

**Summer Training at
Narayana Multispeciality Hospital,
Jaipur
(April - June, 2013)**

**PLANNING EFFECTIVE DISCHARGE PRACTICE &
IDENTIFYING DELAYS IN MEDICATION DISPENSE
PRACTICE**

**By
Khushboo Jain**

**Under the guidance of
Dr. V.P. Raghuvanshi**

**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. Khushboo Jain, student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management and Research, Jaipur has undergone summer training in Narayana Multispeciality Hospital, Jaipur from April 8 to June 8, 2013.

The candidate has successfully carried out the study assigned to her during summer training and her approach to study has been sincere, scientific and analytical.

I wish her success in all her future endeavours.



Dr. V. P. Raghuvanshi

Faculty and Mentor

IIHMR, Jaipur



Dr. Ashok Kaushik

Dean, Academics and Student affairs

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NH/HRD-Off/2013/212

Date: 11th June 2013

TO WHOM SO EVER IT MAY CONCERN

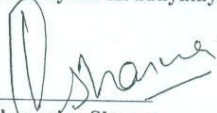
This is to certify that **Dr. Khushboo Jain** has completed her Summer Internship successfully in Narayana Hrudayalaya Hospital, Jaipur from 8th April, 2013 to 8th June 2013.

Her work during the period was Commendable and appreciable. Her character and conduct was good.

The project was on "Planning Effective Discharge Practice" & "Identifying Delays in Medication Dispense Practice".

We wish her success in future endeavors.

For Narayana Hrudayalaya Hospital, Jaipur


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ACKNOWLEDGEMENT

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I feel deeply privileged in expressing our deep sense of gratitude to **Dr. Devi Shetty** (CMD Narayana Group), **Dr. Ashutosh Raghuvanshi** (Vice Chairman Narayana Group) **Mr. Arunesh Punetha** (CAO NH Jaipur), **Dr. Mala Airun** (Medical Superintendent NH Jaipur), **Mr. Subhasis Bhattacharya** (Operations Head NH Jaipur), **Ms. Vishnupriya** (HR Head NH Jaipur) for their expert guidance and encouragement in the process of completing my study.

I am extremely thankful and grateful to my mentor **Dr. Avadhesh Agarwala** (DMS, NH Jaipur) who was always there to enlighten me with his valuable suggestions and guidance. I also extend my thanks to **Ms Gargi**, **Ms. Bhawna**, **Mr. Ankit** and **Mr. Lucky** for guiding me throughout my stay and providing me the required facilities.

I would like to extend special thanks to all the staff in wards. The help and support rendered by them is gratefully acknowledged.

I take this opportunity to express my deep sense of gratitude and indebtedness to my mentor **Dr. Vijay Pratap Raghuvanshi**, Assistant Professor, IIHMR who has always been there to guide me throughout my study, his valuable advice and pertinent suggestions have helped me in giving this study a final shape.

I am also thankful to **Dr. Ashok Kaushik**, Dean IIHMR & **Dr. S.D Gupta** (Director, IIHMR) for giving me opportunity for working in such an esteemed Hospital which has helped me to gain a new insight of working of hospitals.

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ACRONYMS/ABBREVIATIONS

NH	Narayana Hrudayalaya
MRN	Medical registration number
CSSD	Central Sterile Supply Department
MRD	Medical Record Department
LAMA	Leave against medical advice
CCA	Clinical Care Assistant
O.T	Operation theatre
FGW	Female general ward
MGW	Male general ward
JCI	Joint Commission International
OPD	Out Patient Department
IPD	In Patient Department
TPA	Third party agreement
CTVS	Cardiothoracic vascular surgery
ANC	Antenatal care

OBSERVATION LEARNING

BACKGROUND

The primary objective of the summer internship program was to prepare a student interested in the field of hospital management and administration, some experience and knowledge on the management and operations of a hospital.

To accomplish these objectives, the student was expected to participate in a variety of activities in the hospital. The duties require significant involvement in minimum activities and ability to work effectively with co-workers.

Objectives of summer internship:

- To understand working of the entire hospital and to work opportunities that will provide whole some experience.
- To study different departments in the hospital.
- To know operation systems of the hospital in detail.

Tasks performed during summer training:

- A project on 'Planning effective discharge practice'.
- A project on 'Identifying delays in medication dispense practice'.
- An assignment on 'International patient safety goal 1 compliance'.

Methodology

- The time of two months spent at Narayana Multi-speciality hospital, Jaipur gave me an experience that was diverse and exhilarating as it gave me an opportunity to actually learn and understand the various aspects of hospital management.
- The study and project report prepared during the tenure was developed using methodologies of data collection, analysis and its interpretation.

HOSPITAL PROFILE

Narayana Hrudayalaya headquartered in the city of Bengaluru, India, is one of India's largest multi-specialty hospital chains. The Bangalore cardiac unit of Narayana Hrudayalaya is one of the world's largest pediatric heart hospitals. It is the brainchild of the renowned cardiac surgeon, Dr. Devi Shetty. Narayana Hrudayalaya also receives patients from abroad, and it has created a record of performing nearly 15,000 surgeries on patients from 25 foreign countries. It is also a renowned centre for telemedicine and it offers this service free of cost.

Despite helping so many poor patients, it is known for being so efficient, that it has a higher profit margin (7.7percent after tax) than most American Private Hospitals (6.9percent).

It is building large hospitals across India totaling 30,000 beds, to enable it to gain large economies of scale and bargain down the cost of supplies to the hospitals.

Narayana Hrudayalaya was started in the year **2000 by Dr. Devi Shetty** under the aegis of the Asian Heart Foundation (AHF). The flagship hospitals of the group are located in the cities of Bengaluru and Kolkata. They are both multi-specialty hospitals which cater to a wide variety of illnesses and diseases.

Spread over **25 acres (100,000 m²)**, it is located in the Bommasandra Industrial Area on the Hosur Road in Bengaluru. With the Phase I of the construction being completed, the hospital currently has six stories containing **500 beds and 10 operating theatres**.

Apart from cardiology, the hospital also offers treatments in the area of **Pediatrics, Neurology, Gastroenterology, General Surgery, Dental, Nephrology, Urology, Transplants, Nuclear Medicine, Medical Imaging and Radiology**. It also houses a Blood bank and laboratory. With the help of ISRO, Narayana Hrudayalaya has pioneered some of the aspects of Telemedicine.

Narayana Hrudayalaya Health city, Bangalore, is a conglomeration of hospitals in one campus:

- 1000 Beds, Narayana Hrudayalaya Heart Hospital
- Asha Dinesh Institute for Organ Transplant
- Sparsh Hospital
- Narayana Nethralaya
- Mazumdar Shaw Cancer Center

Today, Narayana Hrudayalaya provides complete, expert and holistic treatment to the millions of afflicted individuals in need of treatment by experts at an affordable cost. Health

care services spread across Cardiac, Neuro, Specialist Pediatric Care, Organ Transplants, Gastroenterology and much more.

Mission: “A dream to making quality healthcare accessible to the masses worldwide.

Vision: “Affordable Quality Healthcare for the Masses Worldwide”.

Objectives:

- Provide holistic, timely patient care
- continually upgrade the knowledge and technology in patient care
- Enhance customer relationships and provide an enriching experience

To make the dream a reality they commit themselves to: -

- Being a tertiary care referral center for complex medical and surgical problems.
- Developing a Health City Model , to be replicated nationally and internationally.
- Excelling as an Education, Training and Research Center in Medical, Paramedical and Allied specialties.

NARAYANA MULTISPECIALITY HOSPITAL, JAIPUR

The Narayana Multispeciality (earlier N.H.) Hospital Jaipur stands in a sprawling 4.7 acre campus situated on Hrudayalaya Avenue, off Kumbha Marg in Pratap Nagar, Sanganer. The Commitment as a place of worship is clear to see as one arrives at the campus. It reaffirms hospital's commitment to society, with no distinction in classes, religion or faith. This is a 'Temple of Healing' and that sentiment echoes throughout a patient's experience at the hospital. In phase I, Narayana Hrudayalaya Hospital has 200 functional beds including Intensive care, intermediate care to be able to provide Tertiary Care Medical Services. The Narayana Hrudayalaya Jaipur Hospital currently offers centers of excellence that have a unique multidimensional approach to patient care. The group's firm belief in the mission statement and its core values help reinforce their everlasting commitment to the people of Rajasthan. Narayana hrudayalaya believes to bring the very same revolutionary concept to the state and its people with the promise of an affordable one- stop health- solution.

INTERNATIONAL PATIENT SERVICES

NH, Jaipur mostly receives patients from African Countries. Before coming for any treatment, the patient has to send his/her reports to the hospital, then the concerned consultant will check the reports, after approval from the consultant that the patient can be treated here,

the total estimate send to the patient via email. After coming to INDIA following facilities are provided to the patient by the hospital –

- Pick & drop facility.
- Hotel booking/hospital booking.
- Vehicle only for city.
- Currency change for personal use of the patient, not for hospital, hospital accepts payment only in DOLLAR (Western union money transfer).
- Provides help for VISA extension, if required.
- C-form registration with FRRO Department (when patient admitted in the hospital).
- Site seeing facility only for city.

Services & Facilities for patients: - The hospital is designed to provide highest levels of professional expertise and world class care in all major medical disciplines and support specialties for the common person. This involves-

- **CARDIOLOGY AND CARDIAC SURGERY-** The Hospital has put together a team of experts for achieving excellence in cardiac treatment .The cardiac operation theatre is equipped for cardiac bypass and off pump beating heart surgery, exclusive cardiac surgical ICU recovery, new top of the line cath lab and a advanced heart command centre with latest monitoring system which provides comprehensive invasive and non invasive services by highly trained and skilled medical and para-medical staff.
- **NEUROSCIENCES-** The department of Neurosciences offers evaluation and care of patients with Stroke, Backache, Spinal disorders, Neuro Oncology, Epilepsy, Facial Pain and Headache etc in specialty clinics. The Hospital offers state-of-the-art surgical facilities for Microscopic Neurosurgery as well. The department is backed by most advanced Neuro-Imaging for accurate diagnosis like 64 Slice CT Scan & Magnetic Resonance Imaging (MRI) and treatment of most Neurological disorders, and Electrophysiological tests.
- **NEPHROLOGY AND UROLOGY-** At our dedicated Nephrology unit, there is a dialysis centre (this is the state's largest dialysis unit) equipped with state-of-the art 16 dialysis machines/beds (out of which 3 reserved for seropositive patients) and a dedicated RO (reverse osmosis) water plant. Acute & chronic renal failure cases

would be accepted. Two CRRT machines would be available to enhance the dialysis repertoire. "The World Class Dialysis Program supported by ARCS, USA, enhances the delivery with reducing variability in delivery of care for patients undergoing Dialysis."

- GASTROENTEROLOGY- The specialized teams of doctors conduct advanced treatment for disorders of the liver, biliary tract, pancreas, and other GI endoscopy and ERCP, sclerotherapy, banding, stenting polypectomy, and so on. Bariatric surgery would also be undertaken.
- ORTHOPAEDICS AND JOINT REPLACEMENT - The Hospital is fully equipped for joint replacement surgery (knee, hip, ankle and shoulder). Two dedicated Operation Theatres of International level where high-end procedures and minimally invasive surgeries (arthroscopy) are performed.
- TRAUMA CARE AND EMERGENCY SERVICES - The Hospital has well-equipped seven bedded triage and an emergency Operation Theatre supported by ICU where Critically ill and polytrauma patients are attended in an integrated manner and supported round the clock by team of physician, Radiologist, Anesthesiologist, General ,Orthopedic and Neurosurgeon and specially trained nursing staff.

The Hospital has Code Blue(for cardiac arrest) team comprises a team of a emergency Physician, Cardiologist, Anesthetist and a Nurse who responds to all such Emergencies.The distance between emergency –Triage- Operation Theatre- Cath lab has been kept minimal for the speedy approach of facilities and medical staff. The following codes are followed:

Code Orange – for External Disaster.

Code Red – Internal Disaster.

Code Pink – Child Abduction.

Code Purple – Imminent Physical Altercation.

Hazmat – hazardous material spill.

- CRITICAL CARE (MICU, CCU, ITU, NICU) - The patients who require acute advanced care are taken to Critical Care unit which does round the clock observation. The Critical Care Unit facilitates:-

- Forty Three bedded Critical care unit with nurse to patient ratio of 1:1 having advanced ventilators and monitoring systems.
- International Protocols of Nursing care
- Bedside arterial blood gas analysis & Imaging i.e. X-ray, ultrasonography, echocardiography, peripheral Doppler
- Bedside Haemodialysis, endoscopy and bronchoscopy.
- Microprocessor controlled capable of providing ventilatory support to adults and children
- MOTHER AND CHILD CARE - The Hospital provides ideal set-up both for mother and child alike. A dedicated LDR complements the other labour rooms and state-of-the-art foetal monitoring system for complete safety of both mother and child are available. Laparoscopic as well as other gynecological surgeries are undertaken. The labour rooms can well facilitate all emergency cases round the clock. For Child health care the hospital is equipped with:
 - Level 3 neonatal intensive care facilities for babies
 - Implementation of clinical contemporary protocols of resuscitation at birth,
 - Timely immunization, feeding advice and health ante-natal & post natal checkups.
 - Special clinics for asthma, epilepsy, adolescent health, child psychology and high-risk newborns.
- PULMONARY MEDICINE - The centre offers an integrated approach for the treatment and management of pulmonary diseases as well as respiratory problems. Procedures like broncho-alveolar lavage, brush cytology, bronchial / transbronchial biopsy, needle aspiration cytology and interventional bronchoscopy are performed.
- BURNS, PLASTIC SURGERY, COSMETIC & RECONSTRUCTIVE SURGERY - Specialized corrective procedures for congenital anomalies, facial injuries, scars and reconstructive work are undertaken. Treatment for acute burns and related post burn corrective procedures are performed by highly experienced doctors.

