

**Summer Training at
Care Hospitals, Banjara Hills Hyderabad
(April 3 to June 2, 2017)**

- **Report on Delay in the Discharge Process of Inpatients at Care Hospital Banjara Hills**
- **Project on Audit and Efficient Use of Ventilators in ICU at Care Hospital Banjara Hills**

**By
Alladi Shashank Kumar**

**Under the guidance of
Dr. P.R. Sodani**

**MBA Hospital & Health Management
2016-2018**


**Institute of Health Management Research
The IIHMR University, Jaipur
2017**

CERTIFICATE

This is to certify that Dr. A Shashank Kumar has undergone summer training in Care Hospitals (Hyderabad, Banjara Hills) from 3rd April to 2nd June 2017.

The candidate himself completed the project assign to him during summer training. His approach to the project was sincere and proactive. This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health Management.

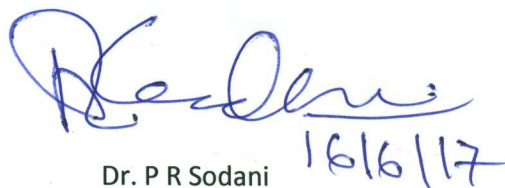
I wish him success in all his future endeavors.



Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affair)

The IIHMR University, Jaipur



Dr. P R Sodani

Dean (Training)

The IIHMR University



Date: - 02-06-2017

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Dr. Alladi Shashank Kumar** a student of IIHMR University, Jaipur has done project on "Delay in Discharge Process of In Patients" and "Audit and efficient use of Ventilators In ICU" in the department of Hospital Administration from 03-04-2017 to 02-06-2017.

During the above period his performance and conduct were found to be good.

We wish him all the best in his future endeavors.

For QUALITY CARE INDIA LIMITED,


K.V.SUBBA REDDY
General Manager- HR



6-3-248/2, Road No.1, Banjara Hills, **Hyderabad - 500 034**. Phones: 040-30418888, 23234444, Fax: 040-30418488
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Website: www.carehospitals.com, E-mail: info@carehospitals.com

Quality Care India Limited



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Acknowledgement

It Is a Genuine Pleasure to Express My Deep Sense of Thanks and Gratitude to Dr. Satish Salveru (Assistant Medical Superintendent) And Dr. Harish Jawalkar (Assistant Medical Superintendent) For Getting Me an Internship at Care Hospitals and Their Support, Guidance and Encouragement Has Led to Learn Many Things Which I Was Unaware of in The Hospital Industry.

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I Would Also Thank Sri Devi (FHA) For Having the Trust in Me and Giving Me the Project for The Welfare of the Patients as Well as Organization. Her Support Throughout the Entire Project Has Helped Me to Learn a Lot of New Things Which I Was Unaware of and Also, I Would Like to Thank Her for Giving Her Valuable Time from Her Day to Day Busy Schedule and Also After She Signs Out from The Hospital.

I Thank Sister Manga and Sister Jaya Shree for Sharing Their Information from The Project Which Was Handed Over to Me by Dr. Jhansi Vani. The Information Has Helped Me Making My Data Even Better for My Analysis Helping Me Add Extra Parameter for The Welfare of the Organization and The Patients.

I Also Want to Thank the Entire Staff of Care Hospitals for Helping Me Out with My Project by Sharing the Information They Had and the Gaps They Feel Have to Be Corrected.

I Also Express My Profound and Heartfelt Thanks to IIHMR University Jaipur and Dr. PR Sodani (Professor and Dean Training) My Mentor and Guide for The Valuable Suggestions and Support in Selecting an Organization for Internship to Helping Me Complete My Project on Time. Without His Guidance It Wouldn't Be Possible.

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Acronyms/Abbreviation

NMICU – Neuro Medical Intensive Care Unit

MICU – Medical Intensive Care Unit

NSICU – Neuro Surgical Intensive Care Unit

ICCU – Intensive Coronary Care Unit

PICU – Pediatric Intensive Care Unit

VAE – Ventilator Associated Events

VAP – Ventilator Associated Pneumonia

PRE – Public Relation Executive

EHS – Employee Health Scheme

PC – Pressure Control

VC – Volume Control

PS – Pressure Support

CPAP – Continuous Positive Airway Pressure

BIPAP – Bi-level Positive Airway Pressure

SIMV – Synchronized Intermittent Mechanical Ventilation

PRVC – Pressure Regulated Volume Control

HDU – High Dependency Unit

Organization Profile/About the Organization

It Was Founded in 1997 at Nampally, By Dr. B Soma Raju, Chairman and Managing Director, CARE (Cardiac Advance Research Education) Hospitals Group with Its Core Purpose as “To Provide Care That People Trust. Prof. Soma Raju Conducted the First Percutaneous Transluminal Coronary Angioplasty (PTCA) In India and Heads a Team Which Has Performed the Largest Number of Cardiac Interventions in The Country. He Was Integral to The Development of India's First Indigenous Coronary Stent — Named the Kalam Raju Stent After Former President of India Dr. A. P. J. Abdul Kalam and Dr. Soma Raju. This Led to A Dramatic Reduction in The Cost of Stents, Bringing Them Within the Reach of the People. He Was Also Key in The Development of India's First Coronary Balloon Catheter and Continues Working on Medical Devices for Use in Interventional Cardiology to Offer More Affordable Indian Alternatives for The Common Man. He Was Conferred the Padma Shri in 2001. {1}

The CARE Group’s Flagship CARE Hospitals, located in Banjara Hills - A Prime Location in Hyderabad, Was Set up in the Year 2000. Today, The Multispecialty Hospital Has 435 Beds, Including 120 Critical Care Beds, With an Annual Inflow of 1, 80,000 Outpatients and 16,000 In-Patients. {1}

The Hospital Provides Specialty Medical Services in Cardiology, Cardiothoracic Surgery, Pediatric Cardiology, Pediatric Cardiothoracic Surgery, Neurology, Neurosurgery, Nephrology, Urology, Etc. The In-Patient Services Include Intensive Care, Cardiac Care, Neurological Care, Pediatric Care, Medical Care, As Well as Surgical, Diagnostic and Emergency Services.

The Hospital Has 10 Operating Theatres with State-Of-The-Art Equipment. Every Year More Than 1700 Cardiothoracic Surgeries and 5000 Non-Cardiac Surgeries Are Performed. Over 4000 Cardiac Interventions Are Carried Out in The Advanced Cath Labs Every Year. The Hospital Also Has the First Dual Source, 128 Slice CT Scanner (For High Precision Cardiac Imaging) - The First of Its Kind in South India. {1}

The Hospital Offers a Wide Range of Accommodation Facilities for The Convenience of Its Varied Patient Base, Ranging from General Wards to Super Deluxe Rooms.

