from the initial documented anesthesia plan	Accuracy of assessment Quality of anesthesia care	Mortality And Morbidity
Unplanned ventilation during anesthesia	Percentage of total anesthesia cases where unplanned ventilation was carried out when the patient was under anesthesia	Accuracy of assessment Quality of anesthesia care	Mortality And Morbidity
Adverse anesthesia events	Percentage of total anesthesia cases where anesthesia related adverse events occurred	Quality of anesthesia care	Mortality And Morbidity
Anesthesia related mortality	Percentage of total anesthesia cases where any anesthesia related adverse events occurred	Quality of anesthesia care	Mortality And Morbidity

Surgical Site Infection	Number of cases of surgical site infection as a percentage of all the invasive procedures	Infection Control Practices	Mortality And Morbidity
Re-exploration	Number of surgical exploration as a percentage of all the invasive procedures	Quality of surgical care	Mortality And Morbidity
Accidental removal of tubes and catheter	Number of accidental removal tubes and catheter	Patient safety practices	Mortality And Morbidity
Incidence of hematoma at puncture site	Number of hematoma at the puncture site	Quality of phlebotomy practices	Mortality And Morbidity
Percentage of rescheduling of procedures	Number of surgical cases rescheduled as a percentage of all the invasive procedures	Accuracy of patient assessment and efficiency of OR functioning	Mortality And Morbidity

Table 16: Quality Indicators of OT

11.7. *Guidelines for cleaning and maintaining the OR*

1. HbsAg and HIV test are done as a routine test for all the surgical cases.
2. Universal precautions are followed for all surgical cases.
3. Infected cases are scheduled after all clean cases.
4. Activities are restricted according to the zoning criteria of the OT suite.
5. Change the external clothing and foot wear and wear caps, mask and OT footwear.
6. Restrict the visitors to the OT.
7. Maintain strict aseptic techniques in OT.
8. Use disposable linen and drapes.
9. Ensure routine cleaning procedure.
10. Spilling of blood and body fluids on floor are managed as per infection control policy.
11. Microbial surveillance of OT swabs is periodically done to monitor the bacterial load.
12. The air culture is done regularly as a routine procedure
13. The ideal temperature of 22-24 degree Celsius and humidity of 55% and positive pressure is to be maintained.
14. Ensure at least 15 air changes per hour out of which 3 should be of fresh air.
15. HEPA filters shall be cleaned and validated as per vendor specification and records maintained.
16. Restrict the entry of staff suffering from cold and cough in OT.
17. Randomly check the nasal and hand swabs of surgeons and nurse in OT.
18. Vaccinate all the staff against hepatitis B as a prophylactic measures.
19. Daily cleaning
 - a. OT is cleaned thoroughly daily before taking the first case.
 - b. OT is cleaned at least 35-45 minutes before taking 1st case.
 - c. The OT floor is 1st mopped with water and detergent and then an effective aerosol disinfectant is used.
 - d. All floor equipments OT table, OT light and walls are mopped with wet cloth then with an effective disinfectant.

- e. Do not use OT mop for mopping the supportive areas.
- f. Cleanse the mop after use and dry them.
- g. Randomly send the samples from OT mops for microbial surveillance.
- h. Change the mop as and when required.
- i. Housekeeping procedure include cleaning / disposal of soiled linen and soiled waste .These procedures are performed by housekeeping personnel assigned to the OT department.
- j. Adequate time must be allowed between surgical procedures for the proper cleaning and disinfection of OR.
- k. Damp dust all the flat surfaces and overhead lights every morning prior to the first surgical procedure. Use approved (bacillocid) germicide dampened disposable wipes .All wall mounted equipment, wires, boxes, etc are cleaned with a detergent germicide solution and disposable wipes.
- l. Cabinet door and handles are cleaned .entire floor space is mopped with detergent germicide
- m. Scrub sinks, faucets, soap dispensers and surrounding walls are cleaned.
- n. Spraying approved detergent germicide solution onto the surfaces and wiping it off with dry disposable wipes and clean all flat surfaces.
- o. The cleaning sequence is from the periphery of the room to the centre of the room.
- p. Kick buckets are cleaned as necessary rolling the wheels over the floor.
- q. Anesthesia disposable suction container is removed, if used discarded and replaced.
- r. Trash, linen and instrument, which have been previously sealed in plastic bags surgical services department personnel are placed on dirty cart and removed to the soiled utility room for transport to central services. Suction container are sealed and sent out for disposable.

- s. The floor is cleaned with approved detergent germicide and a clean mop .Ensure that all the floor area is cleaned.
- t. Trash is placed in plastic bags, sealed and sent to central waste room.
- u. At the end of each procedure , all instrument are rinsed, checked and sent to CSSD in a tray with standard checklist.
- v. A suction container is cleaned and disinfected as per protocol and kept ready for the next prescription.
- w. Instruments and other reusable shall be sent to CSSD for sterilization.

20. Between operations.

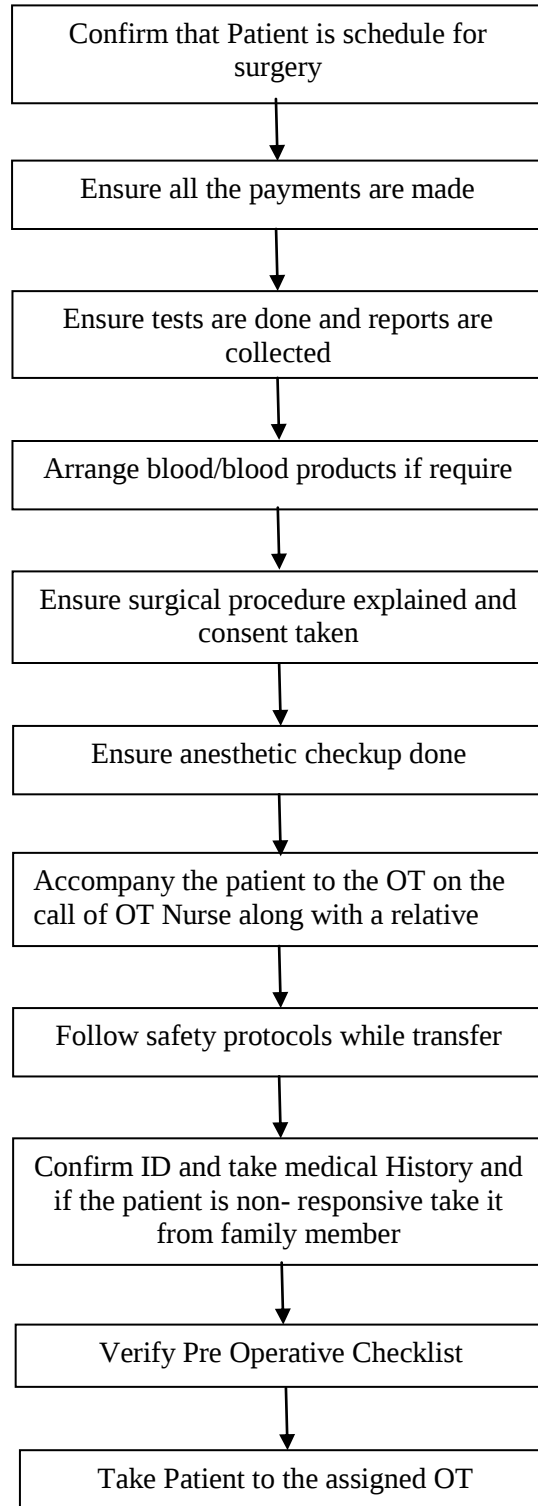
- a. Between 2 operations thorough cleaning has to be done.
- b. Dispose of the waste and soiled linen as per hospital infection control policy.
- c. The OT floor and wall is wiped with the hospital approved disinfectant.
- d. The OT tables an OT lights are disinfected with hospital approved disinfectant.
- e. The monitors, wires, cables and cautary is cleaned, disinfected and replaced.
- f. Furniture, operating lights, suction catheters and other equipments used, are wiped with a detergent germicide.
- g. Mattresses are wiped and bed is remade
- h. Patient transport vehicles are wiped.
- i. 3-4 feet area of the floor around the table should be clean

21. At the end of the day.

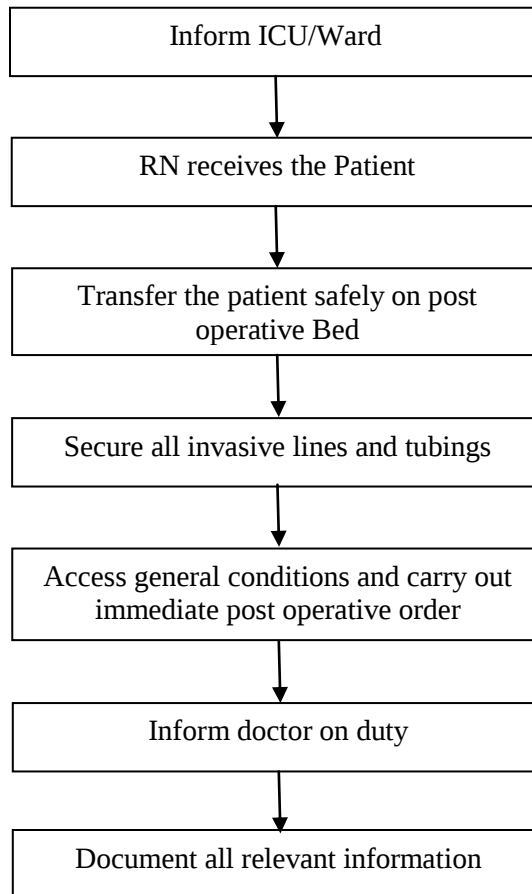
- a. Before closing the OT for the day, the OT is mopped with detergent solution and then with a disinfectant.
- b. All the equipments are wiped with hospital approved disinfectant.
- c. All equipments are checked for functioning.
- d. Disconnect suction lines and gas pipelines.
- e. Wipe the equipment with hospital approved disinfectant.

- f. All the areas including corners, Air Conditioner grills, false ceilings, air filters and laminar filters are vacuum cleaned.
- g. The OT is washed with hospital approved detergent solution and then by a disinfectant on week days and public holidays.
- h. Avoid dry dusting and sweeping as this procedure disperse the dust particles in the air which become carriers for microorganisms.
- i. Wash all doors and windows with hospital approved detergent.
- j. Air samples are taken twice a month.
- k. Adequate record of culture and air sampling are maintained and reviewed regularly.