- INTERNAL MEDICINE - Protocols for evidence-based medicine are followed in the treatment of general medical disorders including infections, degenerative and metabolic disorders and clinical immunology etc.
- DIABETES & ENDOCRINOLOGY - With the change in lifestyles, advanced therapeutic modalities for complicated disorders of thyroid, pituitary and other metabolic diseases like diabetes, hormonal and growth disorders are thoroughly investigated here.
- PHYSIOTHERAPY & REHABILITATION CENTRE- Chest Physiotherapy (CTVS) and rehabilitation for joint diseases, stroke, backache, trauma and so on is provided by well trained staff and facilitated by latest gadget
- RADIO DIAGNOSIS AND IMAGING
- LABORATORY SERVICES (PATHOLOGY & MICROBIOLOGY) -Pathology services include biochemistry, microbiology and histopathology & Range of tests offered exceeds 3000 from routine to rare ones. It strictly follows the protocols of the college of American Pathologists (CAP). The result is cutting edge accuracy and speed in investigation, enabled by the high-tech procedures and state of the art equipment.
- NUTRITION - Professionally managed Dietetics Department supervises all meals with special emphasis on disease specific menu, and Nutritional requirements.
- COMFORT, SAFETY AND SUPPORTIVE CARE - Total environment control with proper treatment of air and water, well-provided waiting space, sophisticated and well stocked pharmacy and facilities for communication and refreshment enhance patient comfort. The hospital is networked for global connectivity and supported by state-of-the-art medical gas system, central sterile supply, laundry and full backup power generation.

Support Services-

- 24 Hour Chemist shop
- Patient attendant rest areas
- 24 hours Multi-cuisine Cafeteria

NARAYANA HRUDAYALAYA DEPARTMENT LOCATIONS:

The hospital has 4 floors including Basement/ Lower ground floor and divided into 3 Blocks- A Block, B Block, C Block.

LOWER GROUND FLOOR

Block A: Physiotherapy Department

Block B:

- HR department
- Administration Department
- Marketing Department
- Biomedical Engineering Department
- Food Court for Staff, Attendants and Visitors
- Dialysis Unit
- MGW 1&2

Block C:

- CSSD
- Main Store
- Mortuary
- Linen Room
- MRI
- CT Scan
- X Rays
- Mammography
- Console Room
- Emergency Department

GROUND FLOOR

Block A:

- Front Office
- Centralized OPD Wing
- Billing Section Finance Department
- Administration department and TPA cell
- OPD Pharmacy

- Food Counter

Block B:

- Blood Bank
- Laboratory Medicine
- Cardiac Diagnostics (ECG, Echo, TMT, Holter Monitor)
- Ultrasound
- VIP Waiting Lounge
- OPD Procedure room

Block C:

- Cardiac OPD
- CCU and MICU
- Catheterization Laboratory
- MRD Department

FIRST FLOOR

Block A:

- labor room
- NICU
- Endoscopy room
- Antenatal care ward
- Female General ward
- Private and Semi Private Wards

Block B:

- Male cardiothoracic and vascular surgery ward

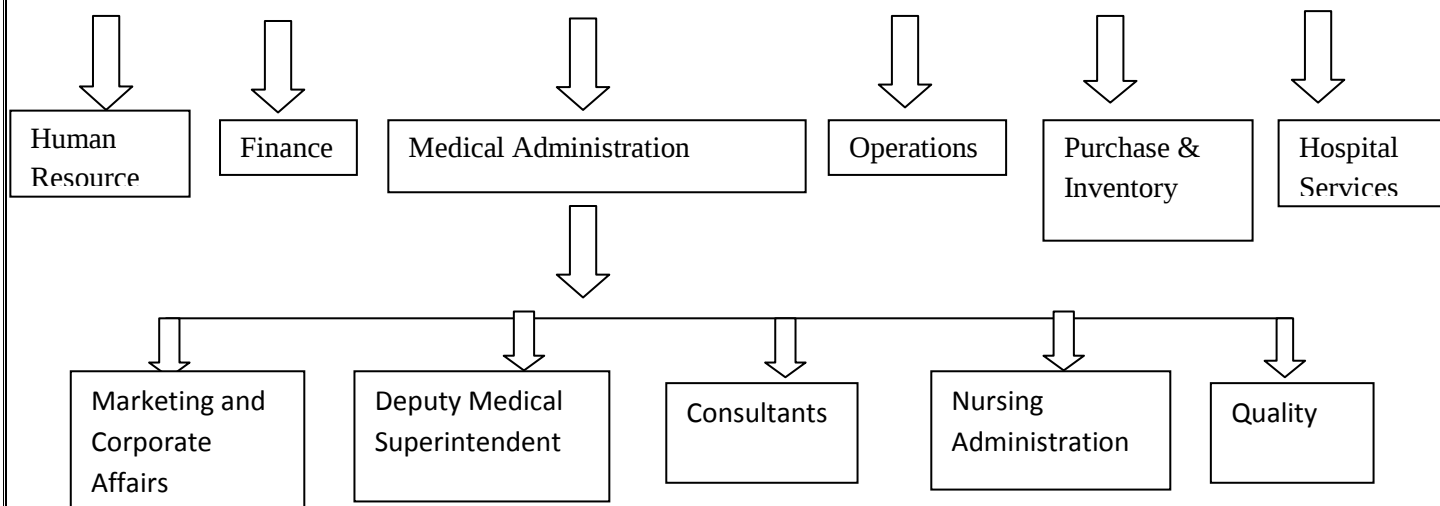
Block C:

- Operation theatre (OT)
- Intensive thoracic unit (ITU)

SECOND FLOOR: Under Construction

ORGANOGRAM

FD (Facility Director)



1. Front Office

The main goal of front office is to attend the visitors and provide them accurate and timely information. It is the first point of contact between patients, attendants , visitors with the hospital staff.

The department has following sections under it:

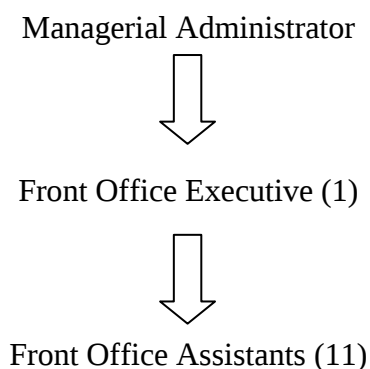
A. Reception/ enquiry

B. Registration

C. Admission department

D. Electronic private automatic branch exchange (EPABX)

Organogram (Front office):



Scope of Services

- Reception or Information provider
- Appointment
- Registration – OPD, Diagnostics
- OPD billing
- Customer Feedback

A. Enquiry Department

Total number of reception counters in the hospital- 8

Scope of services:

1. Filling of registration form
2. All types of queries related to patient and doctors.

3. Appointment procedure

B. Registration:

There are 4 types of registrations -

- i. General: for OPD patient only (registration charge +consultation charges)
- ii. Revisit: follow up patient (only consultation fee are taken after 7 days)
- iii. IP_Admission_Registration: package (with only registration fee)
- iv. IP_Admission: Zero billing registration.

C. Admission department

Functions:

- Provides financial counseling to patients before admission.
- Prepares all the admission documents.
- Intimates wards regarding the admission of a patient for preparation of bed.
- TPA department (a cell present inside the admission department) provides information and carries out process related to cashless claims.

Manpower: senior executives- 3, executives- 3, counselors- 2, Assistant- 1

Operational timings- 24 hours

Number of admissions – 850 to 870 per month

➤ Bands for patient identification :-

- Pink – For neonates.
- Blue – 16 to 65 years.
- Orange – Below 16 & above 65 years.

➤ Visitors Card :-

- Blue – For attendant.
- Pink – Critical care area.
- Yellow – General/Semiprivate/Private Room (visitors).

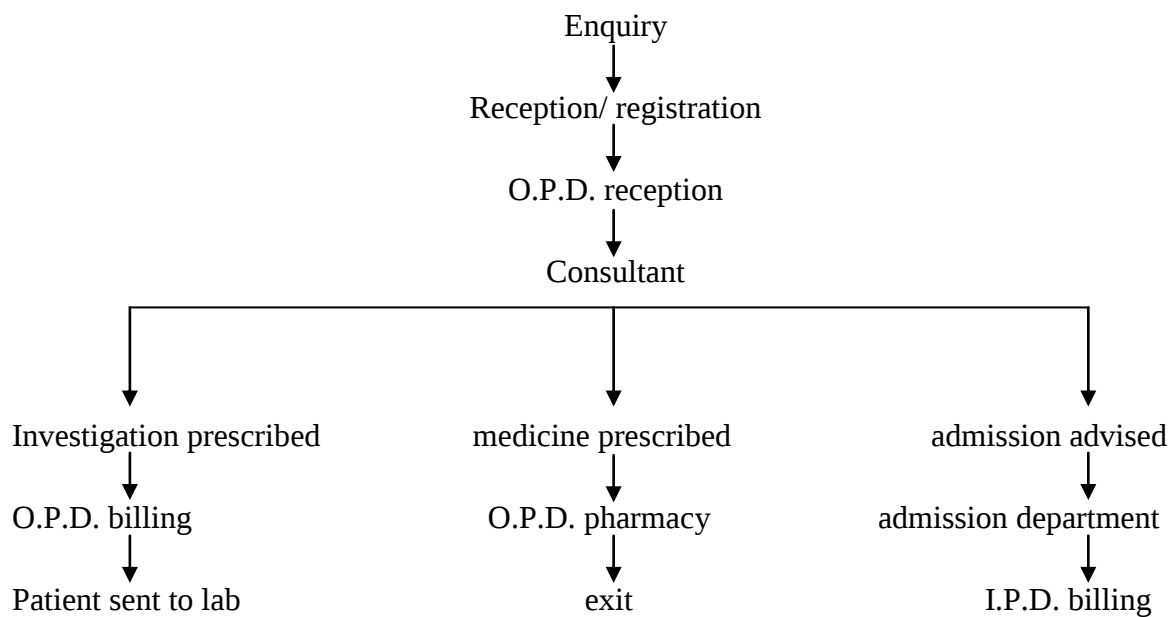
For general/semiprivate both passes provided are 1. For Private room, attendant passes are 2 & visitors pass is 1.

D. EPABX: Electronic private automatic branch exchange

Functions:

- To connect internal calls of the hospital.
- To attend and connect external calls to respective receiver staff.
- To make announcements related to code activations and general announcements.

Process flow:



2: Outpatient Department

Location: Just after the main entrance, divided into north & south outpatient department. On the left hand side is the south OPD and right hand side north OPD.

Functions:

- To provide diagnostic, curative, preventive and rehabilitative services on ambulatory basis to the people.
- Promotion of health of the individuals under their care by means of health education.
- Admission or referral of the required patients.
- Providing continuity of care.
- Maintenance of records and collection of data for epidemiological and social research.

Appointment System:

First come first serve basis depending upon the availability of the consultant. Prior appointments can be taken from the enquiry and the date and time is given by the receptionist and the patient details are recorded in the system. There are five decentralized O.P.D.:

- North O.P.D.
- South O.P.D.
- Cardiology O.P.D.
- Nephrology O.P.D.

O.P.D. timings - 9 a.m. to 5 p.m. one physician available from 5 p.m. to 8 p.m.

Average number of O.P.D. patients- 240 to 250 per day (including old and new cases).

3: In Patient Department

- Female General Ward- 34 bedded (located on first floor)
- Male General Ward 1 & 2- 16 & 19 bedded (on lower ground floor)
- Private & semi private wards- 7 & 11 rooms respectively (first floor)
- ANC Ward- 8 bedded with 2 beds in labor room (first floor)
- CTVS Ward- 12 bedded (first floor)
- MICU- 14 bedded (ground floor)
- ITU- 20 bedded (attached with O.T. complex on first floor)
- NICU- 6 cribs (first floor)
- CCU- 20 bedded (ground floor)

Functions-

- To provide the highest quality of medical and nursing care to the patients.
- To provide necessary equipment , essential drugs required for the patient care.
- To provide facilities to meet the needs of the visitors and attendants.

4. Emergency Services

Well equipped nine bedded Triage supported by ICU where critically ill and trauma patients are attended in an integrated manner. The hospital has a code Blue team comprising of an emergency Physician, Cardiologist, Anesthetist, deputy medical superintendent, nursing incharge and

supervisor, all respond to emergencies such as cardiac arrest. The distance between emergency Triage, OT, Cath lab has been kept minimal for the speedy approach of facilities provided by the hospital.

Location: Lower ground Floor

Entrance: Separate entry directly from the main road.

Emergency is divided into 3 Zones based on Triage

Red (Priority- 1)	Yellow (Priority -2)	Green (Priority -3)
- Chronic self limiting disorder. - Life threatening injuries or conditions which are critical. - Survival with immediate treatment. Ex: Respiratory Arrest	Requirement of definite treatment but no immediate threat to life exists. Ex: Acute abdominal pain, acute Renal failure, acute asthmatic attack	Patient having minimal injuries or minor conditions and ambulation. Ex: Abrasion & superficial.

Ambulance Services: Outsourced

Scope of services :

- Request for the use of ambulance services arises from the individuals, organization and services provided are payable by the patient separately.
- Member of the community calling ambulance to the scene of accident or other emergencies.
- General practitioners, nursing homes arrange outpatient booking of ambulance by telephone.

5. Operation Theatre

Location: First Floor

Easy accessibility through lift to CCU, blood bank, emergency and CSSD.

ITU is attached to O.T. complex.

O.T. 4 &5- dedicated to cardiac surgery

O.T. 3- dedicated to neuro & orthopaedic surgery

O.T. 1&2- for gynaecology & general surgery

Manpower: Head of dept., anesthetists-7, O.T. executive- 1, O.T. technicians- 9, perfusionists- 2, nursing staff- 9, housekeeping staff- 4

Number of surgeries performed- 280 to 300 per month.

6: Catheterization Lab (cath lab.)