CARE Hospitals Is a Complete Healthcare Ecosystem, With Related Components of Education/Training and Research, Pursuing Innovations That Make Healthcare More Affordable. A Network of Telemedicine Hubs in Rural Andhra Pradesh and Maharashtra Deliver Care at The Doorstep to Lakhs of People. These Activities Are Managed by Its Partner CARE Foundation. {1}

The CARE Hospitals Group Is a Multispecialty Healthcare Provider, with 16 Hospitals Serving 8 Cities Across 6 States of India. The Regional Leader in Tertiary Care in South/Central India and Among the Top 4 Pan-Indian Hospital Chains, CARE Hospitals Delivers Comprehensive Care in More Than 30 Specialties in Tertiary Care Settings. {1}

The Various Branches of CARE Hospitals Are:

- Hyderabad (Banjara Hills)
- Hyderabad (Nampally)
- Hyderabad (Out Patient- Banjara Hills)
- Hyderabad (Hi-Tech City)
- Hyderabad (Musheerabad)
- Secundrabad (Market Street)
- Visakhapatnam (Ramnagar)
- Visakhapatnam (Maharanipeta)
- Visakhapatnam (Railway New Colony)
- Raipur
- Bhubaneswar
- Bhubaneswar New (Prachi Enclave)
- Nagpur
- Pune

Infrastructure of Care Hospitals Banjara Hills

Care hospital Banjara hills comprises of 2 blocks. The main building is the hospital comprising of 8 floors and the other block comprising of 4 floors called the HR block.

The Main Building of Care Hospital Banjara Hills Consists of 8 Floors.

1. Lower Ground Floor. (-1 Floor) Consists of

SICU – Surgical Intensive Care Unit
NSICU – Neuro Surgical Intensive Care Unit
PACU -
Cath Lab
Nuclear Medicine
OT Complex CTOT, GOT
Accidents & Emergency Ward
Radiology Department

2. Ground Floor (0th Floor) Consists of

OP and IP Reception
Information Desk
Endoscopy and Dialysis
Laboratory Medicine
Insurance Desk
Corporate Desk
OP Pharmacy
OPD Consultation
Dietetics Department
Aarogya Help Desk
Pediatric Cardiology – OP
Cafeteria
IP billing

3. First Floor Consists Of

Blood Bank
Waiting Area
Nephro ICU
Step Down NSICU
Neuro Step Down

4. Second Floor Consists Of

MICU 1
MICU 2
ICCU
IP Pharmacy

5. Third Floor Consists Of

Library
EECP/Sleep Lab
Labour Room
Nursing Stations
PICU
General Ward Rooms
Help Desk

6. Fourth Floor Consists of

FCOO Office
Nursing Head Office
EEG Room
AMS/DMS Office
Neuro Lab
Nursing Station
Admin Office
Medical Record Department
Surgical Step down
General Ward Rooms
Help Desk