11.8. *Transfers from wards to OR*



11.9. *Transfers from OR to Wards*



12. *Review of Literature*

The management of operation theatre is a challenging task. This becomes more important with the changing healthcare sector with increased patient care complexity. Balancing the needs to satisfy surgeons, support staff, and meet the patient high expectations would require clinical and cost effectiveness and require critical and close monitoring of business management inside the operating theatre to ensure efficient resource supply, guarantee quality safe care provided and maintain fiscal sustainability (1). Cancellation and delays of surgical procedure are not uncommon occurrences throughout the world. There have been many reports to show that, this results in wastage of operation room time, prolong the duration of hospitalization of patients and cause in convenience to patients and their families (2). Also, this leads to additional expenses for the hospital as well as the patients. Postponed surgical operations result in an increased degree of emotional trauma and pain in patients assigned to have orthopedic surgical interventions (3). The delays and the postponement specifically lower the morale among the staff, patients and relatives and may reflect a decreased productivity in their workplaces. Therefore, a systematic and critical analysis of operation theatre utilization is essential in every setting (2). Most of the causes of delay are preventable. Better infrastructural facilities, enhanced interdepartmental communication and improved attitude to work would reduce the rate and thus enhance utilization of theatre space (4). In a study where data on all patients scheduled to have elective and emergency surgeries during the period of 6 weeks from were prospectively collected to determine scheduled starting times, actual starting times, completion times, causes for delays and cancellations. Of 840 procedures scheduled during the study period, 594 (71%) were available for analysis. Eighty-nine per cent of cancellations occurred in patients undergoing elective surgery. The common causes of cancellations were non-availability of beds in recovery room (RR) (15%), patients not showing up (9%), improper pre-operative patient preparation (13%), unavailability of nurses (11%) and anesthetists (8%). Twenty-three per cent of the cancellations were day cases. Public patients were cancelled more frequently than private patients. Surgical procedures started on time in only 7% of patients. The most common cause of delay was due to delayed transport of patients to the operating theatre (17%) (2). The most of the causes of delay can be tackled with efficient management thereby improving the efficiency of operation theatres. OTs when managed

properly can maximize the profits and lead to satisfaction in staff and patients by providing efficient and safe healthcare services. For optimum utilization of OT the operation theatre should not be reserved rigidly for a use by a particular department. The operation theatre should further be similar in character to make it easy for all surgeons and nurse to use them without the necessity of familiarizing themselves every time with new set of conditions (5). The scheduling in OT is also equally important it should be done in way that ensures proper and judicious utilization of time of surgeons, anesthetists and the infected patients should be taken in the last so that they do not contaminate the OT.

13. Rationale

Operation theatre is a resource intensive department. The resources vary from highly skilled doctors, nurses, technicians to expensive infrastructure, equipments and ever advancing technology. This makes surgical suite an area that is earmarked to reduce expenses and increase efficiency. After the first phase of the study where the findings reveal underutilization of the operation theatres a prospective study was initiated to identify whether the underutilization was just due to less number of surgical cases coming to the hospital or there are other reasons for it.

14. Objectives

- To calculate OT utilization of all four operation theatres
- To assess the contributing effect of each reason, for delay in the elective surgeries
- To evaluate the process of scheduling of unplanned surgeries

15. Methodology

The study was of Quantitative type with descriptive research design and was conducted in two phases. For calculating the utilization of OT retrospective data was taken for three months that is January to March 2013. For this phase a sample size of 486 surgery duration was taken. The sampling method was Non probability sampling and sampling type was convenient sampling. Then for the second phase of the study a prospective study was carried out from the 15th April to 31st May, 2013. The data was collected from the hospital information system and by interaction with nursing staff and OT supervisor. In this case the sampling method was Non probability sampling and sampling type was convenient sampling. The sample size here was 217 planned surgeries. The data obtained was analyzed with the help of Microsoft excel.

16. Data Analysis and Interpretation

16.1. Utilization of Operation Theatres

For calculating OT utilization sum of duration of all the surgeries that took place during the months of January, February and March was calculated as in table 17

	Number of surgeries done			Total Surgery Time(in minutes)		
OT	JAN	FEB	MAR	Jan	Feb	Mar
I	56	48	55	3995	4014	4405
II	63	57	82	6239	5345	6670
III	31	29	25	5078	4000	2995
IV	14	12	14	618	435	790
Total	164	146	176	15930	13794	14860

Table 17: Total number and duration of surgeries

Further from total available time which was computed by multiplying number of working days and shift hours the cleaning time was subtracting(which was 30 minutes after every surgery) to get the Total OT time available for surgeries.

	Cleaning Time(in minutes)			Total time available for surgery		
OT	Jan	Feb	Mar	Jan	Feb	Mar
I	1680	1440	1650	22320	20160	22320
II	1890	1710	2460	22320	20160	22320
III	930	870	750	22320	20160	22320
IV	420	360	420	22320	20160	22320

Table 18: Cleaning time and Total time for surgery

Further OT utilization for all the four OTs was calculated by the formula given below

$$OT\ Utilization = \frac{Total\ Duration\ of\ surgery}{Total\ Time\ available} * 100$$

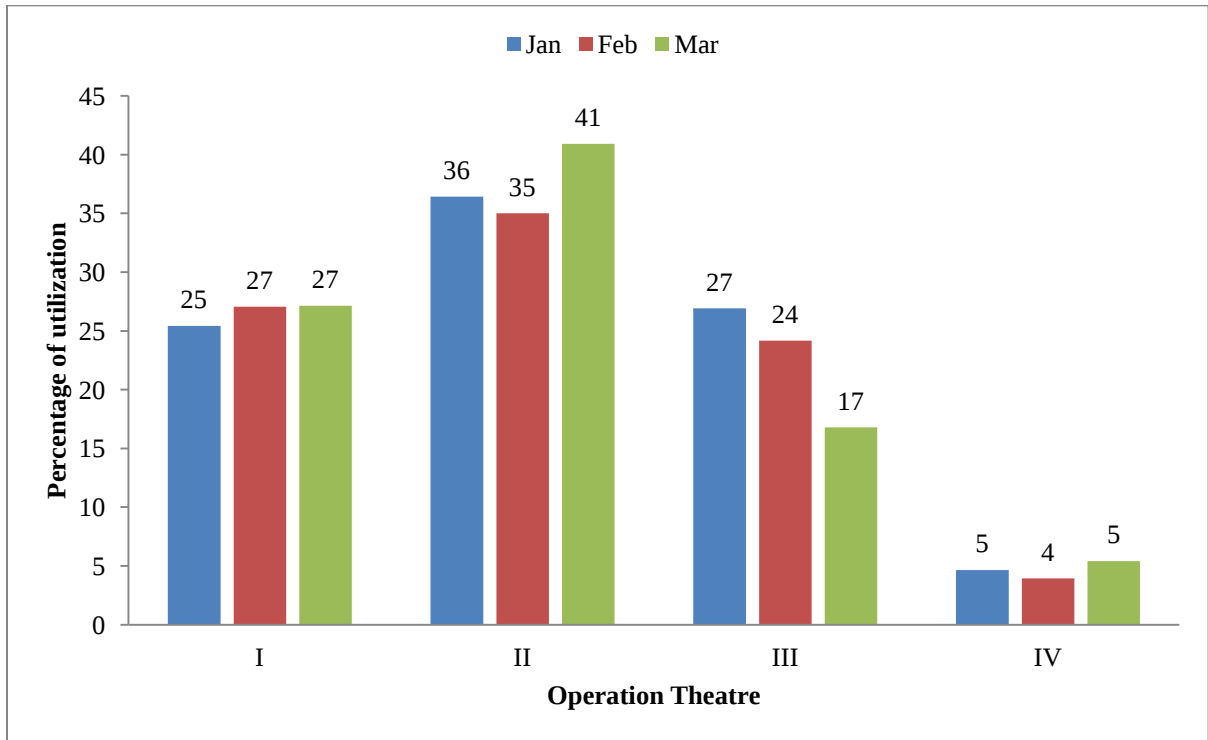


Figure 12: Percentage utilization of OT I, II, III&IV

OT II was utilized to the maximum then OT I and followed by OT III. The lowest Utilization was of OT IV as it was usually used for infectious cases.

16.2. Breakup of Planned and Unplanned Surgeries

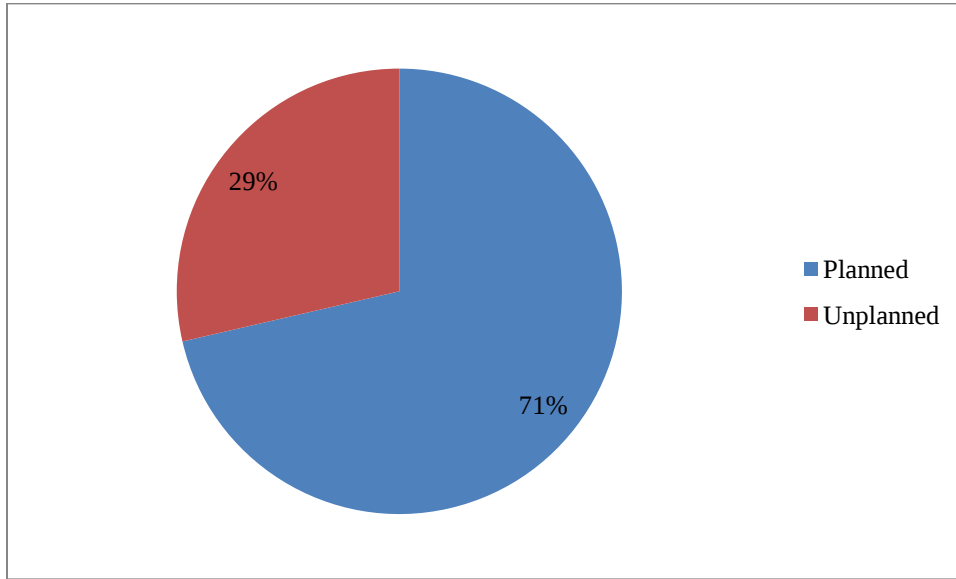


Table 15:Percentage of Planned and Unplanned surgeries

Surgery type	Elective	Emergency
No. of surgeries	217	87
Percentage	71	29

Table 19: Number and Percentage of Planned and unplanned surgeries

71 percent of the surgeries were planned and 29 percent were emergent or unplanned. On an average daily 2 emergency cases was there. Planned surgeries were those which were scheduled in advance and accordingly doctor, anesthetist and staff are informed beforehand.