Location : Ground floor

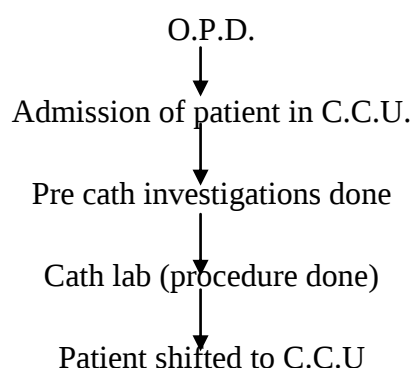
Functions : All invasive procedures are done in cath lab. such as – Angiography, Angioplasty, Cathstudy, EP(Electrophysiological) study etc.

Number of procedures - 300 to 325 per month.

Manpower: cardiologists- 6 (4-adult, 2- pediatric), executive/coordinator-1, technicians- 4, staff nurses- 5, housekeeping personnel- 4.

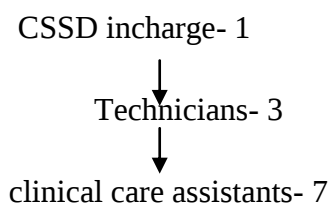
Duty timings for staff: general duty- 9 a.m. to 5 p.m., morning shift- 8 a.m. to 2 p.m., evening shift- 2 p.m. to 8 p.m. and night shift- 8 p.m. to 8 a.m.

Process flow:



7: CSSD (Central sterile supply department)

Location: Lower ground floor

Organogram:

Total Area is divided into 4 zones:

- Zone I (dirty area): reception, inspection and decontamination.
- Zone II (clean area): assembly and packing
- Zone III (sterile area): sterilizing
- Zone IV (issue area): storage and distribution

Major Equipments:

- Autoclave Large (450 litre)- 2 Temp-134°C & pressure 2.5kg
- Autoclave small (300 litre)-1 Temp-134°C & pressure 2.5kg
- Air Guns -2
- ETO Sterilizer-1
- Packing machines/Sealing machines-2

Check for proper sterilization:

- Bowie dick test- Colour changes blue to Black(Autoclave) Green(ETO)
- Leak test
- Sterilization test
- Batch monitoring test

After confirmation of proper colour change it can be only 50% assured that the instruments are sterilized. It is sent to lab for microbiology testing for 100% confirmation.

If lab report is positive of bacteria, the instruments are again brought from the issued department and resterilized. Throughout the entire procedure unidirectional flow is maintained. Provision of dumb waiters for exchange of items between CSSD and O.T.

Functions:

- Cleaning

- Processing
- Sterilization Of all instruments, Treatment trays, dressing trays etc.
- It also helps in infection control Process
- It is responsible for the optimum utilization of equipment resources of the hospital.

8. Radiology department

Location: Lower ground floor

Areas:

- Reception Area
- Console Room
- Imaging services rooms
- Changing rooms- 2

Different rooms for X-Ray, Mammography, MRI & CT Scan

Services provided are –

- Digital Radiography, X-Ray machine- 1 fixed machine, 2- portable, 1- automatic processor.
- CT scan- 64 slice
- MRI- 1.5 tesla
- Mammography- 100 MA power

9. Laboratory

Location: Ground floor

Manpower: consultant Microbiology (1) , consultant Pathology (1), Junior Microbiologist (1) lab technicians (9), CCA (2), Housekeeping staff (2).

Services provided: services related to biochemistry, microbiology, hematology and histopathology.

Blood Bank- attached with laboratory

Department dealing with collection, testing, processing, component separation, storage, preservation and issue of blood and its products for safe transfusion to patients as requisitioned by physicians.

Location: Ground Floor

Areas:

- Consultant room
- Medical examination and counseling area
- Donor room
- Serology room

Operational timings- 24 hours, donation time- 9 a.m. to 5 p.m.

Manpower: incharge, lab technician (3), staff nurse (2), housekeeping staff (1)

10: Physiotherapy and Rehabilitation Centre

Well trained team of 6 physiotherapists managing the department and providing rehabilitation therapy for joint diseases, stroke, backache, Trauma etc.

Other Facilities:

- Wax Therapy
- Hydro collator-Hot Pack
- Interferential Therapy
- IFT-Pain relief
- Ultrasound Therapy-Piezoelectric effect
- TENS- Transcutaneous electrical & stimulation
- Muscle stimulator
- SWD-Short Wave Diathermy(Electromagnetic Radiation) etc.

11. Medical Record Department

Scope of services –

- Maintenance of all medical records
- Storage of records
- Maintenance of integrity and confidentiality of medical records

- Maintenance of Medico legal certificates(MLC)
- Quantitative analysis of records
- Retrieval of records
- Numbering and filing
- Completion of incomplete records

12: Food and Beverages and dietetics

Contributes to recovery of health through scientifically prepared diets & education of the patients regarding use & utility of different food & balanced diet.

Location: Lower ground floor

Total staff – 54- Outsourced: only packing & distribution, reheating if required is done in the hospital.

Nutritional assessment, menu planning, tasting of food and preparation of diet summary done by dieticians (3).

Types of Diet: total 15 types, most common are:

- Normal full Diet
- Soft diet
- Liquid
- Diabetic
- Renal
- Post cardiac surgery

Areas of F&B department

- Receiving area
- Storing area
- Washing area
- Portioning area
- Trolley area
- Kitchen Area (only for reheating or preparation of tea, coffee etc.)

Scope of services –

- To provide nutritionally well balanced food for all patients according to their need.
- To serve staff and patients attendants.
- To help in improving the patients health by serving proper, nutritious diet on order of dietician.

13: House Keeping Department: outsourced

Responsible for activities aimed at maintaining the facilities presentable, pleasant, comfortable and safe for the people living or working within the hospital or visiting from outside. To provide clean and pleasant environment free from foul smell, infections which promotes early healing.

Total staff – 114

Duty timings: morning- 7a.m. to 3 p.m., evening- 11 a.m. to 7 p.m., night- 7p.m. to 7 a.m.

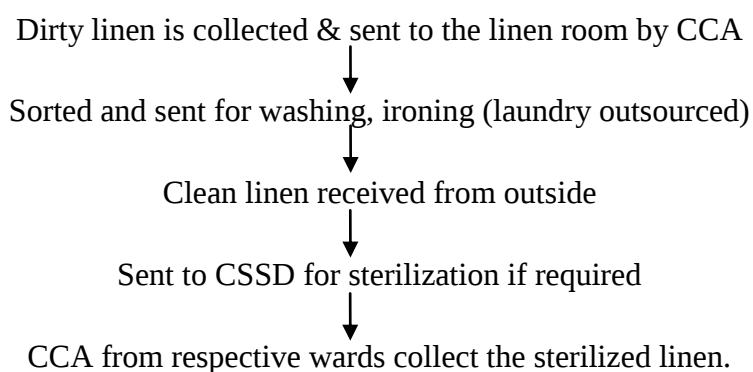
Functions-

- Maintaining of hygiene of the patients and hospital
- Helps in patient preparation
- Infection control
- Waste Disposal

14: Linen and Laundry: outsourced

Location: Lower ground floor

Process:



Areas:

- Dirty area and Clean receiving area
- Availability of colour coded polybags- red for infected, green for clean

15 : Pharmacy Department

There are three types of pharmacy departments in the hospital:

- i. IPD pharmacy
- ii. OPD pharmacy
- iii. OT pharmacy

Functions of pharmacy

- Supply of drugs to admitted patients ,wards, various critical patient care units like MICU, CCU,OT and Emergency.
- Dispensing of drugs for out patients (function of O.P.D. pharmacy)
- Demand estimation according to formulary, in the absence of formulary, establishment of specification for drug procurement.
- Furnishing drug information to consultants and other professional staff.
- Quality control of drugs purchased and those compounded and manufactured in pharmacy

Main Store

- Location: Lower ground floor
- Store receives all medicines, medical equipments, instrument, consumables, and other essential goods and printing & stationary materials required by the hospital as ordered. It cross checks the items received from the receiving store and issues them to all the pharmacies and other departments as per the requirement.

16: Diagnostic services

Location: ground floor

Services offered:

- Ultrasonography
- Treadmill test- 2 machines

- Electrocardiography- 1 machine
- Echocardiography- 2 machines
- Electroencephalography
- Uroflowmetry
- Electromyography
- Pulmonary function tests

Manpower: consultants- 4 , technicians- 5, executive-1, receptionists-2, housekeeping staff-2

Operational timings: 9 a.m. to 5p.m.

17. Dialysis department

Location: lower ground floor

Number of beds- 16 (including 3 isolation beds), dialyzer machines- 16

Number of dialysis done per day- 40 to 45

Shifts for dialysis: 7:30a.m. to 11:30a.m., 11:30 a.m. to 4:00 p.m., 4:00 p.m. to 8p.m. Each shift takes 3-4 hours.

Manpower: consultants-2, manager- 1, technicians- 7, nursing staff- 3, housekeeping staff- 3

Every patient is provided with meal, included in tariff and menu is predecided by the dieticians.

18: Mortuary

Location: Lower ground floor

At a time 4 dead bodies can be kept. Temperature maintained is 5-6 degree Celsius.

Scope of services

- To keep the bodies of the patient dying in the hospital, until the relatives claim them and arrange for their disposal.
- To keep dead bodies requiring pathological post mortem (in MLC cases).

19: Security Services- outsourced

The role of hospital security department is “to provide security services to all staff, patient and visitors and for protection of hospital property on the premises, through use of well trained personnel, technology and timely response to requests.

- Analysis of security threats and vulnerabilities in conjunction with the management, civil police and others.
 - Preparation of strategic security plan, security standing instruction and security operational deployment plan and their periodic updating, based on directions of the management.
 - Control of Movement of vehicular traffic within the premises.
- Total staff: 50, Duty timings: 12 hours duty, morning- 8 a.m. to 8 p.m. and evening- 8p.m. to 8 a.m.

20. Billing and finance department

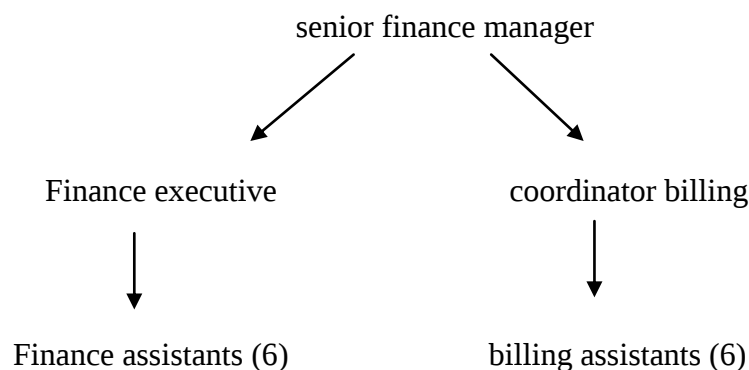
Location: ground floor

Operational timings: 9 a.m. to 5 p.m.-finance department, IPD billing- 24 hours.

Functions:

- Timely payment of salary to employees, vendors and contractors
- Tracking expenses of IPD patients on daily basis.
- Timely discharge of patients related to financial clearance.
- To provide accurate, relevant and timely financial information in making right siness plan and decisions.

Organogram:



21. Maintenance department

Functions:

- To maintain the overall electric supply of the hospital.
- To maintain the chilling plant room of the hospital.
- To maintain the supply of medical gases in the hospital.

- To maintain the proper functioning of sewerage treatment plant.

Location: lower ground floor

Organogram: senior engineer (1), Electrical supervisor (1), electrician (7), plumber (4), gas operator (3), AC operators (3), AC assistants (3), STP operators (3).

Operational timings: 24 hours

Infrastructure:

- Low tension room
- Generator panel- 2 generators of 750 ampere each.
- Diesel tank- 24 kilolitres capacity
- Sewerage treatment plant- infrastructure:
 - Bar screen chamber
 - Oil and grease tap
 - Equalization tank
 - Fluidized aerobic bioreactor
 - Tube settler tank
 - Sludge holding tank
 - Filter press
 - Chlorine contacting tank
 - Dual media filter
 - Activated carbon filter
 - Treated water tank
- Desk panel- controls air handling units
- Chilling plant room
- Gas manifold room- 24 oxygen cylinders, nitrous oxide cylinders for O.T. (2)

22. Human resource department

Total number of permanent employees- 674 (286 females, 347 males)

Total number of off roll employees- 180

Manpower: head of the department, executives- 6

Functions:

- Recruitment – based on requisition from respective department, form duly signed by the incharge of department, H.R. head and facility director.
- Induction and training- 3 days induction programme.
- Performance appraisal- done once a year in march
- Employee engagement activities such as birthday celebrations, open house, on the job trainings such as customer care, fire safety etc.
- Grievance handling
- Employee exit interview- monthly evaluated

PROJECT: - 1

TITLE - Planning effective discharge practice

INTRODUCTION

Discharge refers to formally terminating a patient's case, and releasing him/her from a hospital or health care facility. A patient is discharged only when he/she has recovered fully or satisfactorily according to the concerned physician. It is imperative to have a timely discharge.

Delayed discharge (referred to as delayed transfer or bed blocking) refers to the situation where a patient is deemed to be medically well enough for discharge, but where the patient is unable to leave the hospital due to slowing down of entire process. A patient staying longer than the stipulated time is responsible for unnecessary utilization of the hospital resources and is sheer waste.

Effective and timely discharges are important parameters in ensuring patient satisfaction. Effective hospital discharges can only be achieved when there is good coordination and cooperation among all the departments.

“A good discharge experience leaves the patient with positive emotions and strong affinity for returning to the facility” – Paul Clark

Effective discharge process reflects effectiveness of the hospital. The benefits in practicing effective discharge practice are improved efficiency, better health outcomes and satisfaction among the patients and attendants leading to increased loyalty, good brand image, better utilization of resources and ultimately better financial performance.

TYPES OF DISCHARGE

- Planned
- Unplanned
- Discharge on request (DOR), Leave against medical advice (LAMA)
- Third party agreement (TPA)/ Insurance patients

BENEFITS OF EFFECTIVE DISCHARGE

The following are the clear benefits in practicing an effective discharge practice.