7. Fifth Floor Consists Of

Discharge Typing Pool
Nursing Stations
General Ward Rooms
Help Desk

8. Sixth Floor Consists Of

VIP Room/ Lounge
DGM Cabin
Nursing Station
Help Desk

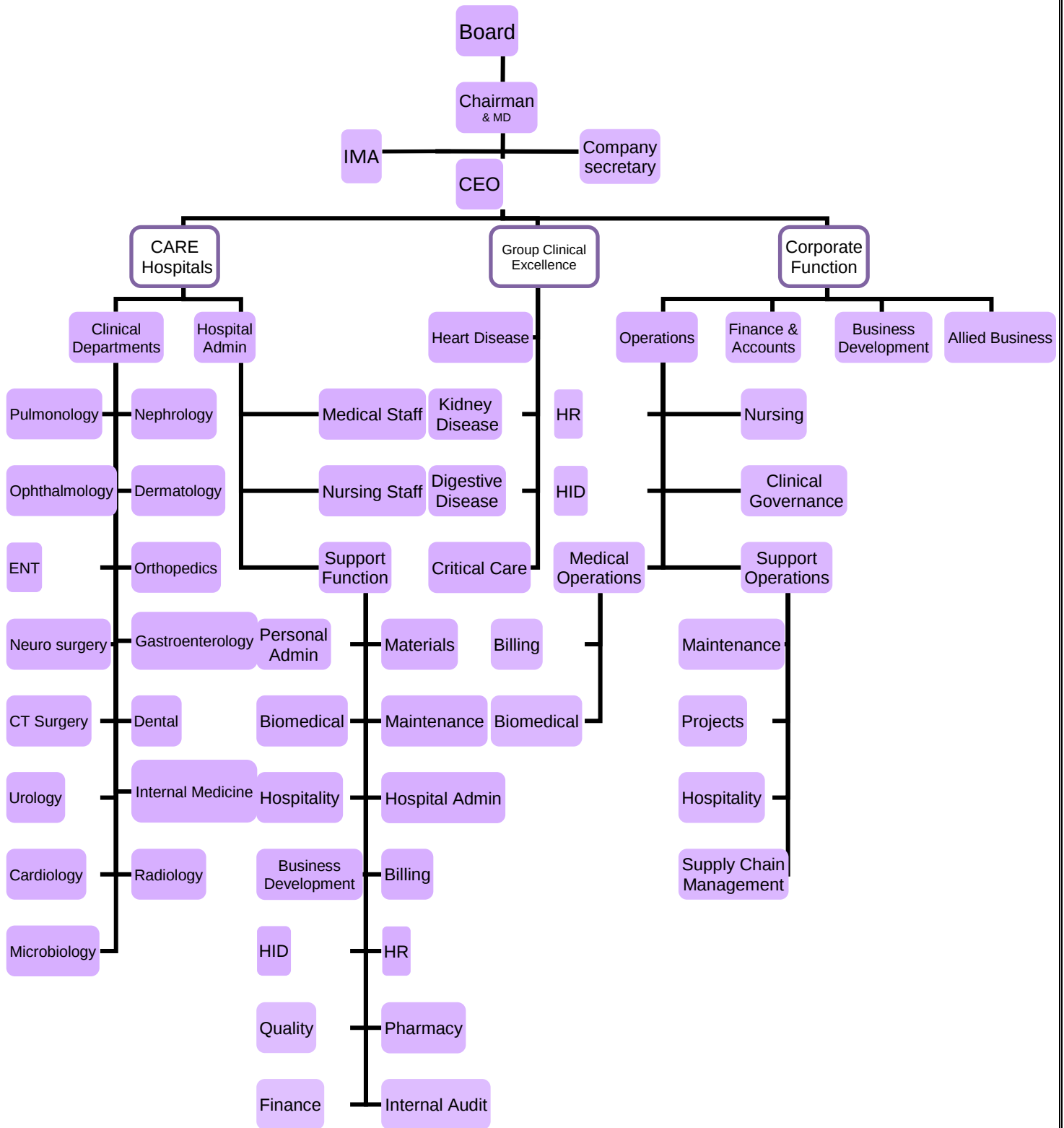
9. Seventh Floor Consists Of

HDU
LHDU
DIALYSIS
Liver ICU
Doctors lounge

The 2nd Block Consists Of

HR Department
Billing Department
Business Development
Communication Department
Transport Department
Hospital Information Department
Aarogyasree Department
Bio Medical Department

Organogram of Care Hospitals Banjara Hills



Specialties and Services Available At the Care Hospital Banjara Hills

- Anesthesiology
- Cardiac Sciences
- Critical Care
- Dentistry
- Dermatology
- Dietetics & Nutrition
- Emergency Medicine
- Endocrinology
- ENT
- Gastroenterology
- General Medicine
- General Surgery & Surgical Gastroenterology
- Hematology
- Hepato Biliary Surgery & Liver Transplantation
- Laboratory Medicine
- Laparoscopic & Bariatric Surgery
- Nephrology
- Neuro Sciences
- Nuclear Medicine
- Obstetrics & Gynecology
- Oncology
- Ophthalmology
- Orthopedics
- Pediatrics
- Physiotherapy & Rehabilitation
- Plastic Surgery
- Pulmonology
- Radiology
- Rheumatology
- Urology
- Vascular Surgery
- Yoga Therapy

Purpose, Vision, and Values of the Organization.

Purpose: [1]

To Provide Care That People Trust

Vision: [1]

To Be a Trusted, People Centric, Integrated Health Care System, And as A Model for Global Health.

Values: [1]

Honesty and Integrity - The Practice of Honesty Fortifies Character. Integrity Mean Doing Right Always and Willingness to Live by the Standards and Beliefs of the Organization.

Teamwork – A Collaborative Work Ecosystem, Where the Collective Efficiencies Are Harnessed for Delivering the Best Possible Care.

Empathy and Compassion - The Ability to Understand the Feelings of the Patients as Well as Employees, So That the Services Delivered Are Humane and in A Supportive Work Environment.

Education – Continuous Learning for The Creation of a Substantial Healthcare System, Where the Employees and The Organization Can Grow Together.

Citizenship – Good Governance and Appropriate Working Relationships with All Stake Holders, Based on Compliance to Laws and Ethical Practices.

Equity – Mutual Trust Based on Fair and Impartial Consideration of All Professional Matters So That It Fosters Positive Contribution Towards the Institutional Purpose.

Dignity and Respect – Treat All with Utmost Regard and Esteem So That It Enhances Respect and, In Turn, A Sense of Belonging

Observational Learning

1. Billing Department.

Head of the department: Mohammed Jameel

Located at the ground floor on the right side of the entrance

Total number of people working: Morning shift – 8

Night shift - 3

The main day to day task is to

1. Record bills.
2. Converting the bill into insurance tariff or corporate tariff and forward them to their respective department for further proceedings.
3. Providing codes (GIPSA code) to the surgeries or procedures done to the patient
4. Verification of letters, documents, ID proof for the patient who get admitted with a corporate credit.
5. Recording of any complaints in billing procedure and informing it to the HOD

The staffs of 8 keep interchanging their work with each other so that they have an idea about the entire task everyone does so that they could fill the gap if any staff is on leave.

2. Insurance Department.

Head of the Department: M. Yuganghara Rao

Located at Ground Floor on the Left Side of the Entrance beside the IP Desk

Total Number of People Working: 5

Consists of Head of the Department, Assistant Manager, and an Executive and two boys or ayah to transfer the files

Day to day task in the insurance department

1. Verification of the Insurance Card of the Patient
2. Verification of Employee ID card
3. Pre-Authorization from the Insurance Organization
4. Updation of Converted Bill and Discharge Summary to the Insurance Organization
5. Replying to the Queries Regarding the Billing to the Insurance Organization
6. Informing the Patient about the Bill, Approval by the Insurance Company.
7. Helping the Patient Attendee by Speaking to Their Insurance Organization and Explaining the Same to The Patient Attendee About the Policy and The Advantage He Can Get by The Policy.
8. Informing the Patient If Their Insurance Is Maxed Out
9. Explaining the Queries Raised by TPA to the FHA, AMS
10. Explaining the Patient about the Advantages of Insurance.

3. Pharmacy Department.

Head of the Department:

The Out-Patient Pharmacy Is Located near the Entrance and the IN Patient Pharmacy Located at the Second Floor near the MICU-2

Total number of people working: 18 (Out Patient and In Patient)

In Patient – total number of people working 11

Supplying the required drugs or instruments or indent to various departments, various floor to the patients, and to OT.

4. Human Resource Department

Head of the department: M. Subba Rao

The human resource department is located in a different block behind the main block.

Total number of people working in human resource department: 11

Day to day task of the Human resource department

1. Recruitment and selection
2. Performance appraisal
3. Managing attrition and lay offs
4. Training to the fresher's and newly joined employees
5. Attendance management

Total number of employees recruited presently

Permanent – 712

Contractual – 300

The employee works in 3 shifts

Morning shift – 8 am to 5 pm

Night shift – 8 pm to 8 am

Mid shift – 2 pm to 8 pm

The various leaves offered are:

Casual leaves – 12

Sick leaves – 12

Earned leaves – 15

Maternity leave – 26 weeks

5. IP Department:

Head of the department: Mansoor Ali

It is in the ground floor on the left side to the entrance

Total number of people working: 5

Morning shift: 3

Night shift: 2

Day to day task of the employees are

- a. Admitting the new patients
- b. Allotting beds to new patients
- c. Patient transfers
- d. Scheduling work for doctors
- e. Queries regarding any issue with the hospital is dealt by IPD

6. Hospital Administration:

head of the department: Dr. Satish Salveru

Dr. Harish Jawalkar

Total number of people working: FHA – 20

PRE – 55

Day to day task of the employee are:

1. Patient attendee counselling
2. Financial counseling
3. Bed allotment to new patient.
4. Attending to patient queries
5. Helping in discharge process
6. Helping doctors about patient information
7. Looking after patient and attendee comfort

7. Reception

Head of the department: Mansur Ali

It is in the ground floor on the right side of the entrance

Total number of people working: 6

Morning shift: 3

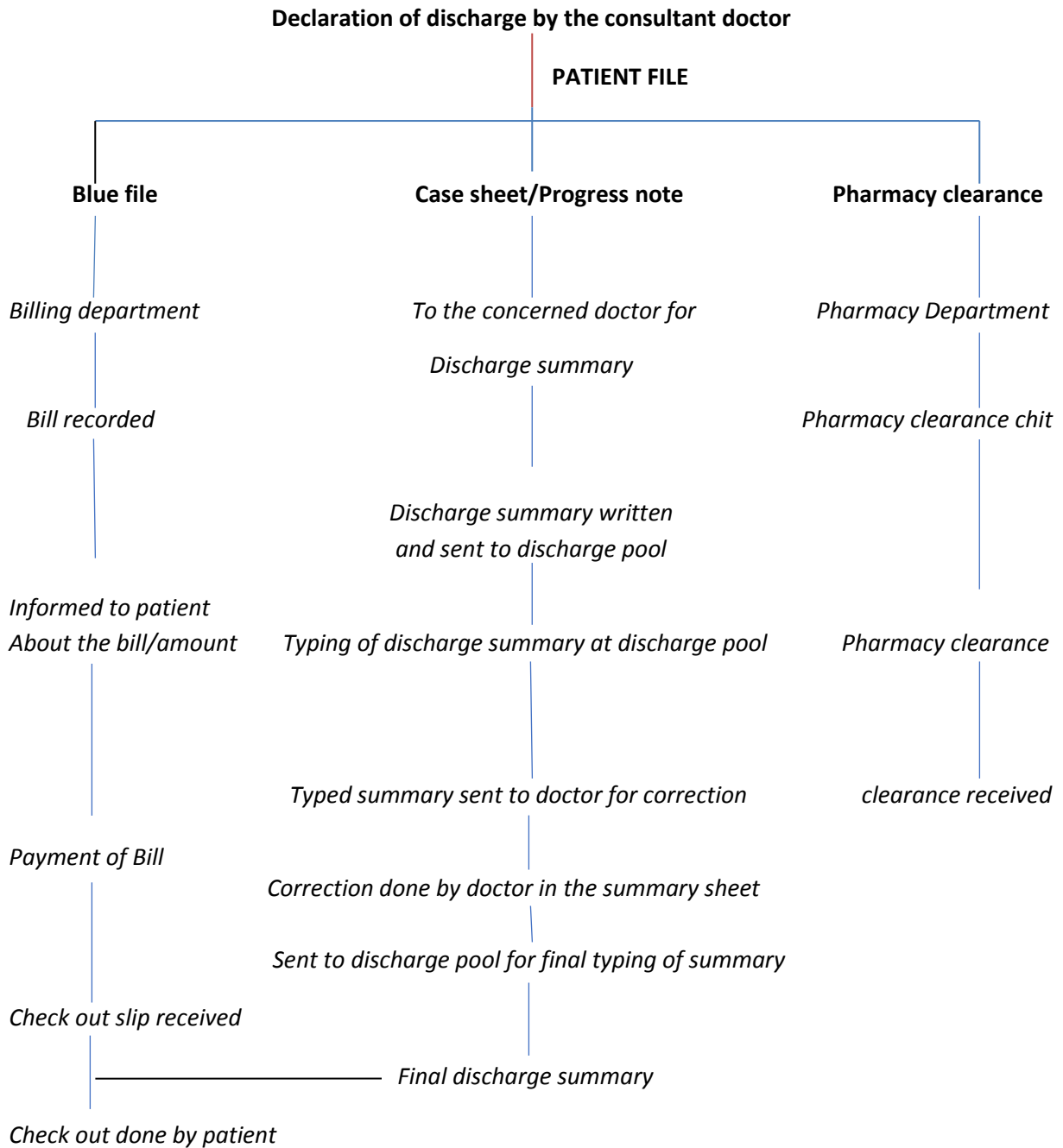
Night shift: 3

Day to day task of the employees are

1. Helping the attendee of the patients
2. Giving appointments to the patients

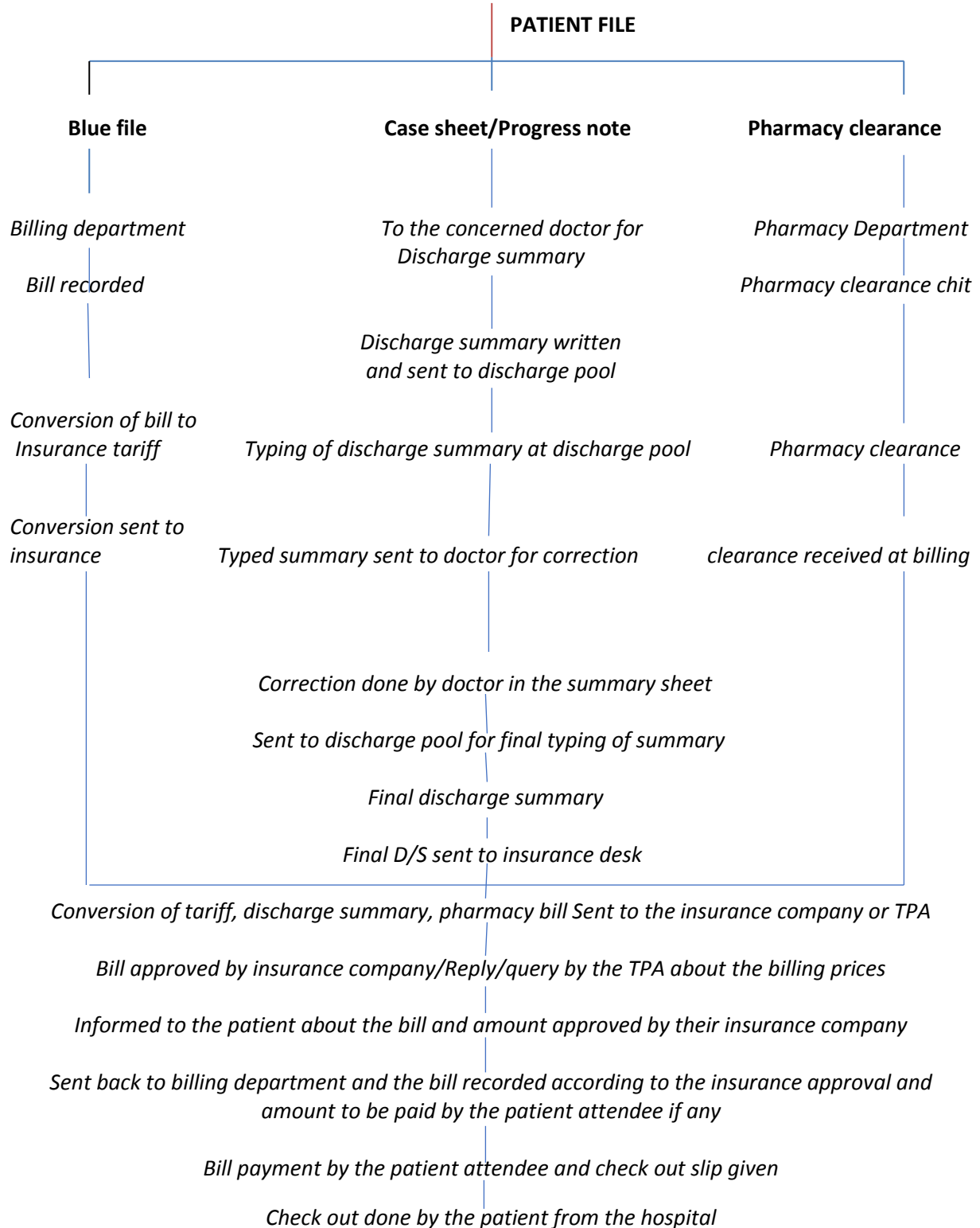
Procedure of File Transfer after the Declaration of the Doctor for Cash Insurance and Corporate Credit Patients'