16.3. Scheduling of Surgeries

To assess the efficiency process of scheduling the number of elective surgeries in which the Actual time of the surgery was less than, equal to and more than scheduled time were determined.

	Actual duration >Scheduled duration	Actual duration <Scheduled duration	Scheduled duration = Actual duration
Number of surgeries	120	79	18
Percentage	55	37	8

Table 20: Percentage and number of cases with actual duration less than, equal to and more than scheduled duration

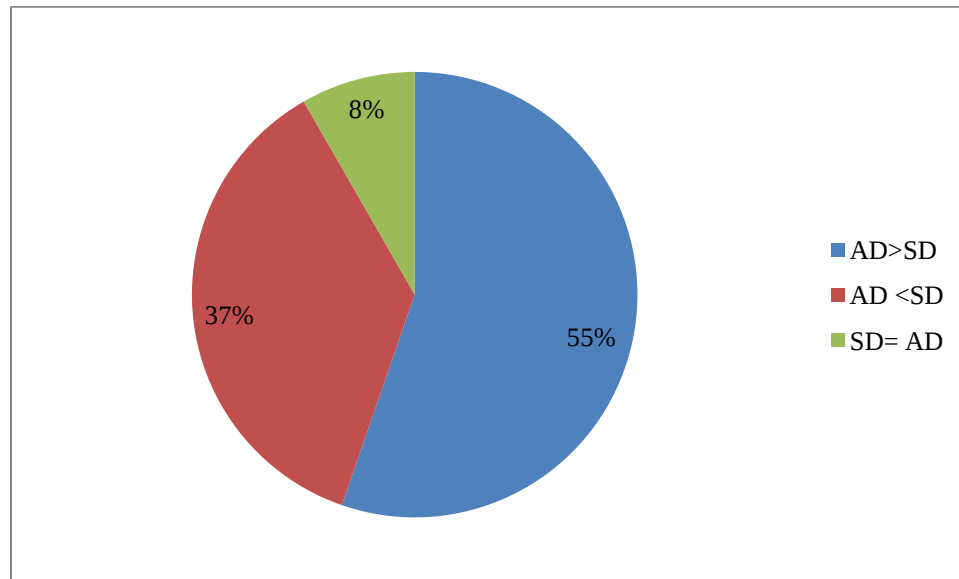


Figure 14: Percentage of cases with Actual duration equal to, less than and more than scheduled duration

The graph in figure 14 shows that only 8% of the total planned surgeries were performed in the scheduled time and in 37% of the total elective surgeries Actual time was more than the scheduled time. For the maximum number of cases that is 55% the Actual duration was more than the duration scheduled.

16.3.1. Variation in the scheduling Duration

The table 21 shows the variation in the Actual duration of surgeries and scheduled duration of surgeries for the different time ranges.

Time difference	$x \leq -45$	$-30 > x > -45$	$-15 > x > -30$	$0 > x > -15$	$x = 0$	$x < 15$	$15 < x < 30$	$30 < x < 45$	$45 < x < 60$	$x > 60$
No. of elective Surgeries	23	17	20	19	18	30	17	14	17	42
Percentage	11	8	9	9	8	14	8	6	8	19

Table 21: Percentage and Number of elective surgeries and time intervals for variation of difference in Actual and scheduled duration

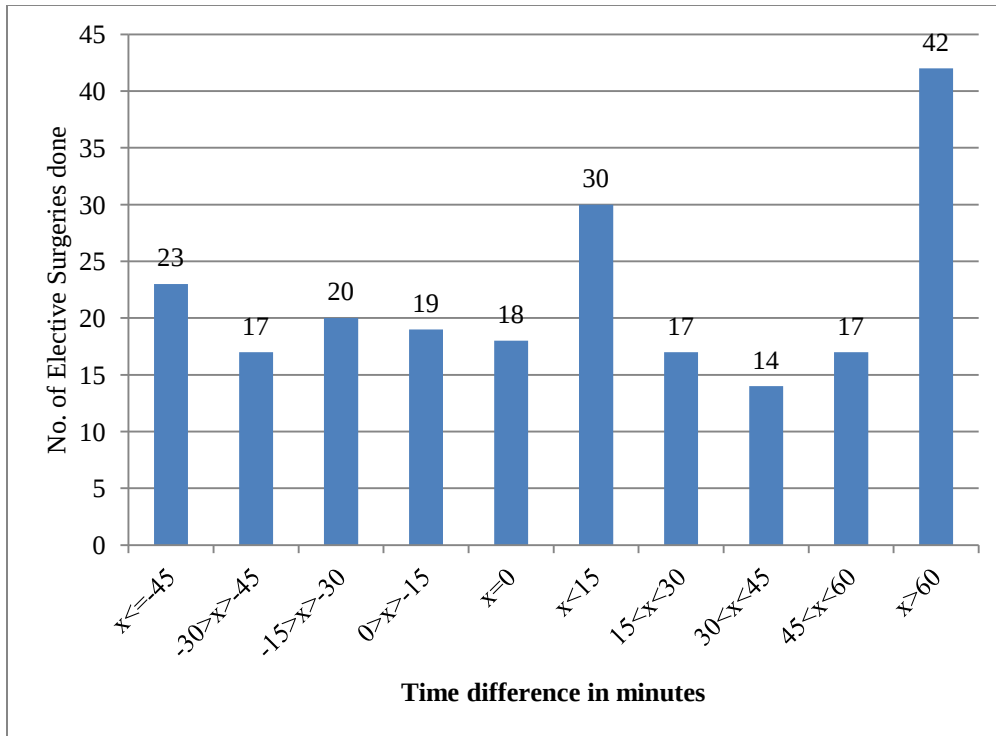


Figure 15: Number of elective surgeries and time intervals of difference in Actual and scheduled duration

The bars on the left of $x=0$ (where x is difference in Actual and scheduled duration of elective surgeries elective) shows the difference in minutes when actual time was less than the planned duration of surgery. Whereas on right side of the graph indicates the number of surgeries when the Actual duration was more than the planned duration with about maximum number of cases that is 19% of the procedures the difference between the Actual duration and planned duration was more than 60 minutes. This greatly reflects improper estimation of duration of surgeries and indicates scope of improvement in the process of scheduling the duration of surgeries.

16.3.2. Utilization of scheduled time

To assess utilization of scheduled duration of surgeries two indicator were formulated. First of all “A” was calculated which is that duration of actual surgery time which overlapped with the scheduled duration of the surgery. For this purpose both before time and after time surgeries were considered.

$$\text{Indicator 1} = \left(\frac{A}{S} \right) * 100$$

S is the total scheduled duration of surgery. But from the graph in figures 3, it is evident that in 92% of the cases the scheduled duration were either Overscheduled or Under scheduled. So, in this case to have a better understanding another indicator can be used which is as follows.

$$\text{Indicator 2} = \left(\frac{A}{AD} \right) * 100$$

AD in this case is the Actual duration of the Surgery. The ratio of A and AD is better indicator of the utilization of the scheduled time.

Indicator 1= (A/S)*100	Indicator 2= (A/AD)*100
10996	10996
21050	27101
52.2	40.6

Table 22: Utilization of scheduled time

As the above table shows that the utilization of scheduled time was 52.2% when Scheduled duration was taken and it came out to be 40.6% when Actual duration of surgery was taken.

16.4. Delay in Planned Surgeries

This was estimated by comparing the Actual start time with scheduled start time.

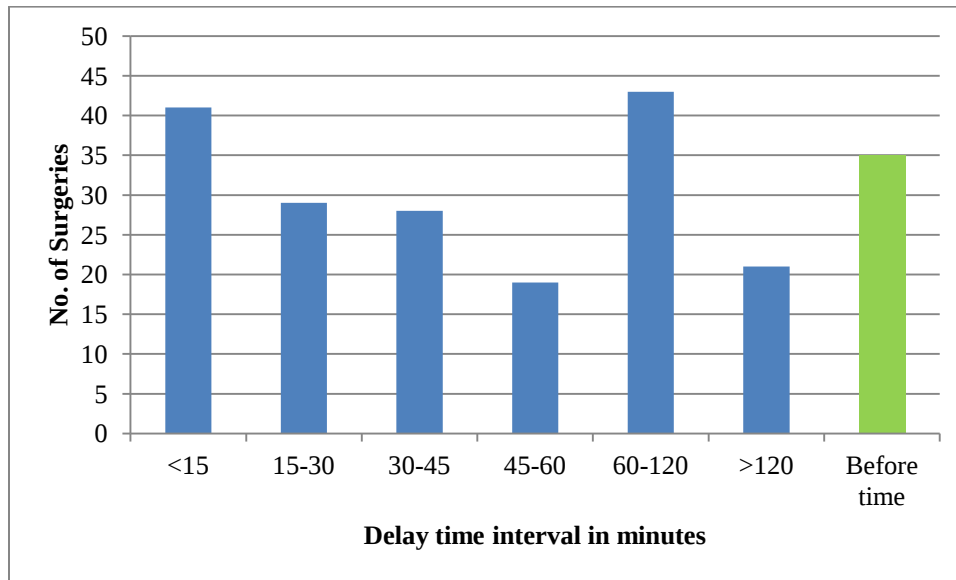


Figure 16: Number of surgeries and time interval for the difference in Actual and scheduled start time

Delay time interval	0-15	15-30	30-45	45-60	60-120	>120	Before time
No. of Surgeries	41	29	28	19	43	21	35
Percentage	19	13	13	9	20	10	16

Table 23: Number and Percentage of elective surgeries and time interval for difference in Actual and scheduled start time

As shown in the graph in figure 16, 19% of the surgeries were delay for less than 15 minutes, 13% were delayed for 15-30 minutes, and another 13% were late for about 30-45 minutes. About 9% were late for about 45-60 minutes. And 20% were delay for 1 to 2 hours and 10% started at time which is more than 2 hours delay. About 16% of the total surgeries started before time.