For patient:

- Improves patient satisfaction and trust on hospital.
- Reduces anxiety and restlessness of patient and family members.
- Reduces chances of hospital acquired infections since the patient has just started recovering.
- Cost effective

For staff:

- Good interdepartmental co-ordination.
- Acts as a motivation factor for staff.
- Staff also feels satisfied.
- Less burden / work load.

For organization:

- Resources are best utilized, cost effective.
- Decrease in length of stay of patient leading to increase in availability of bed for new admission hence better bed turnover interval.
- It helps in developing a good brand image.
- Avoidance of disputes.

REVIEW OF LITERATURE

Hospital discharges without delays are those expected to happen within 45 min. Following completion of observations at the 90 minutes afterward rounds. Discharge planning should begin on the day of admission or certainly within a couple of days of this. ⁽⁴⁾

Processes for both admission and discharge planning commence during preadmission. As a result of pre-admission:

- The patient's care plan is outlined and progress along the critical pathway commenced
- Bed management and theatre scheduling may be actioned
- Discharge needs are identified and documented for action in the discharge planning process.

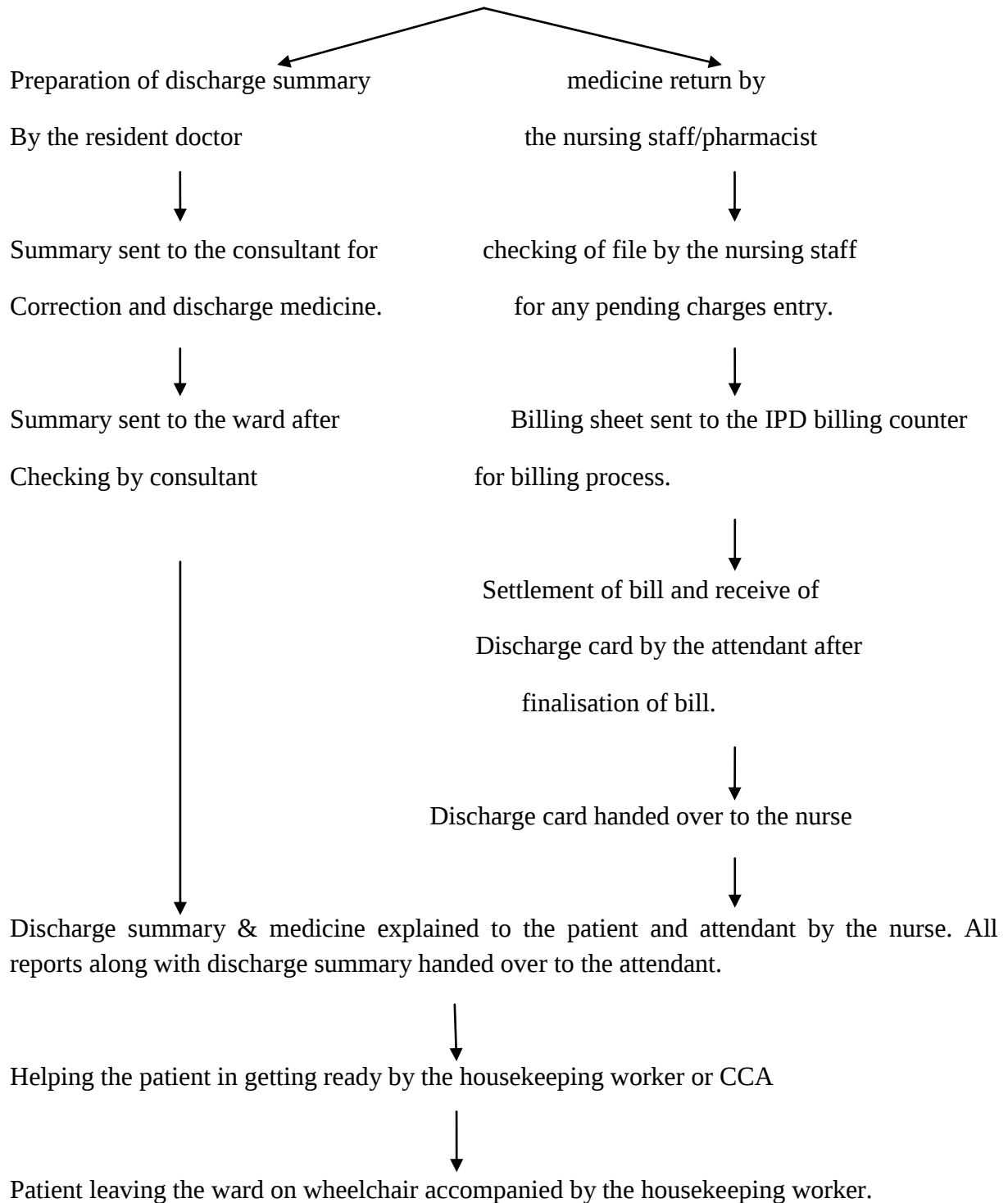
To achieve quality patient care, discharge planning should be an integral part of routine health service care. Discharge planning is the critical link between treatment received by the patient in hospital and transitional care provided in the community. Effective discharge planning enables a seamless transition from hospital to home (or residential care), thus enabling better health outcomes for the patient, and reducing the likelihood of readmission to hospital. ^(6.)

Planning a patient's discharge from hospital⁽⁸⁾

- Discharge planning aims to improve the coordination of services and care after a patient's discharge from hospital.
- Good planning requires anticipation of potential problems by good information gathering, early resolution of potential barriers to discharge, and timely referral to the multidisciplinary team.
- Planning involves close collaboration between the patient, the family, and the multidisciplinary team; this leads to improved patient and carer satisfaction.
- The junior doctor is often an important coordinating link in the process of discharge
- Discharge planning is a process that aims to improve the coordination of services after discharge from hospital by considering the patient's needs in the community. It seeks to bridge the gap between hospital and the place to which the patient is discharged, reduce length of stay in hospital, and minimize unplanned readmission to hospital.

DISCHARGE PROCESS

Doctor advises discharge of a patient



In case of TPA patients,

Billing sheet is sent to the IPD billing counter and file with all the original documents, investigations & discharge summary (after photocopying to be handed over to the patient) later is sent to the TPA dept.



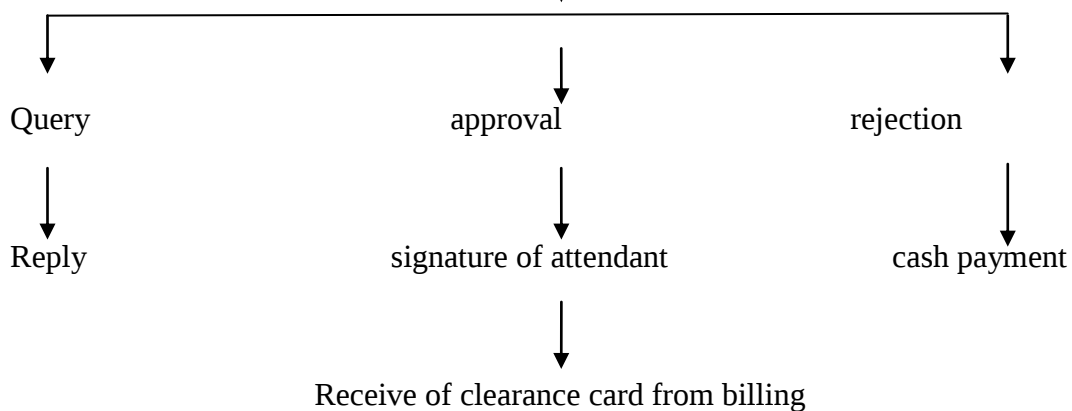
Referral letter of the TPA company attached to the file by the TPA dept. And file is sent to the IPD billing counter.



Final bill of the patient prepared by the billing dept. along with the file is sent to the TPA dept.



Final bill, discharge summary and investigation reports faxed to the TPA company.



Need of the study:

The hospital was facing the problem of delay of inpatient discharge despite of having planned discharges hence the study was done to understand the process, find out the reasons of delay and give recommendations for the same.

Research questions: 1. What is the whole process of patient discharge in the hospital?

2. Where are the delays in the process?

3. What are the possible reasons behind the delay?

4. What can be the possible solutions to overcome the delay?

OBJECTIVES

The main objectives of the study were:

- To study the process flow of the discharges in the hospital.
- To assess the turn around time (TAT) of the discharge process.
- To identify the number of delays.
- To find out the reasons of delay.
- To give recommendations for reducing the delay in discharge process.

RESEARCH METHODOLOGY

STUDY AREA: NARAYANA MULTI-SPECIALITY Hospital, Jaipur

STUDY LOCATION: Female general ward
Male general ward I and II
Semi private and private rooms
Antenatal care ward (ANC)
Male Cardiothoracic and vascular surgery ward (CTVS)

TARGET POPULATION: Following type of discharges:

Planned
Unplanned
Third party agreement (TPA)/ Insurance

(TPA discharges included both:- planned and unplanned cases, Insurance and corporate companies.)

STUDY POPULATION: Inpatient department (IPD) patients

STUDY DURATION: 15 days (April 22 to May 6, 2013)

SAMPLE SIZE: 75 discharge cases from all IPDs

STUDY DESIGN: Observational study

SAMPLING TECHNIQUE: convenient sampling

DATA COLLECTION: Direct observation

Process mapping – to study the discharge process.
Turn around time - to identify the delay in the process.

A target population was chosen through convenient sampling and a discharge tracking sheet was prepared in which the following details were noted down:

- Patient's name
- MRN No.
- Ward type
- Bed no.
- Discharge announce time
- Medicine return time
- Discharge summary preparation time
- Time of sending Billing sheet from ward for billing process.
- Draft bill generation time
- Billing clearance time
- Time of Patient getting physically out from ward.

In case of TPA patients, following additional data was noted down:

- Time of File receiving in TPA dept. from ward
- Time of start of Processing of documents by TPA dept.
- Time of receiving approval from the respective TPA company.

The data was collected and analyzed, the TAT of discharge process starting from discharge announce time to the time of patient being moved out of the ward was calculated and in case of delay, reasons behind the delay were found out.

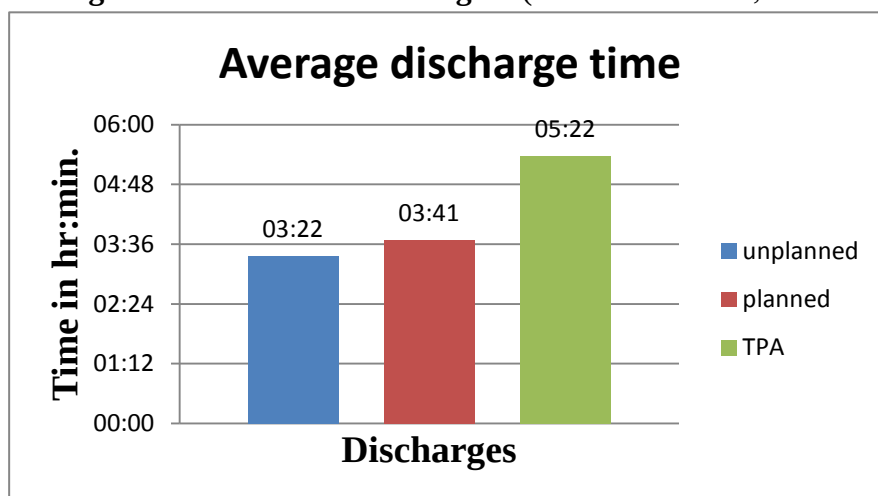
FINDINGS

The findings from the analyzed data were:

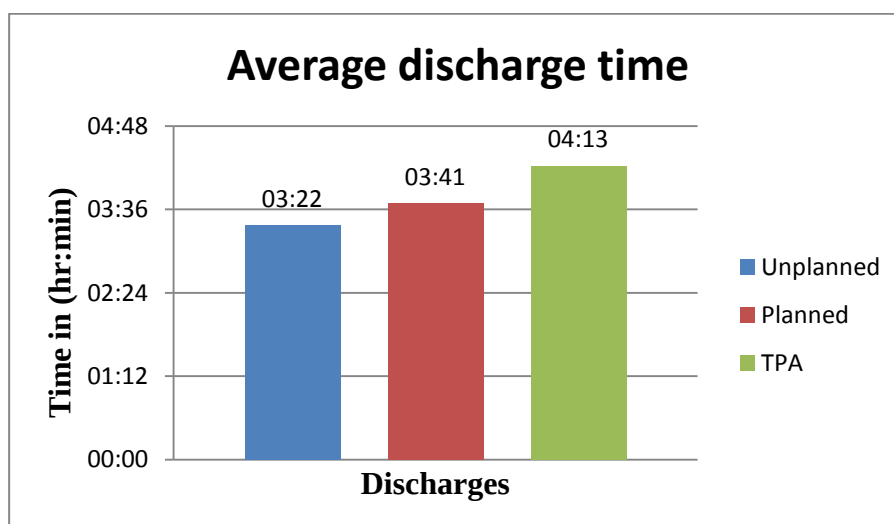
- Average discharge time in unplanned discharges was **3 hours 22 minutes**.
- Average discharge time in planned discharges was **3 hours 41 minutes**.
- Average discharge time in TPA discharges (including approval time) was **5 hours 22 minutes** and (excluding approval time was 4 hours 13 minutes).