Cash patients



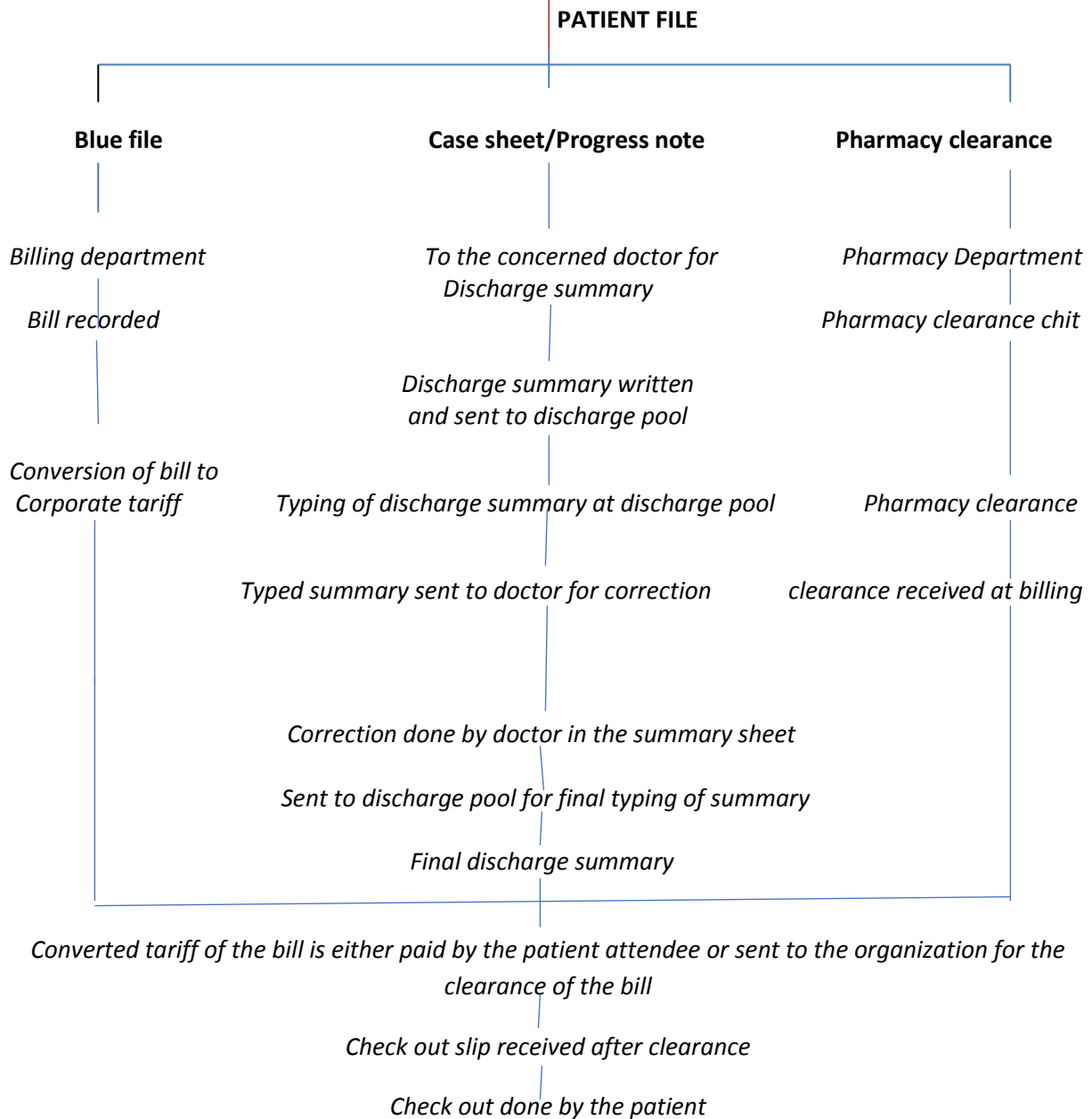
Insurance patients

Declaration of discharge by the consultant doctor



Corporate Credit Patients

Declaration of discharge by the consultant doctor



A REPORT ON DELAY IN THE DISCHARGE PROCESS OF INPATIENTS.