16.4.1. Reasons for delay in the elective Surgeries

Reason Split	Count	Reason Category	Count
Surgeon busy	7	HR	25
Surgeon busy (Case)	3		
Surgeon busy (OPD)	3		
Surgeon came Late	7		
Anesthetic was on another Surgery	4		
Some training for OT staff	1		
OT not available	3	Infrastructure/Instrument	25
C-ARM was not available	1		
Delay in getting Instrument	2		
Delay in getting Lens	1		
Delay in getting tube	1		
Delay in Vendor's instrument	1		
LAP. Tower used in other Case	8		
SET required was to be sterilized	1		
TOWER used in other Case	5		
USG machine used in other Case	2		
Admission Late	16	Patient	17
TPA amount was less	1		
Clearance delay	26	Process Delay	37
Delay in NPO status	2		
Investigation Report pending	6		
Late Shifting (FFP ARRANGE)	1		
Platelet count less	1		
Waiting for Pediatric Consultation	1		

Table 164: Various Reasons for delay of elective Surgeries

The various reasons shown in table 24 were put into broad categories to get the overall picture of reasons of delay in the elective surgeries.

Following is the percentage breakup of Reason categories.

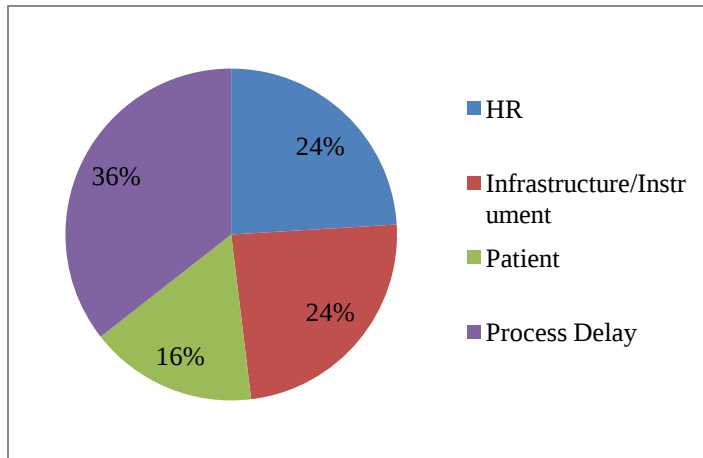


Figure 17: Percentage Break up of Reasons

As evident pie diagram in figure17, 36% delays can be attributed delay in the process. And for 24% of delays surgeon or anesthetist were responsible. Another 24% were due to infrastructure and instruments 24% of the delay were on the patients part where on the patient's part.

17. Conclusion and Suggestions

1. The study shows the utilization of the OT complex is much below its capacity.
The management, doctors and OT personnel can jointly make a strategic plans to increase the number of cases in order to utilize the OT optimally. This can be done by
 - Opening new surgical facility like organ transplant
 - Consider Re-evaluating the pricing policy
 - Increasing the number of outpatients by redefining the marketing strategies
 - Making doctors more efficient to win the confidence of the patients
2. Constant monitoring of the utilization of OT and cost effective analysis can be of great help to increase the utilization as due to over scheduling, apparently the utilization does not seems to be an issue for concern which otherwise is.
3. Data should be exported from the Operation Theatre system rather than someone writing it manually to excel sheet, as this increases the chances of errors and also makes the data difficult to analyze.
4. On an average 162 Surgeries are done per month still there are significant amount of process delays this is indicative of gross mismanagement. This can be overcome by coordination and monitoring.
5. Indicator1 and Indicator 2(Table 22) which indicates utilization of the scheduled time can be improved by judicious and efficient scheduling process. All concerned people should participate or informed about the OT schedules and should be coordinated by OT head to overcome the overlapping needs of equipments etc.
6. Effective communication with patients can avert situations like late admission and NPO status issues. Alternatively if feasible for early morning surgeries patient can be admitted in the evening of the preceding day. This will also reduce the delays due clinical reasons and wrong assessment.
7. Better pre-operative counseling can prevent the situations of clearance delay for cash payments.
8. Pre-authorization in TPA patients should be initiated well in time so as to avoid delays.

A study on Attrition in various
departments. Level of job
satisfaction for nursing personnel
and forecasting attrition trend for the
current year

18. INTRODUCTION

Nurses play a very important role in health care sector. Helping patients and dealing with medical emergencies can be very stressful. They are always in the frontline and acts as an interface between the patient and the service provider. There is a considerable amount of health hazard from disease, infection and radiation. A nurse along with other health care professionals is responsible for the treatment, safety, and recovery of acutely or chronically ill or injured people, health maintenance of the healthy, and treatment of life- threatening emergencies in a wide range of health care settings. Nurses may also be involved in medical and nursing research and perform a wide range of non-clinical functions necessary to deliver health care. Thus, studying job satisfaction among nurses is important because it is necessary to distinguish between positive and negative aspects of job satisfaction. Herzberg (1959) stated that (positive) satisfaction is due to good experiences, and that these are due to 'motivators' i.e. achievement, recognition, the work itself, responsibility and advancement. Dissatisfaction is due to bad experiences caused by 'hygiene' factors i.e. supervisors, fellow workers, company policy, working conditions and personal life (1). Organization comprises of people, it is their satisfaction which can make or mars the performance of an organization. Employee satisfaction is important in determining how far an organization achieves its goals. Job satisfaction leads to life satisfaction. Job satisfaction is generally regarded as an employee's attitude toward the job and work environment (1).

19. *Rationale*

In Columbia Asia there is frequent change in staff due to high attrition rate, especially in the nursing staff. A lot of time, effort and resources are consumed in training the new nurses. Moreover Staff attrition (or turnover) and absenteeism represent significant cost to the organization.

20. Objectives

- General Objective :

To study the attrition rate among nurses at Columbia Asia Hospital, Gurgaon.

- Specific Objectives :

1. To analyze the reasons for exits of the nurses.
2. To estimate expected attrition in coming one year for nursing staff.
3. To assess the level of Job satisfaction of nursing personnel
4. To suggest improvement needed to increase job satisfaction
5. To forecast attrition rate in different departments for the financial year 2013-2014.

21. Methodology

The study was of descriptive type. For calculation of attrition rate previous year's data was taken. Exit interviews were analysed to find out the reasons for quitting the job. For assessing the level of job satisfaction primary data was obtained by direct communication with the respondents through a structured questionnaire. The sample size in this case was 80 and the sampling technique used was convenient sampling. The questionnaire contained both open ended as well as close ended questions and questions on various dimensions of job satisfaction were there. All possible efforts were made to make the nurses feel at ease and respond to the various questions with full concentration and honesty. The purpose of the study was explained to the respondents. On the condition of complete anonymity and confidentiality efforts were made to get genuine responses. Forecasting of attrition rate was done to predict the hiring trend for the current year for this purpose secondary data was used, the attrition pattern of last three year were studied. The data was analyzed with help of Microsoft excel

22. Data Analysis and interpretation

22.1. Attrition in nurses from April 2012-March2013

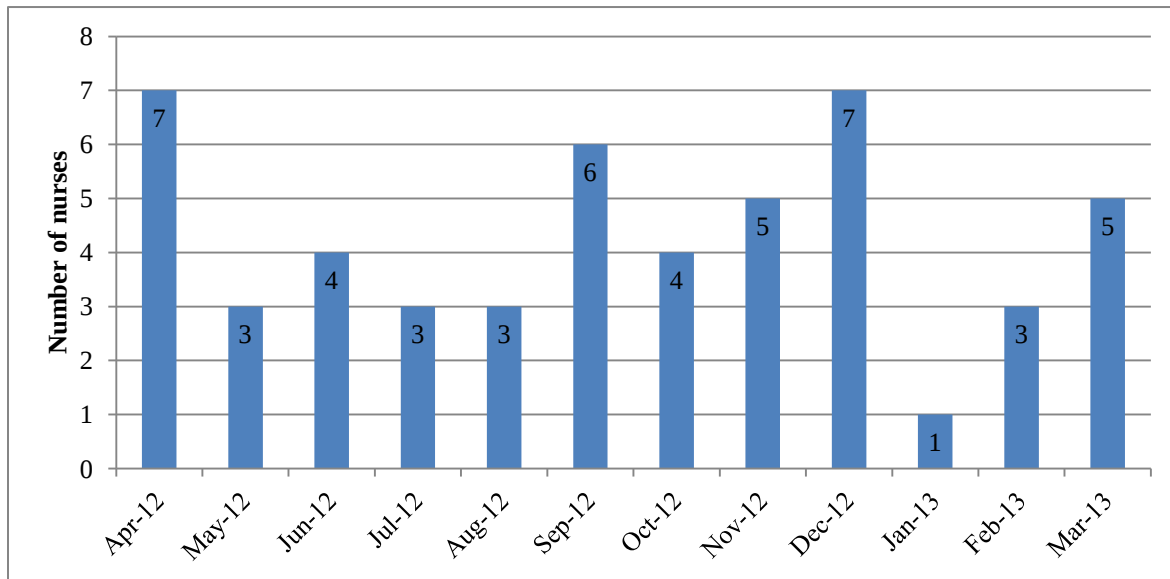


Figure18: Attrition in nursing staff from April 2012- March 2013

The graph in figure 18 gives the number of nurses who left in the last 12 months. Total 51 nurses left the organization in year 2012-2013. The number was highest in the month of April and December. On an average 4 nurses left their jobs every month.

22.2. *Reasons for attrition in nursing staff*

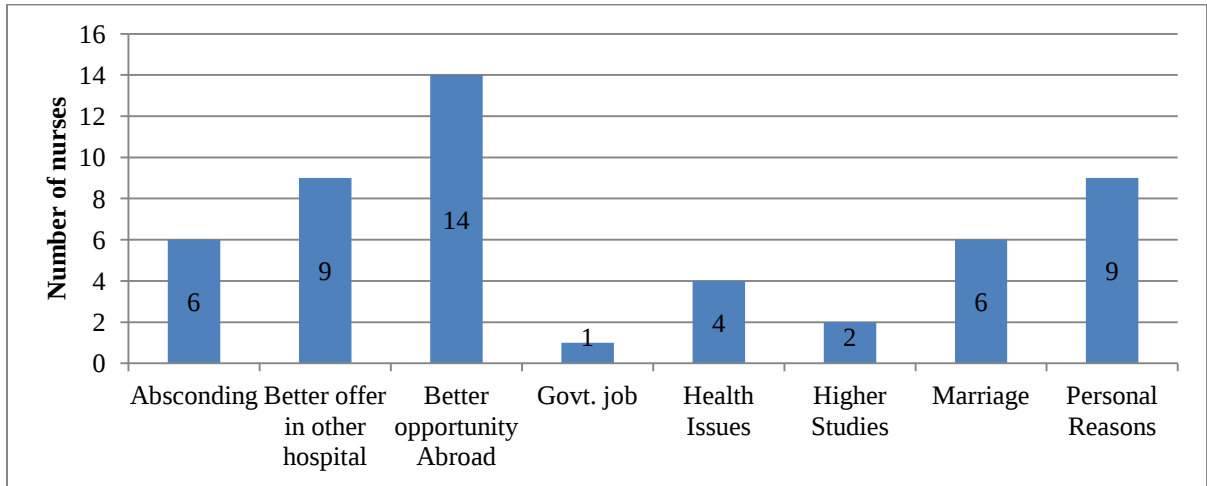


Figure 19: Reason for attrition in nursing staff

Various reasons were cited for leaving the job. About 45% who left the organization got better opportunities in India or abroad. 18% of the nurses who left made personal reasons responsible for their leaving. Another 12% stated marriage as a reason. Those who preferred government job and pursued higher studies were 2% and 4% respectively. For 8% health concern became the reason for quitting. And nearly 12% were absconding.