Key findings:

1. **Average time taken in discharge** (in case of TPA, including approval time)

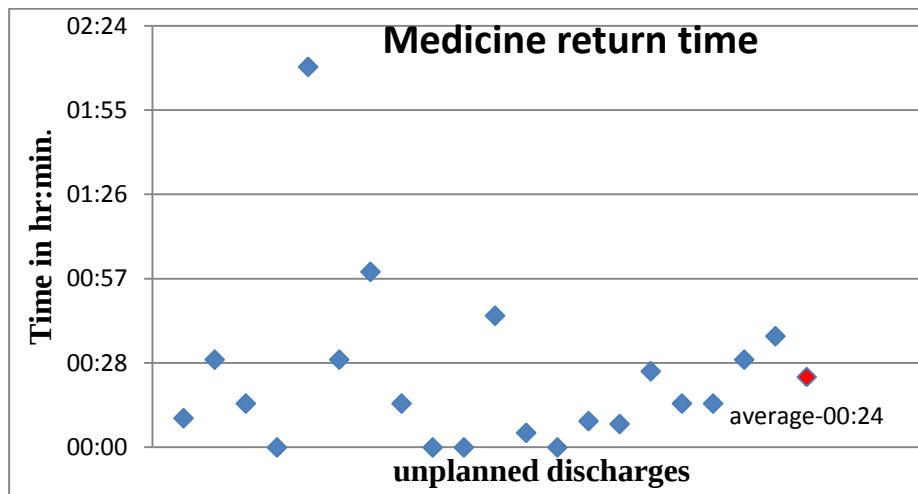


2. **Average time taken in discharge** (in case of TPA, excluding approval time).



The above two graphs illustrate that average time taken in completion of discharge process for planned cases was 19 minutes more than the unplanned cases. These graphs show only minor difference in planned and unplanned cases which reflects lack of previous preparation for discharge in planned cases.

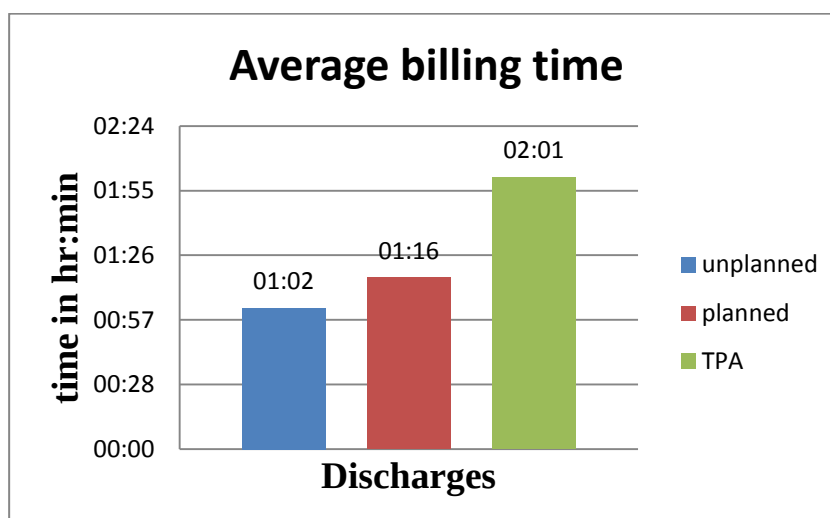
3. Medicine return time in unplanned discharges



The above graph indicates the time taken in returning the medicines in unplanned cases to pharmacy (in case of planned discharges, medicines were returned before night) . The average time taken was 24 minutes. The points in the graph indicating 0, were the cases in which no medicines were required to be returned. The following reasons were observed for time consumption in this process:

- Confusion regarding medicines among the nursing staff leading to mixing or misplacement.
- Manual billing of items which are not present in database.
- Handling of issue, order, manual billing by same person.
- Confusion regarding generic and brand names of medicines.

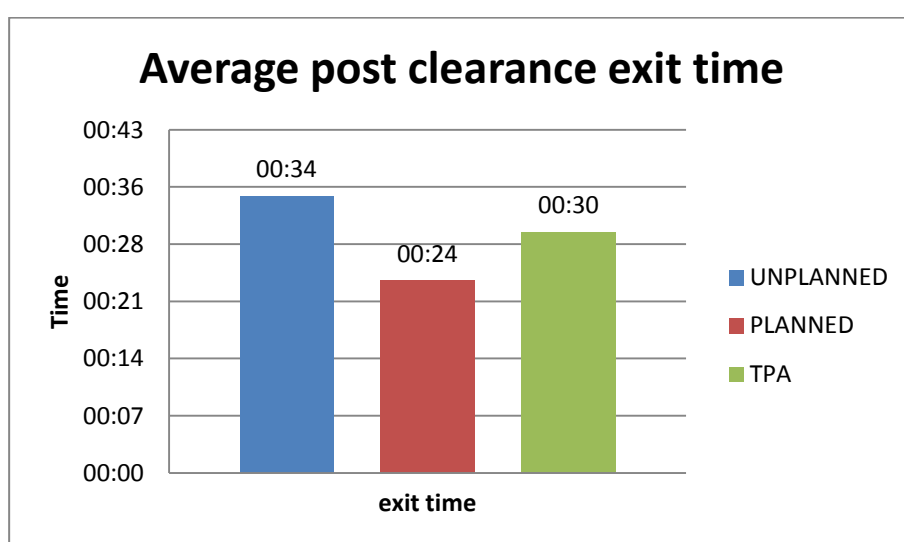
4. Average time taken in billing.



The above graph indicates the time taken in billing from the time of sending the billing sheet to the IPD billing department till the generation of draft bill. The graph indicates lack of planning in relation to planned discharges. The following reasons were observed for delay in this process:

- About 53 % of cases were not marked for discharge in the system even after sending the billing sheet to the IPD billing counter.
- Tasks not cleared on time on the system.
- Same counter for all IPD patients including admitted and to be discharged patients leading to sudden rush of attendants of patients.
- Charging of very costly consumables such as implants only after intimation from purchase department which was found to be time consuming.

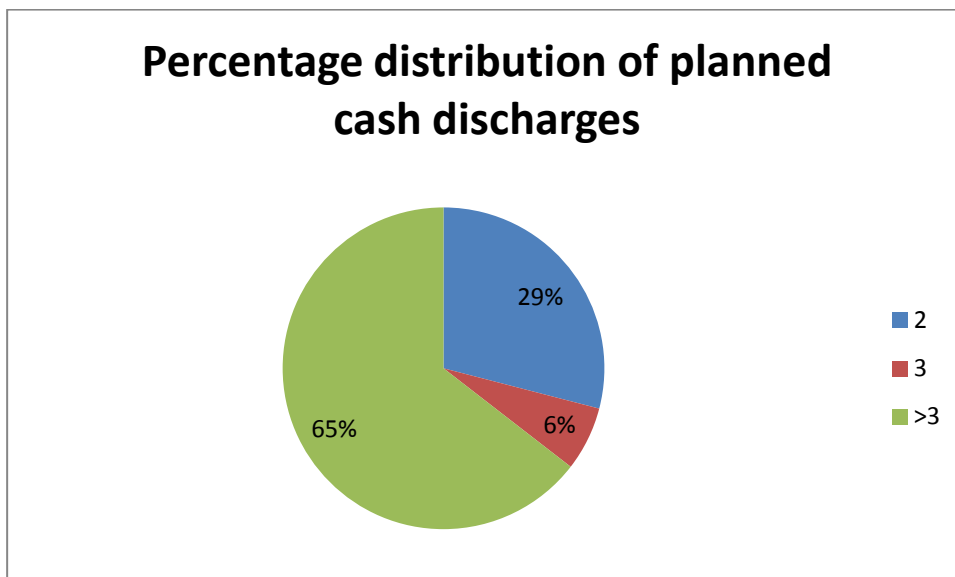
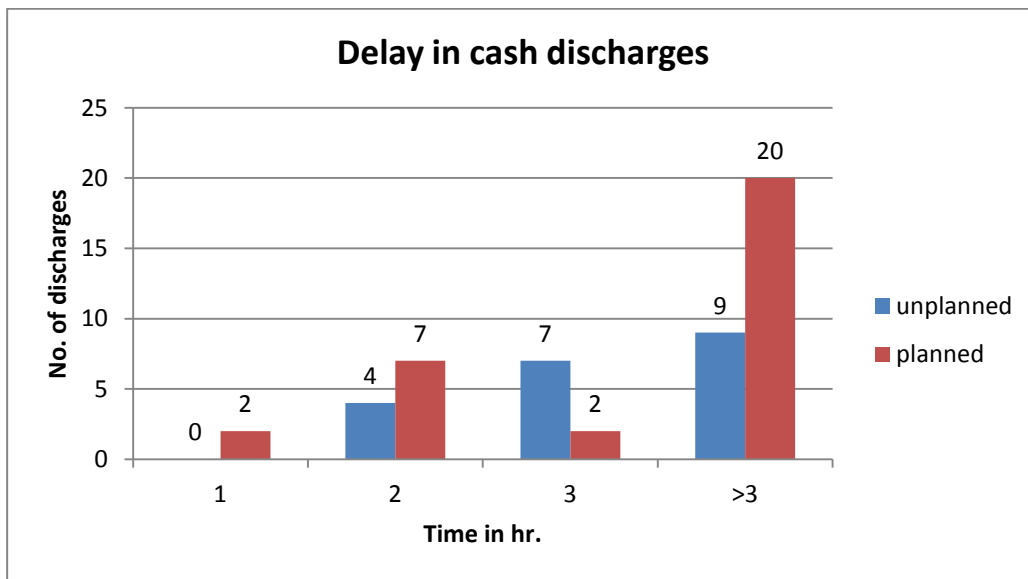
5. Average exit time taken post clearance



The above graph shows the average time taken to move the patient out of the ward after clearance card has been handed over to the respective nursing staff. The following reasons were observed for delay in this process:

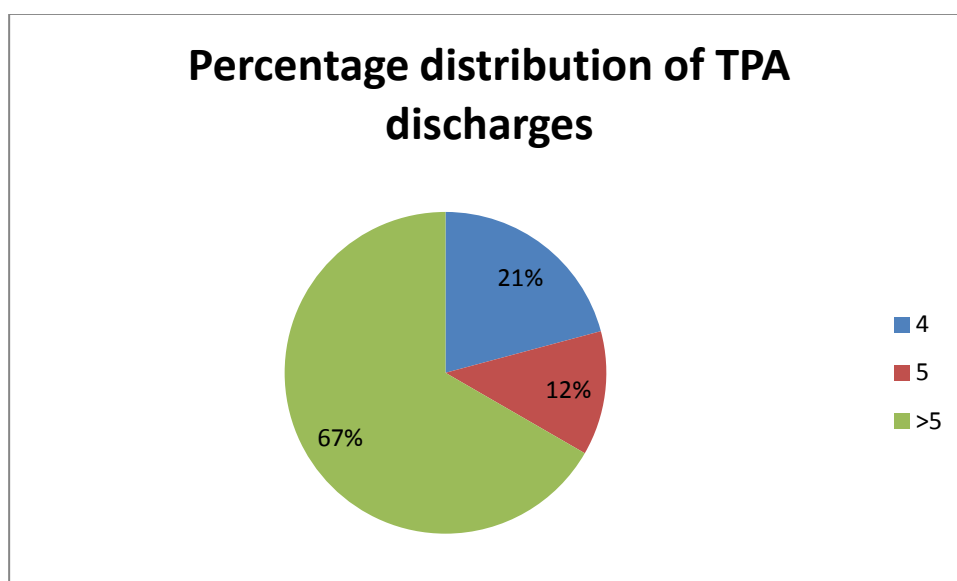
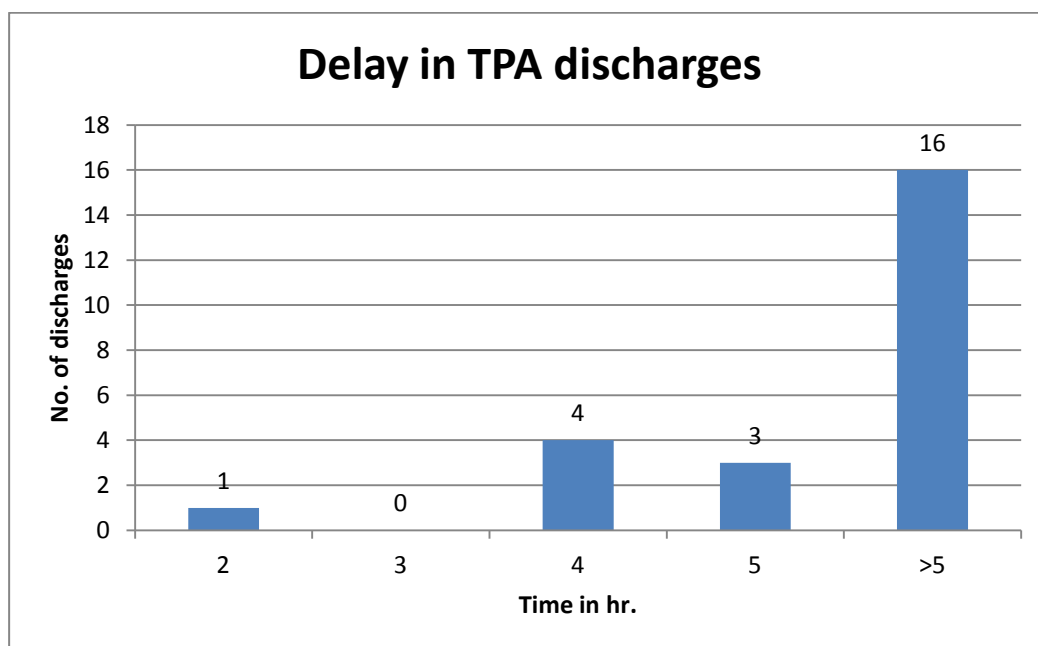
- Explanation and counseling of patient and his/her attendants by the nursing staff after handing over of clearance card, which could be done before.
- Unavailability of manpower to shift the patient.
- Instructions to shift the patient were issued after making all the entries.
- Delay on the part of patient such as problem of arrangement for conveyance or use of services related to F&B already included in the bill.

6. Number of delayed cash discharges



The above two graphs indicate the number and percentage of cash discharges (unplanned and planned) in which the whole process of discharge was completed within 2 hours. In case of planned discharges, 9 cases (or, 29% of cases) were discharged within 2 hours. And in case of unplanned discharges, 4 cases were discharged within 2 hours. Since 22 planned cases out of 31 (or 71%) were discharged after 2 hours which is the benchmark of the hospital for planned discharges, these cases were identified as delayed.