INTRODUCTION:

Discharge Refers to The Point at Which the Inpatient Hospital Care Ends, With Ongoing Care Transferred to Primary, Community or Domestic Environments. [2] Hence, A Discharge from Hospitals in No Way Means the End of Medical Care, But It Is Only a Transition in The Patient Care Journey. This Signifies That Any Delay Caused in The Discharge of The Patient Can Have More Effect Than What Can Be Seen Superficially. From the Hospital's Perspective, It Causes Unnecessary Bed Occupancy Which in Turn Can Influence the Hospital's Revenue. Discharge of the patient is a complex multi stage process requiring integrated communication among in-patient care team. Any delay in the discharge process leads to delay in the patient admission process, thus disturbing smooth in patient flow of hospital. From A Patient's Perspective, it can lead to an Extended Feeling of Physical and Psychological Dependability Along with a Feeling of Uneasiness and Discomfort. Hence, Discharge Delay Is a Process Which, In Ideal Circumstances, Should Not Exist.

This Study Tries to Focus on The Various Processes That Take Place from The Moment a Discharge Is Declared to The Point the Actual Discharge Takes Place. It Is Intended to Find Out the Causes of Delays and Provide Recommendations to Correct the Same.

The Process Starts from Writing the Discharge Summary to Settlement of the Hospital Bill Which Is a Time Consuming but If Executed in An Organized Way Can Decrease the Delay Causing Factors And Can Be Compared To The Global Standards Or Those Prescribed By Hospital Accreditation Board Like NABH At National Level.

RESEARCH QUESTION:

What Are the Various Factors Leading to A Delay in The Discharge of the Inpatients at CARE Hospitals, Banjara Hills?

RESEARCH OBJECTIVES:

To Find Out the Various Factors Leading to Delay in The Discharge Process.

To Provide Suggestions to Decrease the Time Taken for The Discharge Process.

To Help the Organization Provide a Customer Satisfactory Service.

To Help the Organization Have a Leaner Management (Work Force).

METHODOLOGY:

STUDY DESIGN:

An Observational Study was conducted in the Inpatient Department of CARE Hospitals, Banjara Hills which included insurance, cash as well as corporate patients.

PERIOD OF STUDY:

3 weeks

SAMPLING:

A sample of 30 patients each from Insurance, Cash and Corporate was selected randomly.

DATA COLLECTION

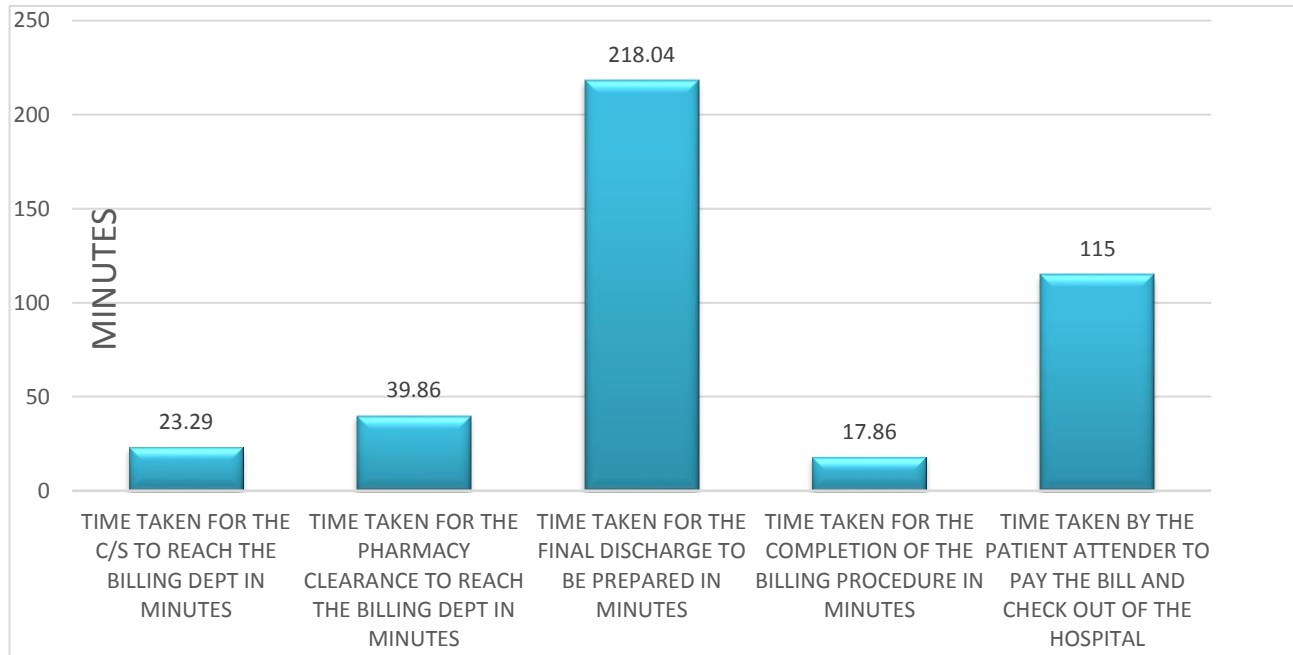
The timings of various processes starting from the declaration of discharge by the doctor, time taken by the case sheet to reach the billing department, time taken for pharmacy clearance and the time taken for the preparation of the draft and final discharge summary were noted down. These timings were analyzed quantitatively.

Parameters Used for Payment Done by Cash, Insurance, Corporate Credit.

DISCHARGE\PARAMETERS.xlsx

Cash Data Analysis

The Following Graph Shows the Time Taken at Various Steps of the Discharge Process of the Cash Patients.