22.3. *Expected attrition in next 1 year:*

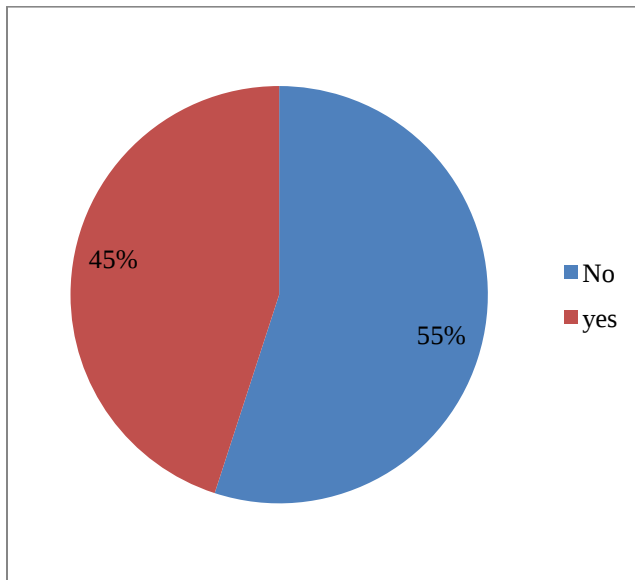


Figure 20: Expected Attrition in next one year

The Pie diagram in figure 20 gives an estimation of the nurses who will be leaving the organization. Out of the total number of nurses being questioned, approximately 45% of them have plans to leave in the coming one year. This data will be useful for management to be prepared for the expected attrition and maintain the buffer well in advance.

22.4. *Job satisfaction among nurses*

Employee satisfaction is important in determining how far an organization achieves its goals. Job satisfaction is generally regarded as an employee's attitude toward the job and job situation. Job dissatisfaction leads to absenteeism, labor turnover and negative publicity of the organization. The present set up in hospitals depicts that a massive work load with the greater deal of responsibilities are vested on the working nurses in their day to day activities. The role played by the working nurses is so significant in maintaining the basic purpose of the hospitals that the question of their satisfaction from their job can never be ignored. Thus, studying job satisfaction among nurses is important because it is necessary to distinguish

between positive and negative aspects of job satisfaction. For this part of the study questionnaire was used for collecting the data.

22.4.2. Level of satisfaction with salaries

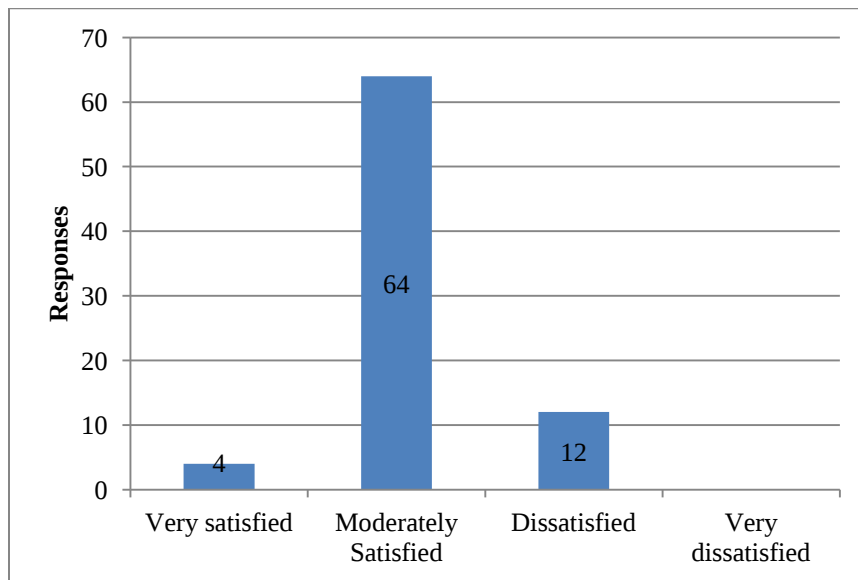


Figure 21: Level of satisfaction of nurses with the salaries

Out of 80 nurses who filled the questionnaire 4 were very satisfied, 64 were moderately satisfied and 12 were dissatisfied.

22.4.2. Level of satisfaction with quantum of work

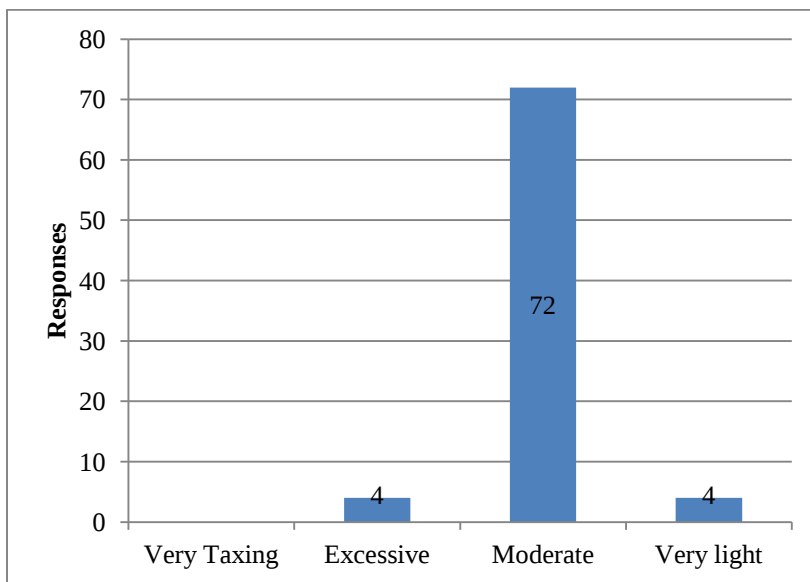


Figure 22: Satisfaction level of nurses with work load

The graph in figure 22 shows that 4 nurses found the load of work to be excessive on other hand other 4 felt that the quantum of work was very light, whereas 72 found the work to be moderate

22.4.3. Level of satisfaction with working hours

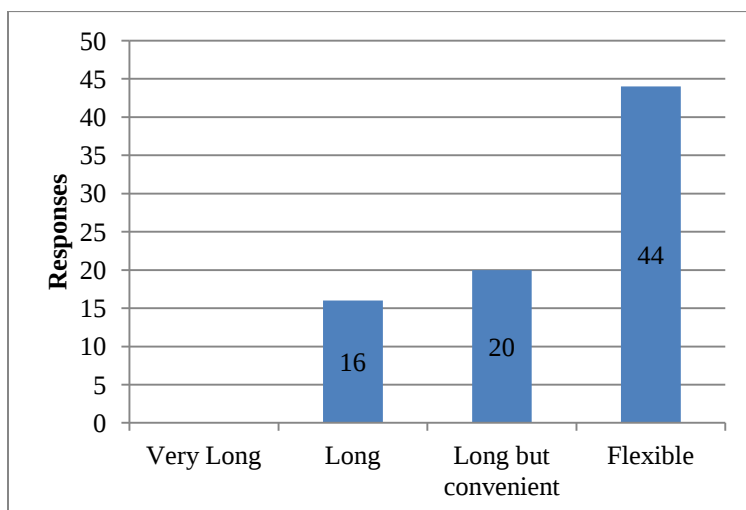


Figure: 23: Level of satisfaction with working hours

16 nurses had the view that the working hours are long, 20 were with opinion that the working hours are long but convenient .Whereas 44 nurses found the working hours to be flexible.

22.4.4. Work done out of job responsibilities

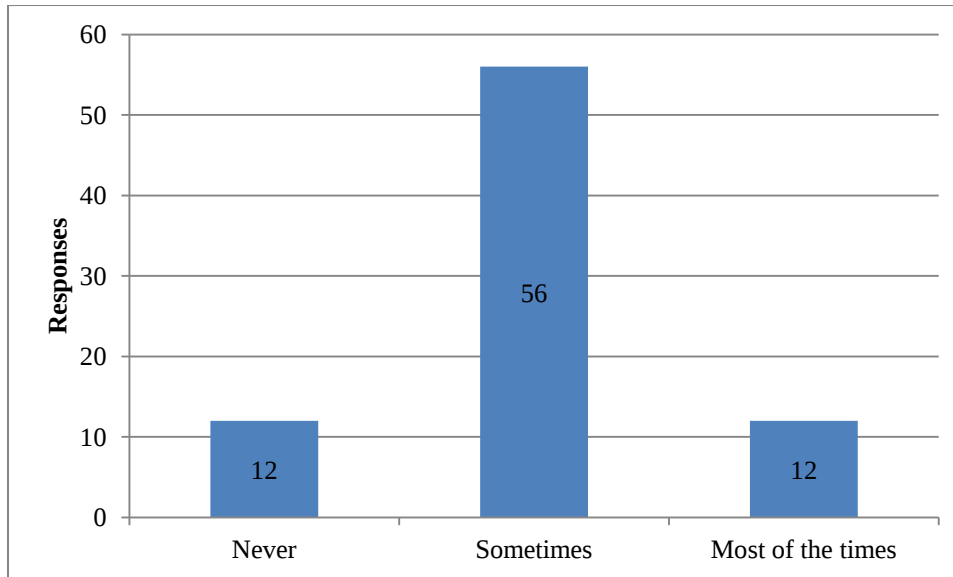


Figure 24: Work done out of job responsibilities

12 out of total nurses being questioned said they never had to do work that is out of their job responsibility. 56 nurses said that they sometimes had to do work that was out of their job responsibility. 12 nurses said that most of the times they had to do the work that was out of their job responsibility.