7. Number of delayed TPA discharges



The above two graphs indicate the number and percentage distribution of TPA discharges according to the time consumed in the whole process of discharge. Only 5 cases out of 24 (or, 21% of cases) got discharged within 4 hours which is the benchmark of hospital for TPA cases, hence the rest (19) were considered as delayed. The following reasons were observed for delay in TPA cases:

- Lack of completion of formalities (required by the TPA companies) on time such as incomplete documents sent from ward.

- Delay in sending the file for processing due to delay in discharge summary preparation.
- Confusion among the staff regarding the policy (in some cases not mentioned in the admission order) leading to last minute preparation of documents according to the policy.

REASONS FOR DELAY IN DISCHARGE PROCESS

- Due to medicine return
- Due to discharge summary preparation
- Due to delay in billing and clearance activity
- Due to lack of communication and coordination among staff
- Due to lack of interdepartmental communication and coordination
- Due to unorganized consultant visit
- Due to shortage of manpower
- Due to lack of preparation in case of planned discharges especially lack of completion of documents in TPA patients.

CONCLUSION

- Discharge process is an interlinked process. There are various steps in this process which are interdependent and require coordination and cooperation among the involved departments.
- To maintain an effective discharge process, strict monitoring of each step is required.
- The average turn around time taken in case of planned discharges was 3 hours 41 minutes (which was 19 minutes more as compared to unplanned cases) and 5 hours 22 minutes for TPA discharges.
- In both the cases, planned and TPA, the TAT was found to be significantly more as compared to the benchmark which is 2 hours for planned and 4 hours for TPA.
- Delay in discharge causes dissatisfaction among the patients and his/her family members.
- This is also contributed by lack of proper counseling of attendants regarding discharge process and lack of understanding of roles and duties of staff. This leaves a negative impact in terms of satisfaction, hospital capacity and ultimately financial performance. Hence major fulfillment of gaps in the process is required.

RECOMMENDATIONS

- Good interdepartmental coordination is required. Involved persons need to be trained for effective discharge of patients.
- Patient's case file needs to be updated daily, all the required documents, their completion, (in case of TPA patients, according to the TPA norms) to avoid delay in billing and processing of file for TPA. This might be beneficial in reducing the chances of error, misplacement of reports. Also the chances of receiving a query from the TPA might reduce further reducing the time of discharge.
- A planned discharge register needs to be maintained so that the staff working in the night shift is able to complete all the possible formalities a day before.
- Patient and attendant counseling related to whole process should be done by assigned nursing staff as soon as discharge is announced so as to avoid any false hopes, unnecessary repeated questioning by them further leaving them dissatisfied.
- Generation of up to date interim bills to avoid financial burden on the patient at the time of discharge. This will fasten the billing process and will help in minimizing billing errors.
- Consultants visit time needs to be scheduled by rescheduling of his/her OPD time.
- Provision of an enclosed billing counter to cater to the billing of discharge patients especially during the peak hours to ensure systematic and quick billing of discharge patients.
- Proper training of involved staff with defined duties especially regarding the use of the software system and the norms being followed for discharge to avoid confusion.
- Ensuring the patient has been simultaneously 'marked for discharge' in the system by the staff when the billing sheet is sent to the billing department to ensure timely start of billing process.
- Discharge summary needs to be prepared by assistant discharge officers/ data entry operators to reduce workload of the medical officers to enable them to concentrate on clinical work.
- Discharge summary of planned discharges should be prepared by the evening so that at the time of evening rounds, it can be checked by the consultants and necessary corrections be made.
- Separate counter for TPA in case of admission and discharge of patients for effective management of traffic of files and patient's attendants.

LIMITATIONS

- Study was conducted in a limited period of time.
- The discharges were **excluded** in the following cases:
 - when discharge was completed or initiated after 5:30 p.m.
 - When patient got discharged as a case of DOR or LAMA.
 - When planned discharge was delayed due to orders by consultant for further investigation.
 - When patient expired on the expected date of discharge.
- TPA cases were included in the study though as a separate category and were compared only after excluding the approval time from the TPA.
- Since study was time consuming, it was not possible to track all the discharges from all wards hence discharges from the two floors (lower ground floor and first floor) were tracked for fixed number of days separately.

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ANNEXURES

Discharge tracking sheet:

name	MRN	WARD	announce	med.return	summary	billing sheet	draft bill	clearance	out

In case of TPA discharges, following additional data was noted:

file receive	processing	approval

PROJECT -2

TITLE- Identifying delays in medication dispense practice in hospital departments.

INTRODUCTION

Medications are one of the primary modes of treatment in a hospital. Medication dispensing pathways used in hospitals influence patient safety and efficiency of medication workflow. Patient medication safety includes rapid initiation of medication orders and adherence to the prescribed medication regimens. The prescribing of a medicine by the consultant sets in motion a complex series of interrelated supply chain and workflow processes aimed at providing the patient this medication as quickly, efficiently, accurately and cost-effectively as possible. However, within hospitals and across the healthcare system, these processes vary in ways that may have consequences. Variations impact initiation and timing of medication therapy for patients. They also create pressure, stress and inefficiency for pharmacists and nurses, and workflow disruptions.

A breakdown at any point in these processes may lead to delayed, omitted or incorrect medication therapy. For hospitals to reduce patient morbidity and mortality, it is imperative that they initiate appropriate medication therapy rapidly and continue to administer therapy as scheduled. Patients have a right to receive and hospitals have an obligation to provide, the right medication, for the right reason, at the right time. For this to occur, nurses need the correct medications available at the time they plan to administer them. And before these medications can be dispensed, pharmacists are required by regulations and professional standards to review medication orders for patients while also assuring the medications are secure, yet available for the nurse when needed.

Several factors can complicate this workflow and impact the timely delivery of medications. The sheer volume of new medication orders exacerbates the challenge. Therefore, pharmacy, nursing and technological processes must all be synchronized to provide the correct medication, supplies and information for each one of these transactions.

Pharmacy is defined as ‘Premises licensed for the retail sale or the supply to the hospital outpatient department and /or inpatient areas of drugs which have qualified licensed persons indulged in compounding of drugs’.

Objectives and functioning of the pharmacy department :-

The IPD pharmacy department is involved in the following **major** functions in majority of the hospitals:

- Timely procurement (involving maintenance of stock and sending of request to the main store) and delivery of required medicines to the patient.
- Delivery of medicines and consumables to the wards and O.T. for maintenance of their inventory.
- Receive of medicines returned on the discharge of a patient.

Delay in medication dispense:-

The major expectation from the pharmacy department is to make right drug available at the right place and time. Delay in delivery of required items interrupts the smooth functioning of the department itself and the hospital on the whole.

The delays can at times be disastrous and the effects can be horrifying in terms of mortality and morbidity, hence continuous monitoring of the procedure along with the efforts and dedication of staff to improve the process is of utmost importance to vitalize the lifelines of the hospital that is ‘MEDICINES’.

REVIEW OF LITERATURE

A new medication is prescribed for a patient. This action sets in motion a complex series of interrelated supply chain and workflow processes aimed at providing the patient this medication as quickly, efficiently, accurately and cost-effectively as possible. However, within hospitals and across the healthcare system, these processes vary in ways that may have consequences. For hospitals to reduce patient morbidity and mortality, it is imperative that they initiate appropriate medication therapy rapidly and continue to administer therapy as scheduled. Patients have a right to receive and hospitals have an obligation to provide, the right medication, for the right reason, at the right time ^[1].

SUPPORTING GUIDELINES (TABLE 2) TO ASSIST HOSPITALS IN MEETING THE PROPOSED GUIDELINES FOR TIMELY ADMINISTRATION OF MEDICATIONS. GUIDELINES FOR TIMELY MEDICATION ADMINISTRATION, INSTITUTE FOR SAFE MEDICATION PRACTICES, U.S.^[2]

Table 2. Supporting Operational Guidelines for Timely Drug Administration

Topic	Description
Maintain adequate staffing levels	Maintain adequate staffing levels in the pharmacy and patient care units, based on workload and patient acuity, to facilitate timely order review, dispensing, drug administration, and patient monitoring.
Consider medication administration when making patient assignments	When planning nursing staff assignments for patient care, consider the following patient acuity factors: types of prescribed medications; quantity of time-critical medications; complexity of drug administration (e.g., preparing the drug, programming drug delivery devices, verification processes, administration procedures); total number of daily medications; frequency of drug administration; and the patient's ability to swallow oral medications.
Use of automated dispensing cabinets (ADCs)	If using ADCs, ensure the number of cabinets on patient care units facilitates both safe (e.g., removal of one patient's medications at a time) and timely (e.g., minimal waiting time to remove medications) drug administration.
Justification of early or late administration	Identify and clearly define justifiable reasons that time-critical and non-time-critical medications may be given early, delayed, or omitted (e.g., patient absence from unit, nausea/vomiting).
MAR documentation	Require staff who administer medications to document the exact time the drug was actually administered, rather than just initialing the MAR entry. If a medication was administered early, late, or has been omitted, require staff to document the reason. Ensure electronic and paper MARs provide sufficient space and prompts for this documentation.
Reference MARs	Require staff administering medications to always reference MARs that show times of the previously administered doses. This helps to avoid early administration of a dose that was previously administered late, resulting in a dosing interval that is too short (e.g., if a 9 a.m. dose of a maintenance opioid pain medication is given at 10 a.m., and the 1 p.m. dose is given at 12 p.m., the dosing interval is just 2 hours, thus risking over-sedation).
eMAR alerts	Define and configure (with vendor support as needed) eMAR alerts to show doses that will soon be overdue, that are beyond defined time limits or have been omitted, and to highlight previous doses that have been delayed/omitted.
Standard administration schedules	Adhere to standard drug administration schedules based on the prescribed dosing frequency whenever possible. Exceptions to standard drug administration times may be appropriate for patients who self-administer chronic medications, to stagger numerous piggyback IV medications, or to keep a time-critical chronic medication on the same schedule used prior to admission. (While it may seem best to try to keep patients who take any type of chronic medication on the same administration schedule they were using at home, medication administration throughout the day during nonstandard times is prone to omissions; thus administration during standard times is recommended.)
Procedure to follow if medication administration is early or delayed	Establish a procedure for clinical staff to follow if administration of a time-critical scheduled medication will be or has been delayed or administered early beyond allowable expectations. ¹ This procedure should include: 1) prescriber notification when an adverse outcome is anticipated or has occurred, 2) documentation in the patient's chart and/or MAR regarding the reason administration of the dose was early or delayed, and 3) evaluation of the need to change the timing of future doses.
Event reporting	For learning purposes, require an event report for untimely administration of non-time-critical medications without a hospital-defined justifiable reason for the delay. Also require an event report for untimely administration of all time-critical medications, even if the reason for the delay was justifiable. Track untimely but justifiable administration of non-time-critical medications via end-of-shift reports or periodic aggregate data collection.
Data analysis	Review data from event reports, end-of-shift reports, and aggregate data collection to identify the causes of early or delayed drug administration, to revise the list of time-critical drugs as appropriate, and to make system-based changes to facilitate timely order review, dispensing, and administration of time-critical medications. Avoid punishment of individuals for late drug administration; instead, remedy the processes and environmental conditions that contributed to untimely administration.

AIM- Identifying delays in medication dispense practice in hospital departments.

Objectives of the study

- To understand the basic functioning of the pharmacy department.
- To understand and trace the process of dispense, delivery and receive of ordered items from the IPD pharmacy and wards respectively.
- To calculate the turn around time of the whole process.
- To find out the reasons for delay and suggest possible solutions for the same.

Research Question

To identify the delays in medication dispense practice in hospital departments (Female General ward, MICU, IP Pharmacy ?

METHODOLOGY

STUDY AREA: Narayana Multi-speciality Hospital, Jaipur

STUDY AREA: Female general ward (FGW)

Medical intensive care unit (MICU)

IPD pharmacy

STUDY PERIOD: 18 days (May 8 to May 25, 2013)

SAMPLE SIZE: Total sample size was = 300 samples

FGW- 75 indents,

IPD pharmacy (tracking of FGW)- 75 indents

MICU- 75 indents

IPD pharmacy (tracking of MICU)- 75 indents

STUDY DESIGN: Observational study

SAMPLING TECHNIQUE: convenient sampling

DATA COLLECTION:

PRIMARY- by direct observation

SECONDARY- through records (Hospital Software)

Process mapping – to study the dispense process

Turn around time - to identify the delay in the process.

A dispense tracking sheet was prepared separately for wards and pharmacy.