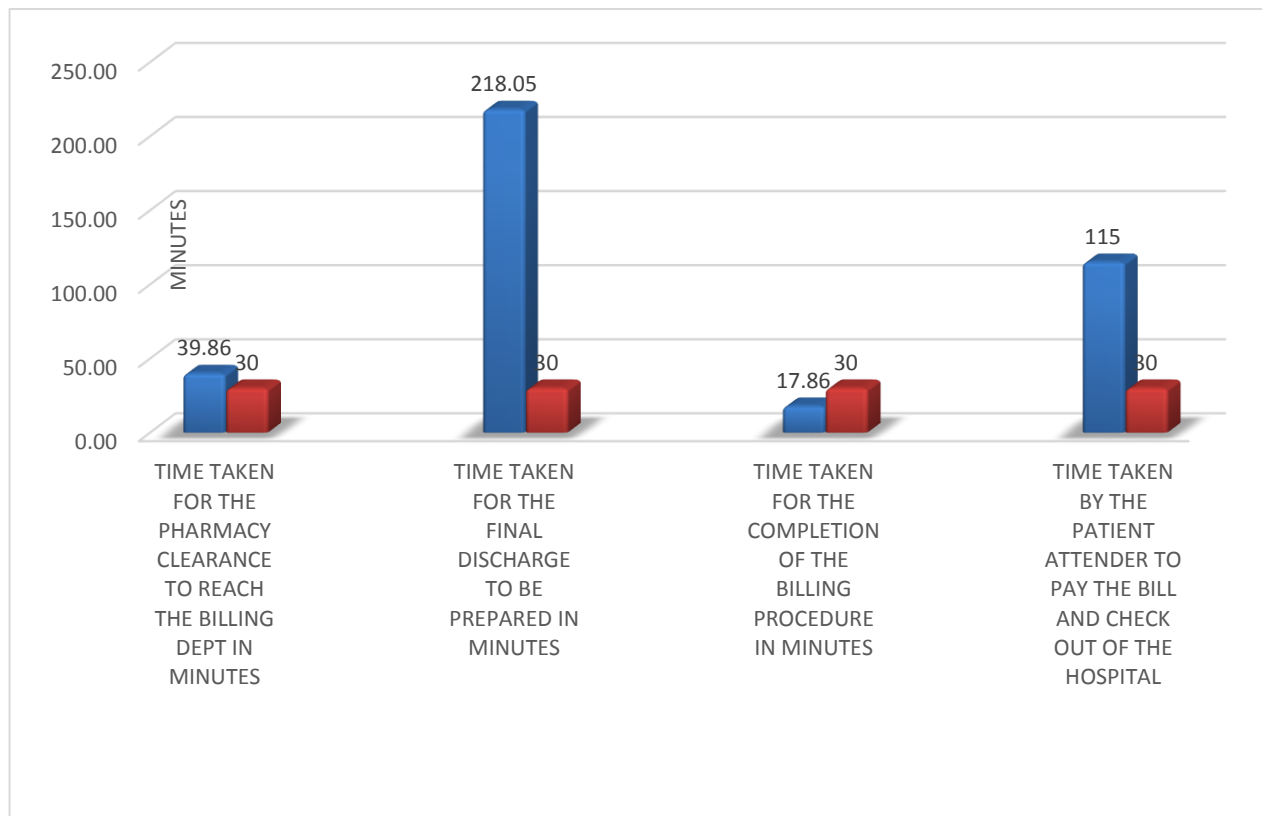


Here also it is seen that the time taken to prepare the discharge summary is high which a main concern is and the time taken by the patient attendee to pay the bill is high.

These Are Two Main Reasons Which Are Causing Delay in The Discharge for The Patient Attendee Paying In Cash.

Comparing the Cash Data Analysis with NABH Standards

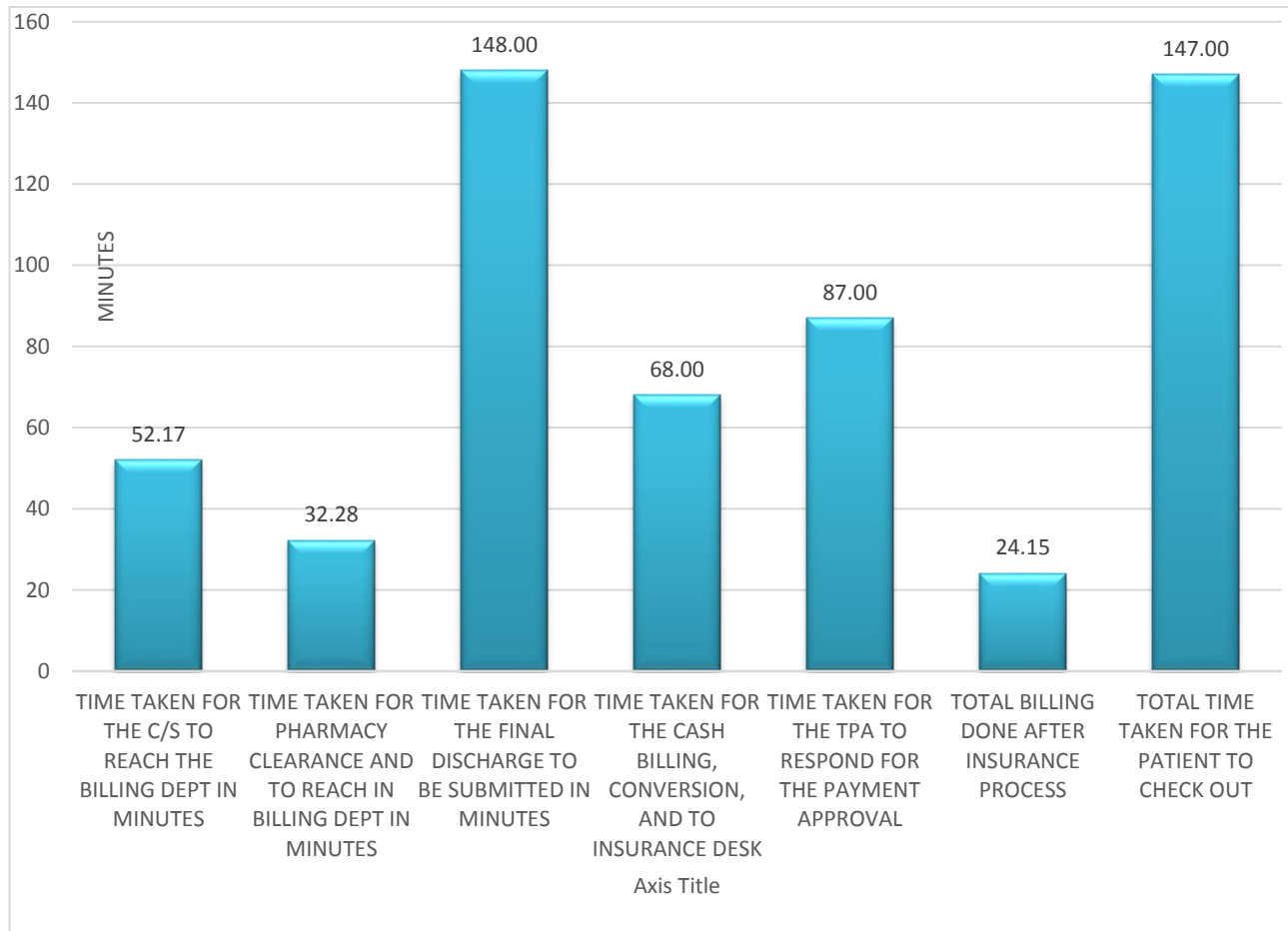
The Following Graph Shows a Comparison of the Time Taken for Various Steps of the Discharge of Cash Patients with The NABH Standards.