22.4.5.Appreciation for work

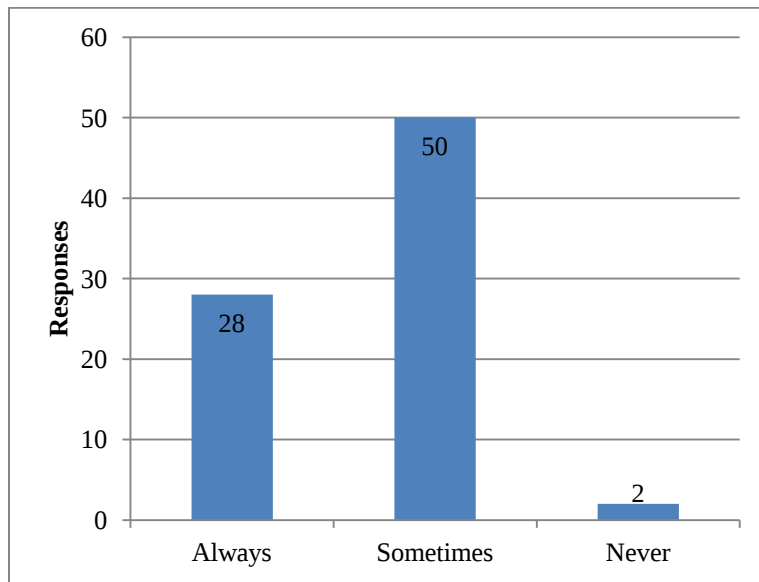


Figure 25: Appreciation for work

28 nurses felt that they were always appreciated for work, 50 felt they were sometimes appreciated for their and only 2 said they were never appreciated for their work.

22.4.6. Support from other departments

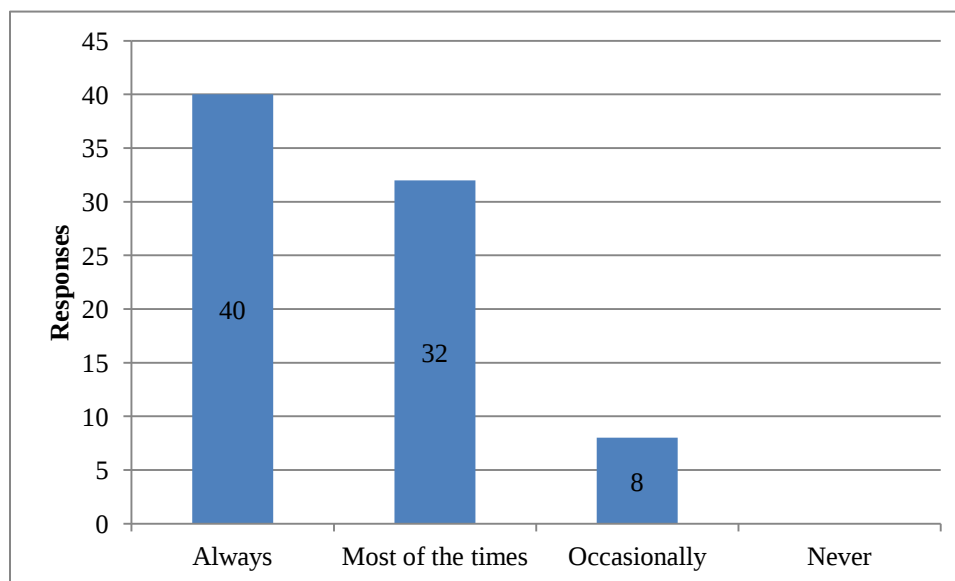


Figure 26: Support from other departments

The graph in figure 26 shows that 40 nurses out the sample of 80 feels that they always gets support from other department where 32 said that they get support most of the times and 8 were with opinion that they occasionally get support from other department.

22.4.7. Job role and responsibility as expected

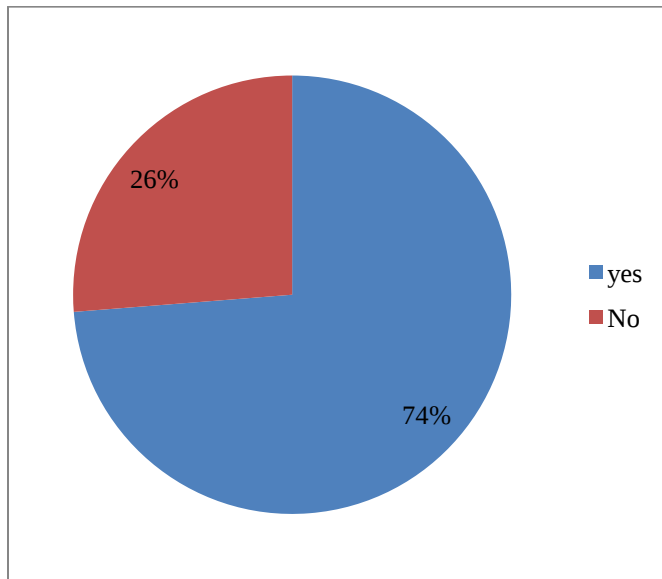


Figure 27: Percentage of responses where job role turned as expected by them

For 74% of nurses the job role turned as expected and for 26% of nurses those who were questioned 26% felt that job role was not as expected.

22.4.8. Availability of growth opportunities

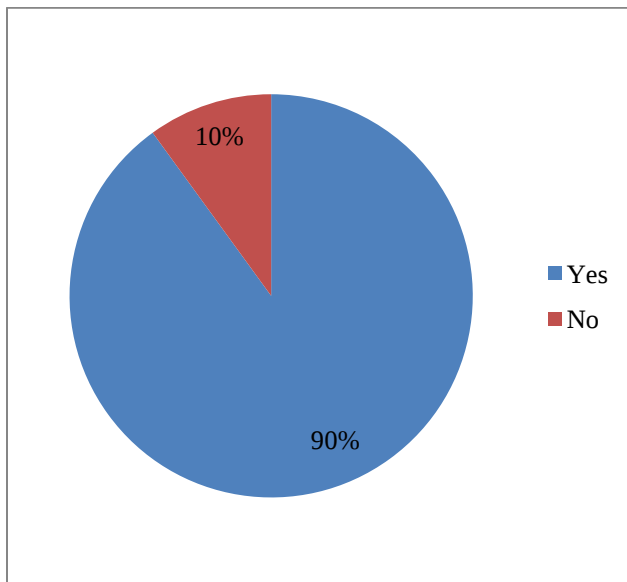


Figure 28: Percentage of respondents and availability of growth opportunities

90% of the respondents felt that there was availability of growth opportunities and 10% felt there was no availability of growth opportunity.

22.4.9. Level of satisfaction with facilities provided

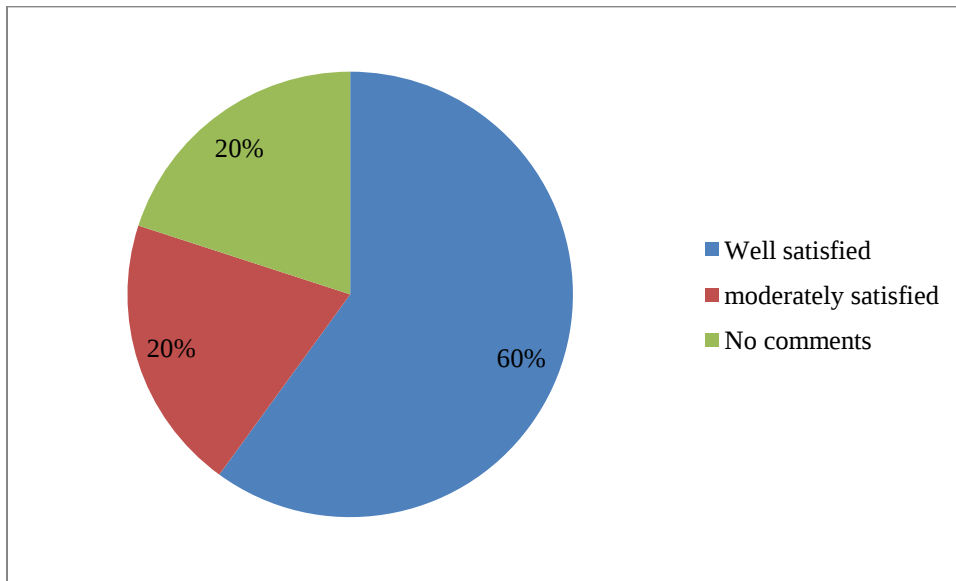


Figure 29: Level of satisfaction with facilities provided and percentage of responses

20% of those nurses who were questioned were moderately satisfied and another 20% gave no comments. And 60% were well satisfied with facilities provided by the organization.

22.5 *Forecasting Attrition trends for various departments*

For this part of the study, first of all the attrition rate of previous three years were calculated for various departments where attrition forecasting was to be done. Attrition rate was calculated by using the average of headcount at the beginning and the end of the year. From the data of previous three years (April 2010-March 2011, April 2011 to March 2012 and April 2012 to March 2013) quarterly trend was also studied. After calculating the average attrition rate of the three years the head count of end of the year (March 2012 to April 2013) was multiplied by the ratio obtained from quarterly pattern and then quarterly forecast was made.

22.5.1. Quarterly trends for various departments of three years

	Nursing			
Year	Q1	Q2	Q3	Q4
2010		9	8	11
2011	6	12	19	21
2012	27	14	13	15
2013	9			
Total	42	35	40	47
Trend	0.26	0.21	0.24	0.29

Table 25: Quarterly trend for nursing department

	Customer care			
Year	Q1	Q2	Q3	Q4
2010		4	1	4
2011	1	2	6	2
2012	2	2	4	7
2013	3			
Total	6	8	11	13
Trend	0.16	0.21	0.29	0.34

Table 26: Quarterly trend for Customer Care department

	Finance			
Year	Q1	Q2	Q3	Q4
2010		0	2	4
2011	3	1	2	4
2012	4	5	1	2
2013	4			
Total	11	6	5	10
Trend	0.34	0.19	0.16	0.31

Table 27: Quarterly trend for Finance department

	Pharmacy			
Year	Q1	Q2	Q3	Q4
2010		1	3	3
2011	0	3	2	1
2012	1	1	2	2
2013	1			
Total	2	5	7	6
Trend	0.1	0.25	0.35	0.3

Table 28: Quarterly trend for Pharmacy department

	Laboratory			
Year	Q1	Q2	Q3	Q4
2010		1	0	1
2011	4	0	0	0
2012	0	1	1	1
2013	3			
Total	7	2	1	2
Trend	0.58	0.17	0.08	0.17

Table 29: quarterly trend for Laboratory

	Radiology			
Year	Q1	Q2	Q3	Q4
2010		1	0	3
2011	0	1	2	2
2012	2	1	3	2
2013	0			
Total	2	3	5	7
Trend	0.12	0.18	0.29	0.41

Table 30: Quarterly trend for Radiology department

	Physiotherapy			
Year	Q1	Q2	Q3	Q4
2010		1	0	1
2011	0	0	0	0
2012	1	1	0	0
2013	0			
Total	1	2	0	1
Trend	0.25	0.5	0	0.25

Table 31: Quarterly trend for Physiotherapy department

22.5.2. Average Attrition Rate and turnover forecast for various departments

The calculation of predicted attrition of various departments is shown in the tables and forecasted quarterly turnover trends are presented in the graphs.