The following details were noted down in case of wards:

- Patient name
- MRN no.
- Quantity of items
- Time of hand over of medicine card to pharmacist
- Time of indent
- Time of receive

In case of pharmacy, following details were noted down:

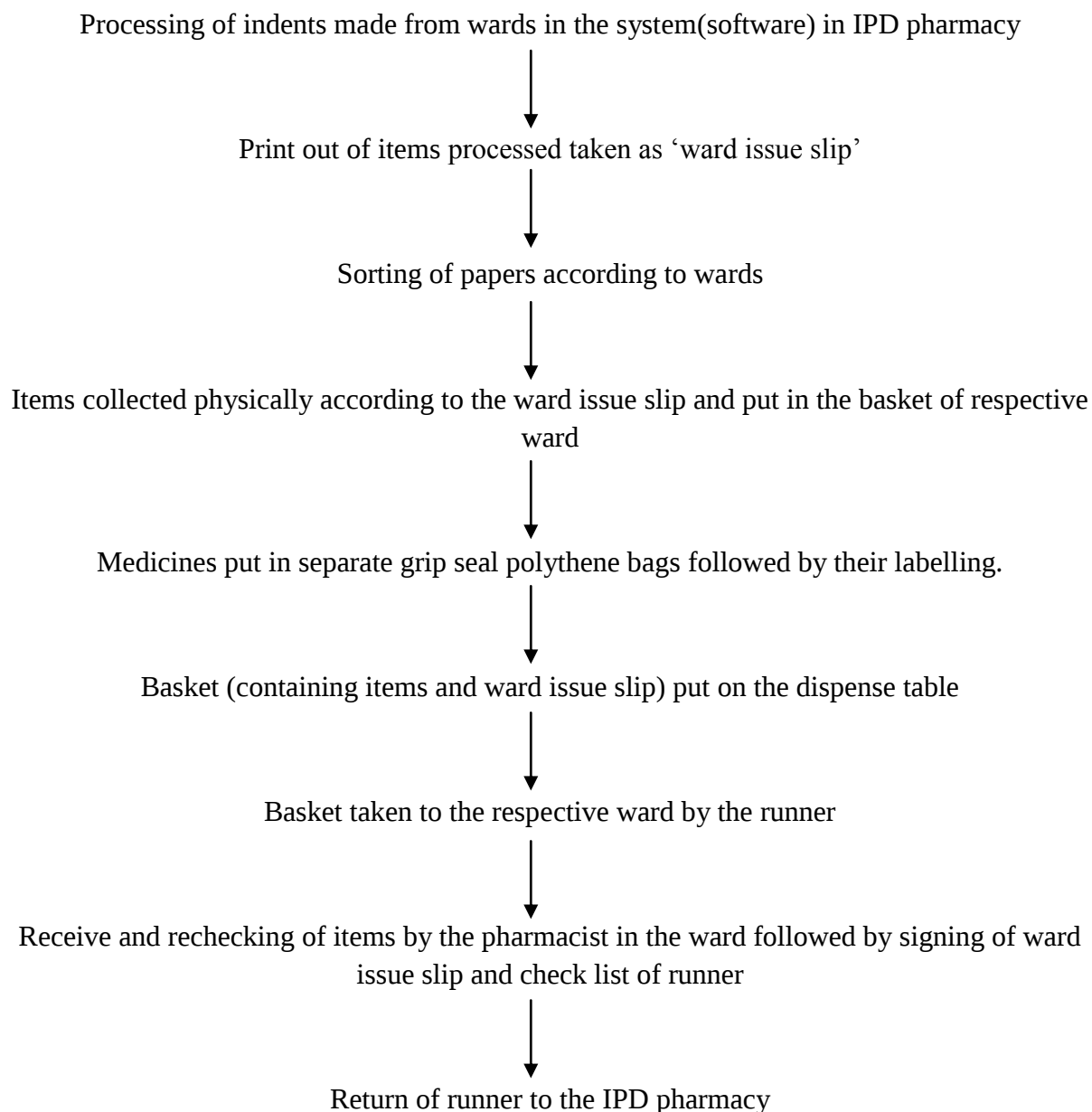
- Patient name
- MRN no.
- Quantity of items
- Ordered time
- Dispense lag time
- Packaging time
- Dispatch time
- Delivery time
- Time of return of runner to the pharmacy
- Number of items rejected

The data was collected and analyzed, the TAT of dispense process starting from indent time to the time of receiving of items indented was calculated and in case of delay, reasons behind the delay were found out.

Terms generally used:-

- **Items** – includes both medicines and consumables
- **Dispense lag-** The time difference between ordering of the indents and printing of the indents is called as dispense lag. It is also called as the system registration of the medicine.
- **Packaging time-** The time consumed in physical packing of the indents is known as packaging time.
- **Delivery time-** The time consumed in the delivery of medicines from the IPD pharmacy to the respective destinations.
- **Rechecking time-** The time consumed in rechecking of medicines ordered in the wards after their delivery.

PROCESS FLOW



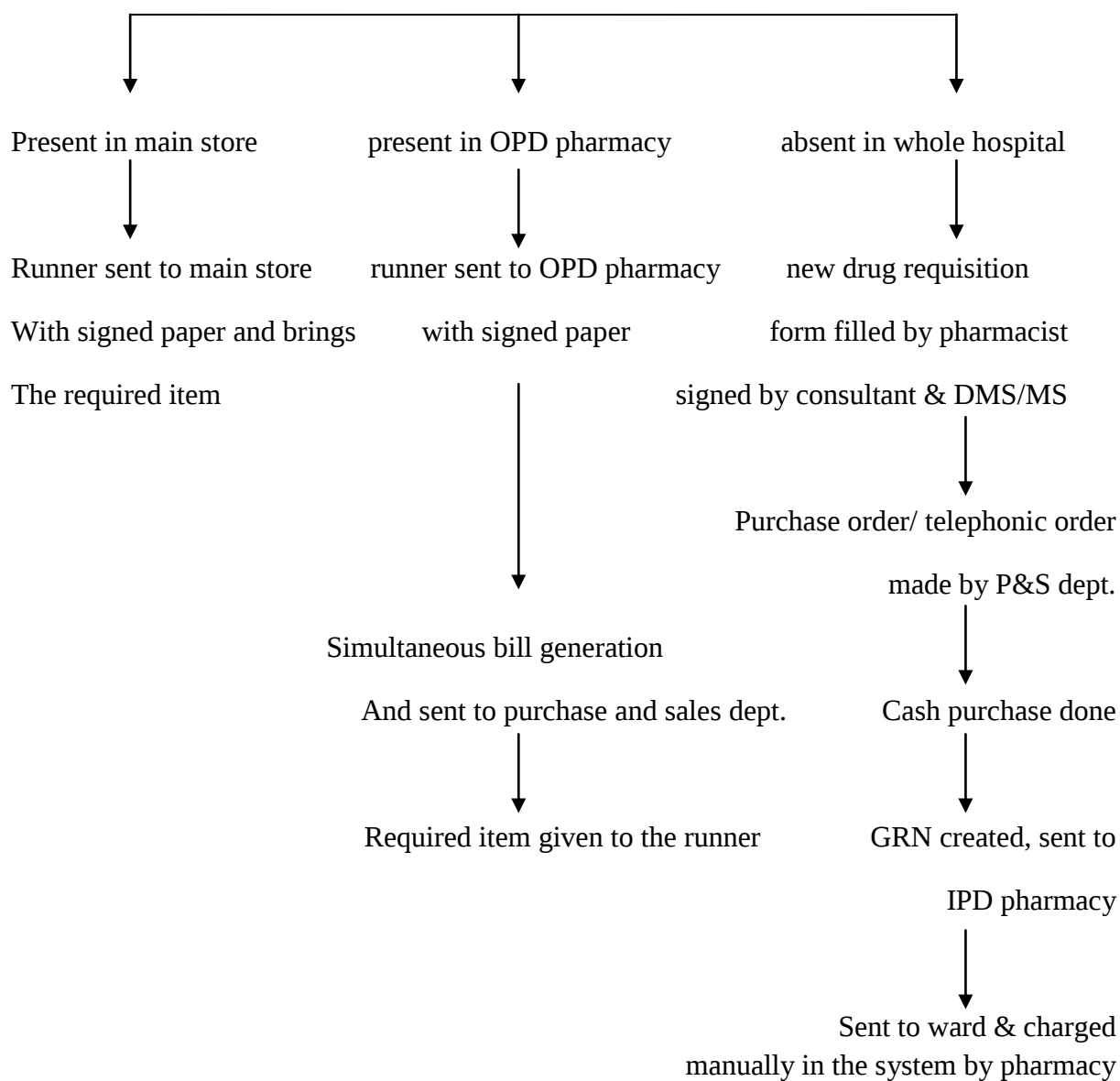
In case of items rejected in the system due to following reasons:-

Being out of stock/ stock shown zero, wrong indent (due to change of code of item), physically present but not in the system (due to GRN not created).

Print out of rejected and partially-processed (those items not available in the required quantity) taken as 'prescription order' showing rejected items as 'ordered' and issued items as

‘processed’. According to the availability, item sent to respective ward through runner and later manually charged in the system.

In case of absence of a particular unavailable in IPD pharmacy but required urgently



In case of discharged patients,

Items returned from system by the ward pharmacist and sent physically to IPD pharmacy through CCA along with 'drug return request slip' signed by pharmacist.



Clearing of pending tasks from the system by IPD pharmacy after checking of prescription order papers for any items rejected. In case if item sent physically and not charged from system then charged manually.

All critical wards are given preference over general wards while processing of indents in IPD pharmacy.

IN WARDS,

Prescribing of medicines by the consultant in the consultant notes during his/her round



Transfer of medicines prescribed to the medicine card of the patient by resident doctor



Medicine card given to pharmacist for system indenting of items by nursing staff



Indenting of items by pharmacist

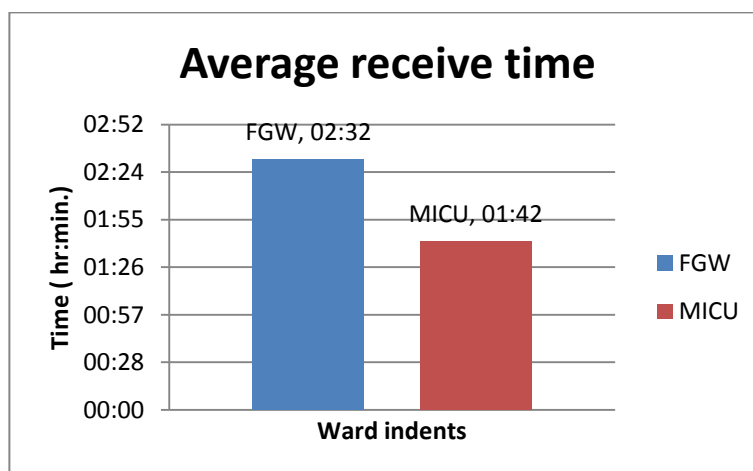


Receive of items indented brought by the runner, rechecking and signing of ward issue slip by the pharmacist.

***System mean the hospital software**

Key findings

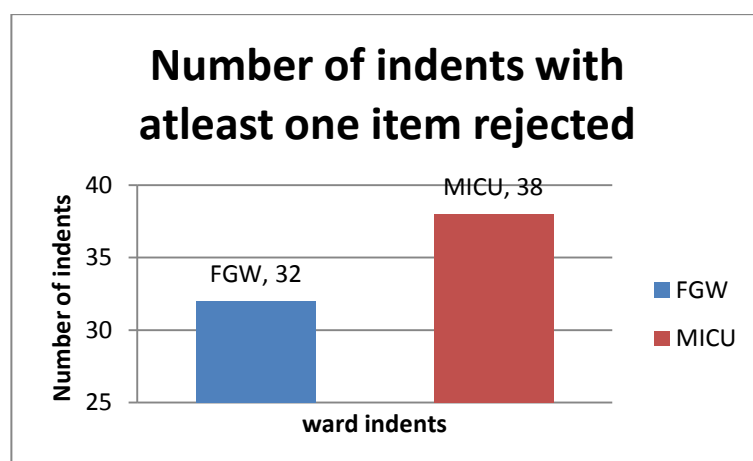
1. **Average time taken from indenting till receiving of items** (medicines & consumables) in wards.



The above graph indicates the average time taken from the system indenting of items by the pharmacist in wards (FGW and MICU) till the receiving of those items. Average time taken in case of FGW is 2 hrs. 32min. which is 32 min. more than the hospital benchmark (that is 2 hrs. in case of general ward). Average time taken in case of MICU is 1hr.42min. which is 42 min. more than the hospital benchmark (that is 1 hr. in case of critical ward)

2. **The average time taken from the handover of medicine card by the nursing staff to the pharmacist** for system indenting turned out to be 26 min. in case of FGW and 25 min. in case of MICU which indicates the waiting time for the card for its turn to be indented and hence further adds to the total delay in ultimate reaching of indented items to the patient.

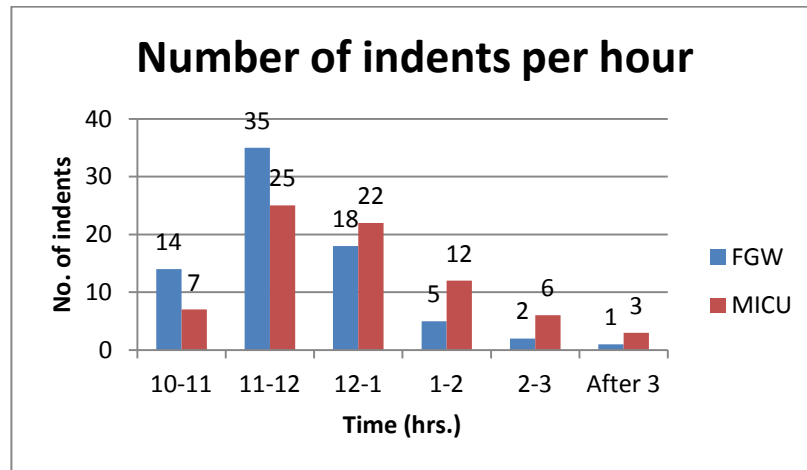
3. **Number of indents with rejected item**



The above graph indicates that out of 75 indents from each ward, there were 32 and 38 indents in FGW and MICU respectively in which at least one item was rejected. The reasons for rejection were found to be the following:

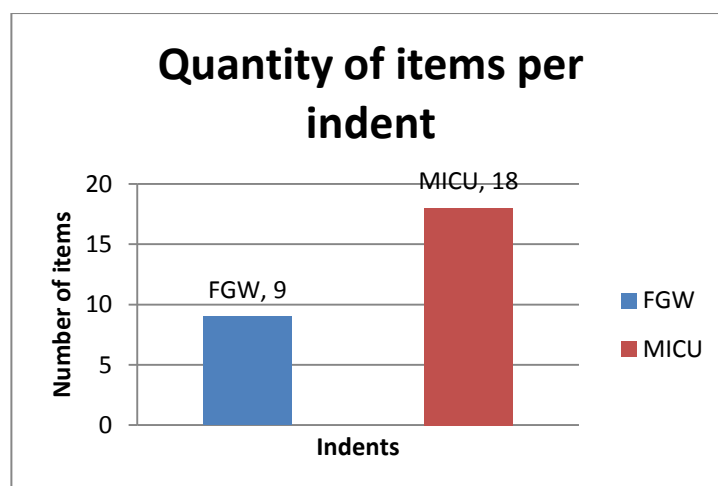
- Out of stock – both physically and in the system.
- Physically present but not shown in the system due to GRN not made/ complete.
- Wrong indent as in case of change of code of item.