1. Nursing Department

						Turnover r Apr2013- Mar2014	Projected Turnover		
Year	Head Count(Starting)	Exits	Additions	Head Count(Ending)	Using Average head count start&end	Using Average turnover rate	Ratio	Quarters	forecast
Apr2010- Mar2011	101	34	76	143	27.87	62	0.26	Apr-Jun, 2013	16
Apr2011- Mar2012	143	79	63	127	58.52		0.21	Jul-Sep,2013	13
Apr2012- Mar2013	127	51	74	150	36.82		0.24	Oct-Dec,2013	15
							0.29	Jan-Mar,2014	18

Table 32: Attrition rate and quarterly prediction of pharmacy department

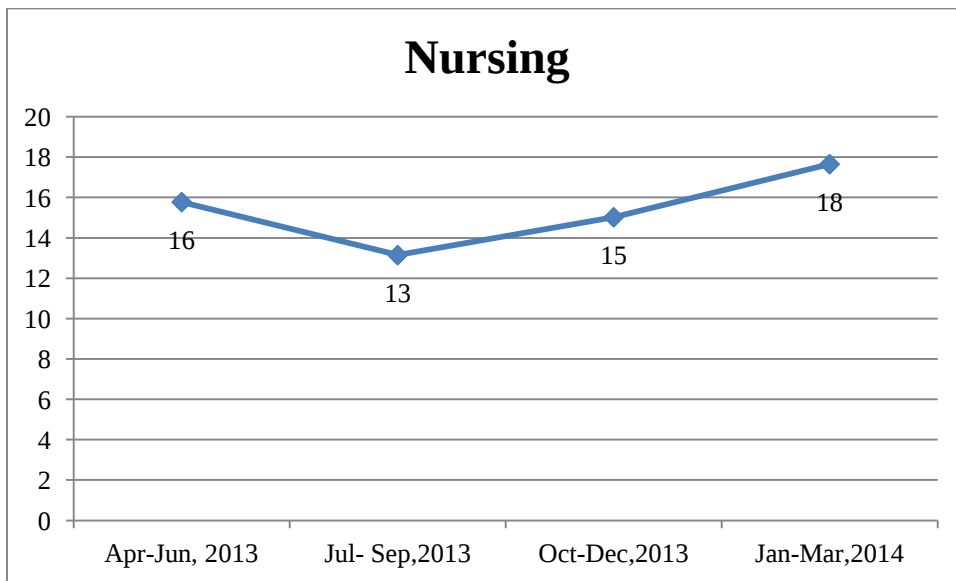


Figure 30: Quarterly Forecast of Turnover for nursing department

For first quarter the turnover came out to be 16 then decreased to 13 in the second quarter and increased to 15 in the third quarter and further increased to 18 in the last quarter.

2. Customer care

						Turnover r apr2013- Mar2014	Projected Turnover		
Year	Head Count(Starting)	Exits	Additions	Head Count (Ending)	Using Average head count start& end	Using Average turnover rate	Ratio	Quarters	forecast
Apr2010-Mar2011	15	10	15	20	57.14	13	0.16	Apr-Jun, 2013	2
Apr2011-Mar2012	20	12	14	22	57.14		0.21	Jul- Sep,2013	3
Apr2012-Mar2013	22	16	14	20	76.19		0.29	Oct-Dec,2013	4
							0.34	Jan-Mar,2014	4

Table 33: Attrition rate and quarterly forecast of Customer care department

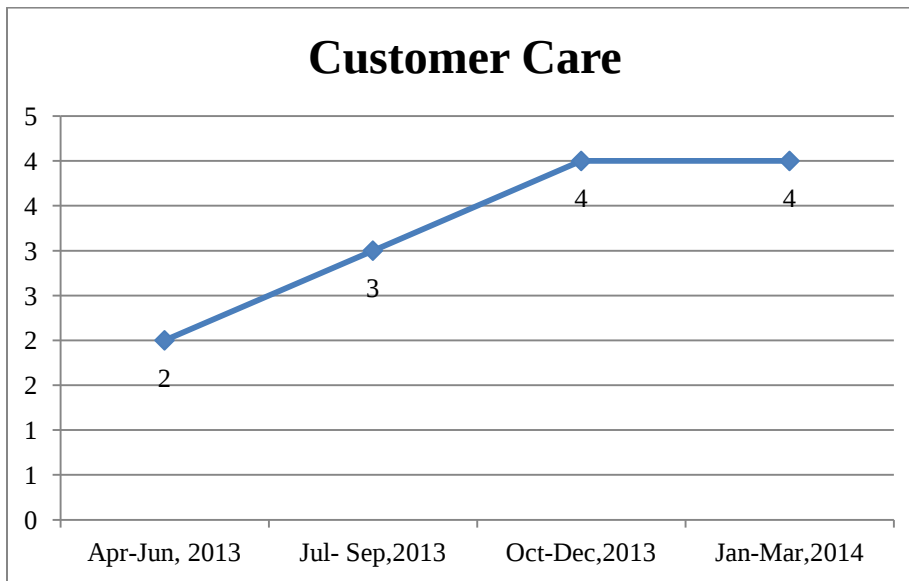


Figure: 31 Forecasted quarterly turnover trend for customer Care department

The predicted turnover in customer care department in the first quarter was 2, for next it was 3 and remained four for last two quarters

3. Finance department

						Turnover Apr2013- Mar2014	Projected Turnover		
Year	Head Count (Starting)	Exits	Add itions	Head Count (Ending)	Using Average head count (start&end)	Using Average turnover rate	ratio	Quarters	forecast
Apr2010- Mar2011	23	9	10	24	38.30	12	0.34	Apr-Jun, 2013	4
Apr2011- Mar2012	24	11	15	28	42.31		0.19	Jul- Sep,2013	2
Apr2012- Mar2013	28	12	12	28	42.86		0.16	Oct- Dec,2013	2
							0.31	Jan- Mar,2014	4

Table 34: Attrition rate and Quarterly forecast of turnover for finance department

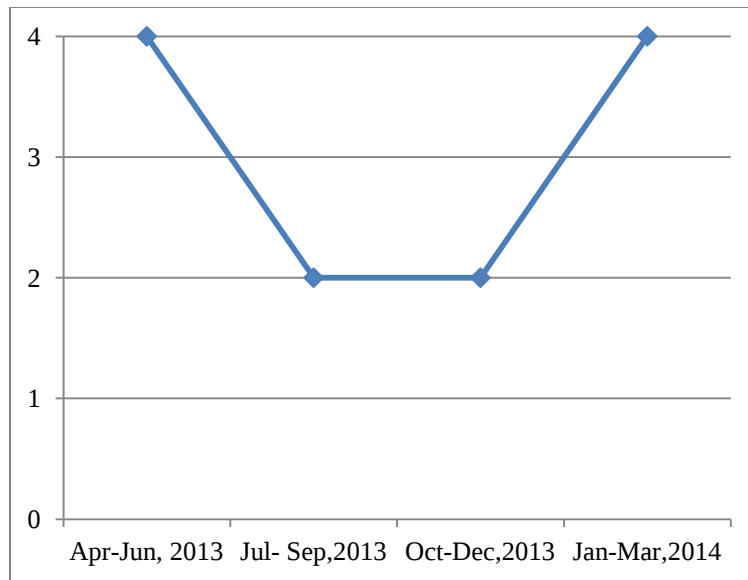


Figure 32: Forecast of Quarterly turnover for Finance department

The turnover for first quarter came out to be 4 then it is expected to decrease to 2 for another two quarter and then it may rise to 4.

4. Pharmacy Department

						Turnover apr2013-Mar2014	Projected Turnover		
Year	Head Count(Starting)	Exits	Additions	Head Count(Ending)	Using Average head count start&end	Using Average turnover rate	ratio	Quarters	forecast
Apr2010-Mar2011	9	7	6	8	82.35	8	0.1	Apr-Jun, 2013	1
Apr2011-Mar2012	8	7	8	9	82.35		0.25	Jul- Sep,2013	2
Apr2012-Mar2013	9	6	8	11	60.00		0.35	Oct-Dec,2013	3
							0.3	Jan-Mar,2014	2

Table 35: Attrition rate and Quarterly forecast for Pharmacy Department

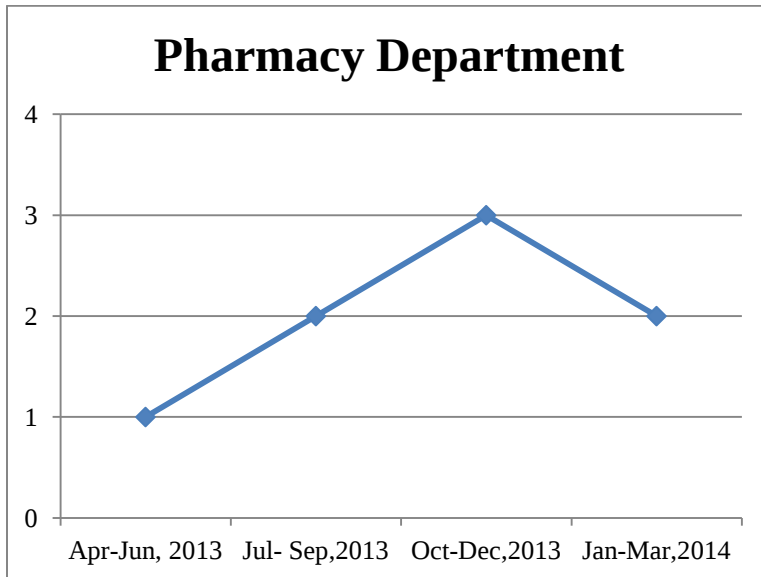


Figure 33: Quarterly forecast of turnover for pharmacy department

The forecast for first quarter came out to be 1 and then is expected to increase to 2 in the next quarter and further a rise may be seen to 3 for third quarter and in last quarter it may fall back to 2.

5. Radiology Department

					Turnover apr2013- Mar2014	Projected Turnover			
Year	Head Count(Star ting)	Exit s	Addi tions	Head Count (Endi ng)	Using Averag e head count start& end	Using Average turn over rate	ratio	Quarters	forecast
Apr2010- Mar2011	8	4	7	11	42.11	6	0.12	Apr-Jun, 2013	1
Apr2011- Mar2012	11	7	5	9	70.00		0.18	Jul- Sep,2013	1
Apr2012- Mar2013	9	6	7	10	63.16		0.29	Oct- Dec,2013	2
							0.41	Jan- Mar,2014	2

Table 36: Attrition rate and expected turnover of radiology department

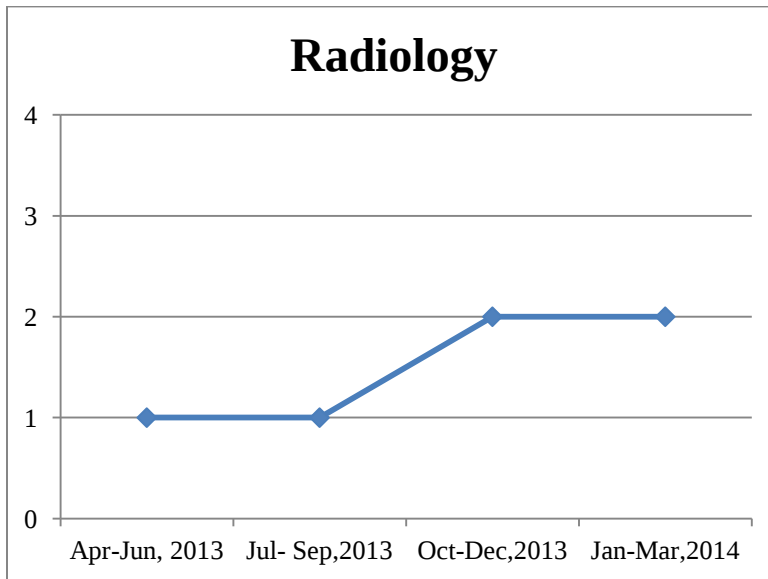


Figure 34: Quarterly forecast of turnover for Radiology department

The turnover for first two quarters is expected to be 2 and then it is predicted to be two for last two quarters.

6. Physiotherapy Department

						Turnover apr2013- Mar2014	Projected Turnover		
Year	Head Count (Starting)	Exits	Additions	Head Count (Ending)	Using Average head count start & end	Using Average turnover rate	ratio	Quarters	forecast
Apr2010-Mar2011	2	2	3	3	80.00	1	0.25	Apr-Jun, 2013	0
Apr2011-Mar2012	3	1	0	2	40.00		0.5	Jul- Sep,2013	1
Apr2012-Mar2013	2	1	1	2	50.00		0	Oct-Dec,2013	0
							0.25	Jan-Mar,2014	0

Table 37: Attrition rate and expected turnover for Physiotherapy department

The Physiotherapy department is expected to have only one employee leaving only second quarter.

7. Laboratory

					Turnover apr2013- Mar2014	Projected Turnover			
Year	Head Count (Starti ng)	Exi ts	Additi ons	Head Count(Ending)	Using Averag e head count start & end	Using Average turnover rate	ratio	Quarters	forecast
Apr20 10- Mar20 11	8	6	3	5	92.31	5	0.58	Apr-Jun, 2013	3
Apr20 11- Mar20 12	5	0	3	8	0.00		0.17	Jul- Sep,2013	1
Apr20 12- Mar20 13	8	6	8	10	66.67		0.08	Oct- Dec,2013	0
							0.17	Jan- Mar,2014	1

Table 38: Attrition rate and forecasted turnover for Laboratory

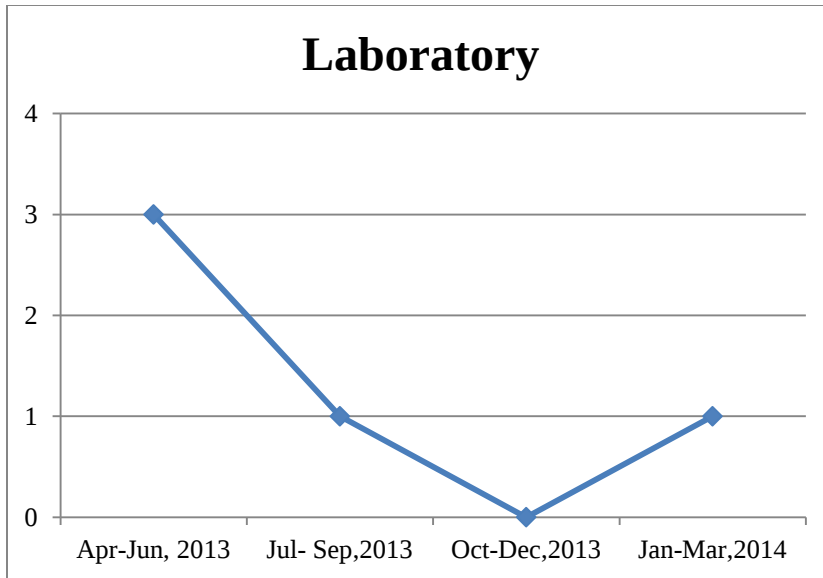


Table 35: Quarterly forecast of turnover for Laboratory

22.6 Suggestions

1. There was great dissatisfaction with the salaries that was offered to the nurses. A competitive analysis of salaries is suggested. Moreover salaries or benefits should also be associated with the experience of nurses. These changes seem desirable when we compare the pay packages provided to nurses in other countries such as Saudi Arabia. Some special benefits should be given to lure them from working in foreign lands.
2. The duties of a nurse are not very explicitly defined. At times nurses has to perform duties of a GDA which further adds to the stress level of the nurses.
3. Improving the hostel facilities and providing better facilities can increase the level of satisfaction of nurses.
4. Providing daycare facilities for the children of the nurses can give assurance to the nurses that the organization cares for their family and help them to achieve work life balance.

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Annexure

Sample for data collection for pharmacy project

Date	Patient Arrived at Counter (A)	Patient Attended by Pharmacist (B)	T1(B-A)	Medicines picked from racks + order entry and handed over to billing person(D)	Pharmacist T2(C-A)	Time taken to free the person from billing counter (D)	Total time T3(D-A)	Cashier T4(D-C)	Remark	Remark
1-May-13	10:00	10:00	0:00	10:03	0:03	10:04	0:04	0:01		
Wed	10:05	10:05	0:00	10:07	0:02	10:10	0:05	0:03		
	10:10	10:12	0:02	10:19	0:09	10:20	0:10	0:01	R4	
	10:15	10:16	0:01	10:24	0:09	10:27	0:12	0:03	R4	
	10:21	10:25	0:04	10:25	0:04	10:30	0:09	0:05	R5	R3
	10:25	10:26	0:01	10:28	0:03	10:32	0:07	0:04		
	10:26	10:30	0:04	10:32	0:06	10:33	0:07	0:01	R4	R3
	10:29	10:32	0:03	10:34	0:05	10:35	0:06	0:01	R5	
	10:30	10:32	0:02	10:35	0:05	10:37	0:07	0:02	R4	
	10:32	10:33	0:01	10:37	0:05	10:38	0:06	0:01	R5	
	10:36	10:36	0:00	10:40	0:04	10:41	0:05	0:01		
	10:42	10:46	0:04	10:56	0:14	10:59	0:17	0:03	R4	R3
	10:44	10:50	0:06	10:56	0:12	11:04	0:20	0:08	R4	
	10:45	10:50	0:05	11:00	0:15	11:05	0:20	0:05	R5	
	10:50	11:00	0:10	11:01	0:11	11:07	0:17	0:06	R3	
	10:54	10:55	0:01	11:00	0:06	11:08	0:14	0:08	R5	
	10:55	11:00	0:05	11:02	0:07	11:04	0:09	0:02	R4	
	11:00	11:04	0:04	11:05	0:05	11:16	0:16	0:11	R4	

11:00	11:05	0:05	11:06	0:06	11:17	0:17	0:11	R3
11:00	11:06	0:06	11:07	0:07	11:20	0:20	0:13	R3
11:03	11:08	0:05	11:09	0:06	11:21	0:18	0:12	R3
11:10	11:14	0:04	11:15	0:05	11:22	0:12	0:07	R3
11:14	11:15	0:01	11:16	0:02	11:23	0:09	0:07	R4
11:15	11:16	0:01	11:18	0:03	11:24	0:09	0:06	R5

Questionnaire

Age/Gender : Date of joining:

Department : Years of Experience:
.....

1. How long you have been working in this organization.

- a. 1to 3 months
- b. 3 to 6 months
- c. 6 to 12 months
- d. More than a year

2. Are you planning to leave the job?

- a. Yes
 - In 1-3 months
 - In 3-6 months
 - In 6-9 months
 - In 9-12 months
- b. No

3. Your Work load is

- a. Very Taxing
- a. Excessive
- c. Moderate
- d. Very light

4. Your work hours and shifts are
 - a. Very long
 - b. Long
 - c. Long but convenient
 - d. Flexible
5. What is your satisfaction level with Salaries
 - a. Very much satisfied
 - b. Moderately satisfied
 - c. Dissatisfied
 - d. Highly dissatisfied
6. The work you do is appreciated
 - a. Always
 - b. Sometimes
 - c. Never
7. Are you satisfied with your last performance Appraisal
 - a. Yes
 - b. No
8. Do you receive adequate support to do your job from other staff
 - a. Always
 - b. Most of the times
 - c. Occasionally
 - d. Never
9. Are the job role and responsibilities turn out to be as expected by you
 - a. Yes
 - b. No
10. How often you have to do work that is out of your job responsibility
 - a. Never
 - b. Sometimes

c. Most of the times

11. Do you find learning and growth opportunities in this organization.

a. Yes

b. No

12. How satisfied you are with facilities provided by the organization

.....
.....

13. Any suggestions you would like to make .

.....