4. Peak hours of indenting



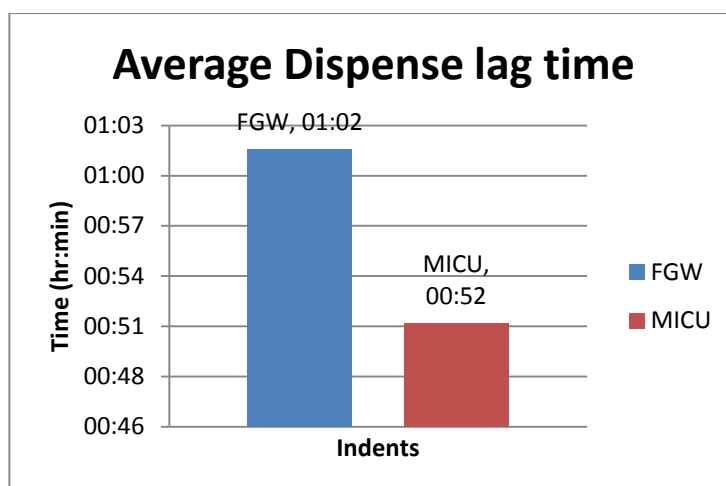
The above graph indicates number of indents in one hour. The maximum number of indents made (peak hours of indenting in wards) was found to be between 11:00 a.m. to 12:00 in case of both the wards which leads to sudden rush of load of indents on the system in pharmacy which adds to the delay in whole process.

5. Average Quantity of items per indent



The above graph indicates the average quantity of items per indent which was found to be more in case of MICU leading to more time required for indenting from ward and dispensing from pharmacy.

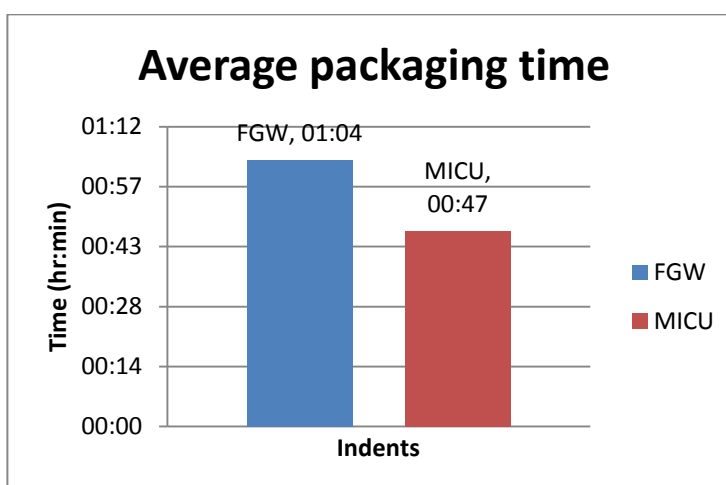
6. Average Dispense lag time or average time taken in system registration of indents.



The above graph indicates the average time taken by the IPD pharmacy in processing the indents through system, made by the pharmacist in respective wards in the system. It was found to be 1hr. 2 min. in case of FGW and 52 min. in case of MICU. Comparatively less time is taken in case of MICU since indents from critical ward are given preference over general ward. The following reasons were observed contributing to delay at this step:

- The rush of indents from all wards at around same time due to arrival and start of indentation by the pharmacists in all wards at the same time.
- Slow down of system due to sudden rush or other network problems.
- Lack of staff in IPD pharmacy to look after both system processing of indents and physically packing of items.
- At least one Data operator being busy in looking after the pending items list or manually charging of rejected items especially in case of discharged patients to clear the pharmacy related tasks in the system for final billing.

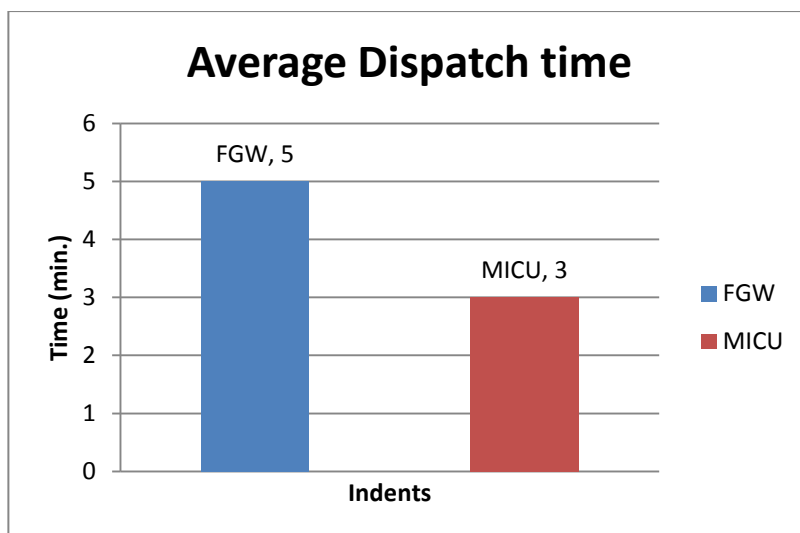
7. Average time taken in packing of items by IPD pharmacy



The above graph indicates the average time taken by the pharmacy staff to physically collect the items and put in the basket of the respective ward. The packing of medicines is done in

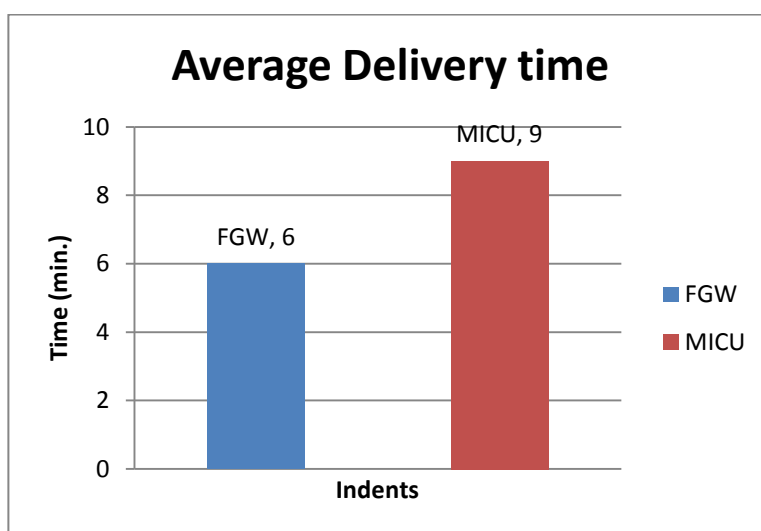
separate grip seal polythene bags with label on them. The packing of MICU indents, comparatively takes more time due to the presence of more number of items per indent but since critical ward is given preference over general, in dispensing hence on calculation, the time for MICU indents was found to be less.

8. Average time taken from packing of items till dispatch from IPD pharmacy



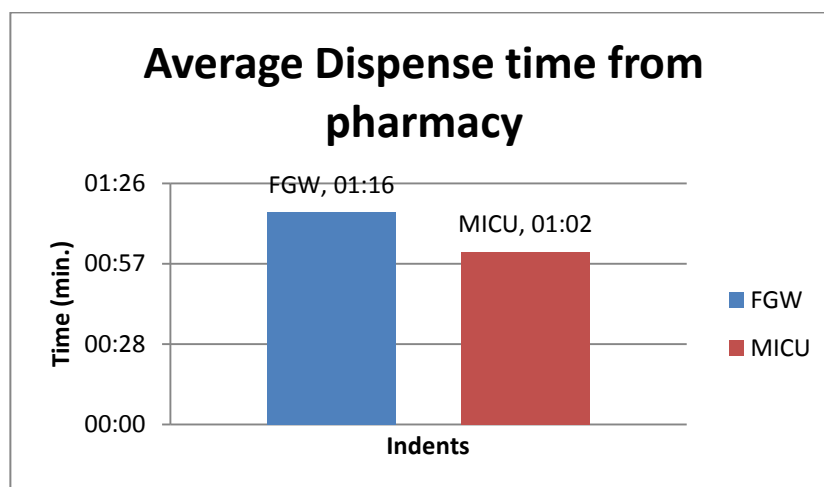
The above graph indicates the average time taken in the dispatch of items from pharmacy after their ward wise packing in baskets. It was 5 min. in case of FGW and 3 min. in case of MICU. The above time varies according to the availability of runners who take the baskets to the respective wards.

9. Average time taken in delivery of items to the respective wards



The above graph indicates the time taken from the dispatch of items from pharmacy till they are received in wards. The time taken in case of MICU was found to be more due to the presence of more items per indent.

10. Average time taken from system registration of indents by pharmacy till receive of items in wards.



The above graph indicates the time taken by IPD pharmacy from the system registration of the ward indents till the receiving of items in wards. It includes the time involved in system dispensing, taking print out of ward issue slips, their sorting, packaging, labelling, dispatch and delivery of items to wards.

REASONS FOR DELAY IN MEDICATION DISPENSE

In case of FGW & MICU :

- Lack of scheduling of indent time in wards leading to sudden rush of indents in pharmacy during 11:00 am to 12:00 noon of day.
- Lack of coordination from nursing staff leading to few items especially consumables which are not entered in medicine card to be missed which further leads to more number of indents and unnecessary burden on pharmacy.
- Errors in medicine card lead to delay in indenting since the pharmacist has to rectify them and make sure that the right medicine is indented in right quantity and frequency.
- Medicines after being received by the pharmacist, not collected by the nursing staff on time, leading to mixing of items on the desk which further leads to misplacing of items in respective patient's drawers. This disturbs the whole process of next indenting for the same patient, even leading to him/her being wrongly charged.
- Untimely rounds of consultants lead to untimely change in medication if any, further complicating the process by discontinuing the medicine already indented and reordering the new medicine. If in case by this time the indent is processed in the

pharmacy then it leads to double work since the medicine once charged from system cannot be taken back hence both the earlier and new medicine will be sent to ward and the unused will be returned at night, unnecessarily increasing the work of pharmacy.

In case of IP pharmacy,

- System problems such as slow down, unnecessary requirements while processing like three times % has to be entered.
- Complicated process especially in case of rejected items, separate print out of prescription order slip containing the rejected items is taken out for every patient leading to a pile of such slips. Pharmacy staff has to then manually charge such items according to their availability.
- The normal process further delays when IPD staff has to look for pending drug orders and clear the task as soon as possible in case of discharge patients. Also, receive the items returned both through system and physically.
- Variation in stock present physically and in system due to items given manually (whether indented in system or not) to the ward staff who come to the pharmacy in case of urgency. Lack of maintenance of record of such cases leads to stock variation. This leads to either the patient being charged twice or not charged for that item hence adding to loss of hospital.
- Patient transfers between patient care areas also make delay in the process.
- Lack of timely fulfillment of stock request (made by IPD pharmacy) by the main store.
- Shortage of staff in pharmacy especially during the peak hours of indenting.
- The runner waits for the items of one ward to be collected in bulk to avoid delivering of items per indent which would take more number of rounds to be made by runner. Sometimes other wards are covered in a single round according to accessibility. But this delays the process since he has to wait for collection of items and also more time is consumed in verification by the pharmacist on receiving.

CONCLUSION

- Medication dispense process is a crucial process in a hospital. At the same time, it is an interlinked process. It requires coordination and cooperation of among the involved departments, all wards, pharmacy, main store and purchase and sales department.
- To maintain an effective dispense process, strict monitoring of each step is required.
- The average time taken from indenting till receive of items in wards was found to be 2 hrs. 32 min. in case of FGW and 1 hr. 42 min. in case of MICU.
- In both the cases, the TAT was found to be more as compared to the benchmark which is 2 hours for general ward and 1 hour for critical ward.
- Delay in delivery of required items interrupts the smooth functioning of the department itself and the hospital on the whole.
- The delays can at times be disastrous and the effects can be horrifying in terms of mortality and morbidity.
- Patients have a right to receive and hospitals have an obligation to provide, the right medication, for the right reason, at the right time. Hence, improvement in the medication dispense process is of utmost importance for the hospital.

RECOMMENDATIONS

- Indents of the items should be done in a way that all the items (medicines and consumables) required for a patient are covered in one time. Unnecessary extra indents increase the burden on pharmacy which could be easily avoided.
- Proper scheduling of indenting time according to wards would be beneficial in reducing the sudden rush of indents on the system. Since the medicines ordered today cater to the demand till next day hence hours should be fixed for wards after the round of consultants maintaining the concept of giving preference to critical wards.
- Scheduling the time of arrival of pharmacists according to the wards. Instead of all of them coming and indenting at almost the same time, the pharmacists working in critical wards should be called earlier than those in general wards.
- Some common consumable items can be shifted to wards to reduce the burden on pharmacy.

- Maintenance of a sorted list of print outs of prescription orders containing rejected items ward wise in pharmacy to avoid fishing out of papers to look for any pending orders to be charged manually especially in case of discharge patients.
- Medicines not available should be coded on the database with list of substitutes.
- Any change in code of medicines or availability of new medicine should be informed to the pharmacists to avoid wrong indents and thus rejected items.
- Increase in manpower especially during peak hours of indenting.
- Consultants visit time needs to be scheduled by rescheduling of his/her OPD time to avoid double indenting (discontinuing of earlier indented medicines and indenting of new medicines).
- Change in colour coding on the system on arrival of new indent, new admission and discharge along with its type like urgent or elective.
- Better monitoring of inventory with help from purchase and sales department to look after the stock present and the re-order level of items especially the fast moving items for timely supply to the pharmacy.
- Separate store for first floor since maximum wards are present there hence it will improve the accessibility as well as reduce the burden on IPD pharmacy which caters to all wards. This will also separate critical wards from general further reducing the delay.

LIMITATIONS

- Study was conducted in a limited period of time.
- Secondary data was also used in calculation affecting the degree of authenticity.
- Only the indents made by the pharmacist were observed, not the nursing staff.
- Only pharmacy runners were followed, not the ward staff.
- Only orders made and received between 10:00 a.m. (time of arrival of pharmacist in ward) to 5:00 p.m. were followed.

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