As It Could Be Observed That the Time of Preparing the Final Discharge Summary Is High as Well It Could Also Be Observed That the Time Taken by The Attendee to Clear the Bill Is Also High. These Are the Two-Main Reason for Delay in The Discharge Process for The Patient Who Clear the Bill by Paying in Cash.

Insurance Data Analysis

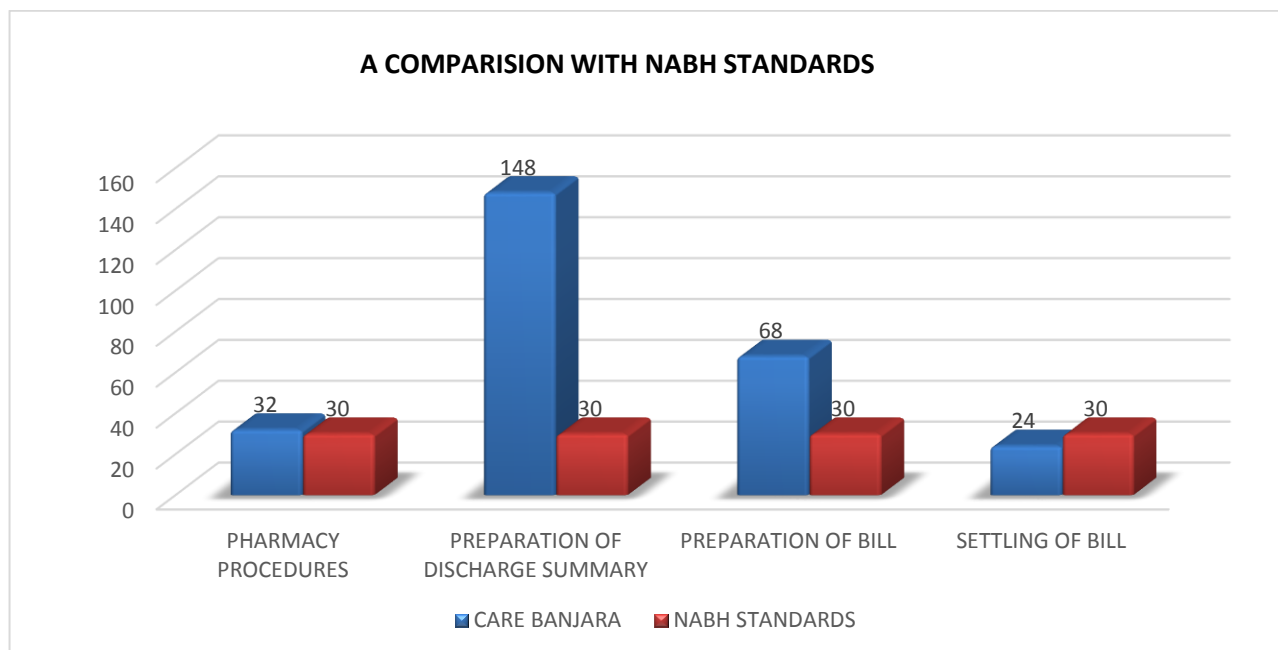
The Following Graph Shows the Time Taken at Various Steps Of The Discharge Process Of The Insurance Patients.



It Can Be Observed That the Time Taken for The Final Discharge Summary Is High and Time Taken for The TPA to Respond and Approval of the Payment Is High.

Comparing the Insurance Data with the NABH Standards

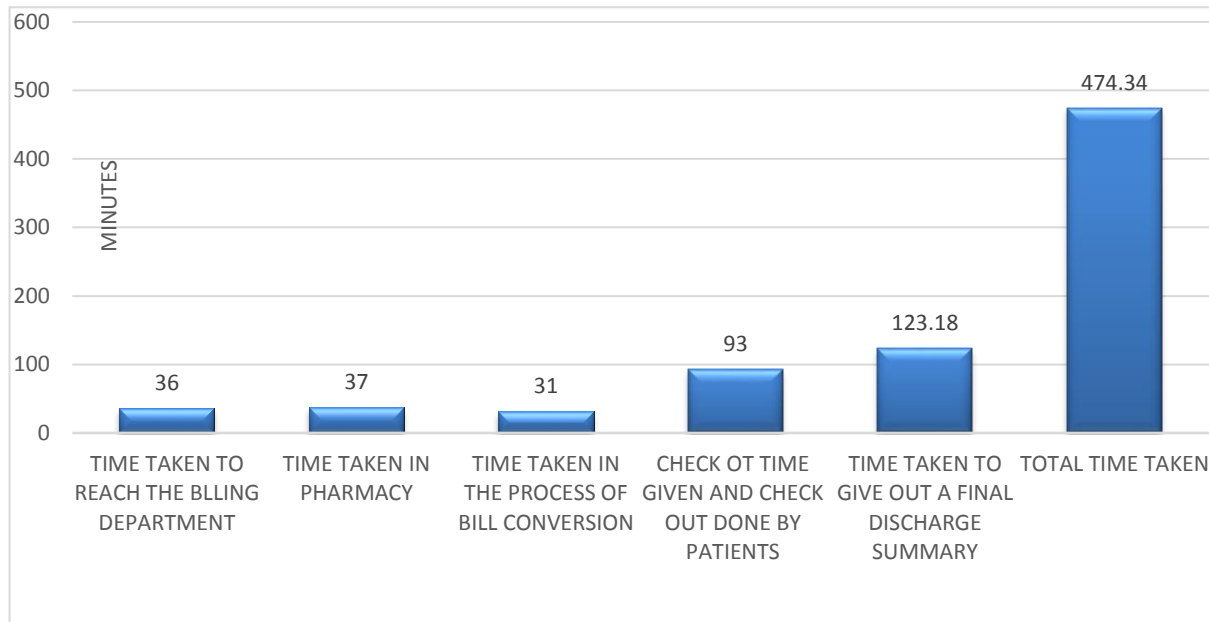
The Following Graph Shows the Comparison of the Time Taken of Various Procedures with The NABH Standards.



It Can Be observed That Almost All the Procedures Are Exceeding the NABH Standard Time or Are at The Higher Side. However, The Main Cause of Concern Is the Preparation of Discharge Summary Which Takes a Very Long Time as Compared to The Standards. These Are the Two Main Reasons for The Delay in The Discharge Process for The Patients Who Are Insured

Corporate Analysis Data

The Following Graph Shows the Time Taken at Various Steps Of The Discharge Process Of The Corporate Patients

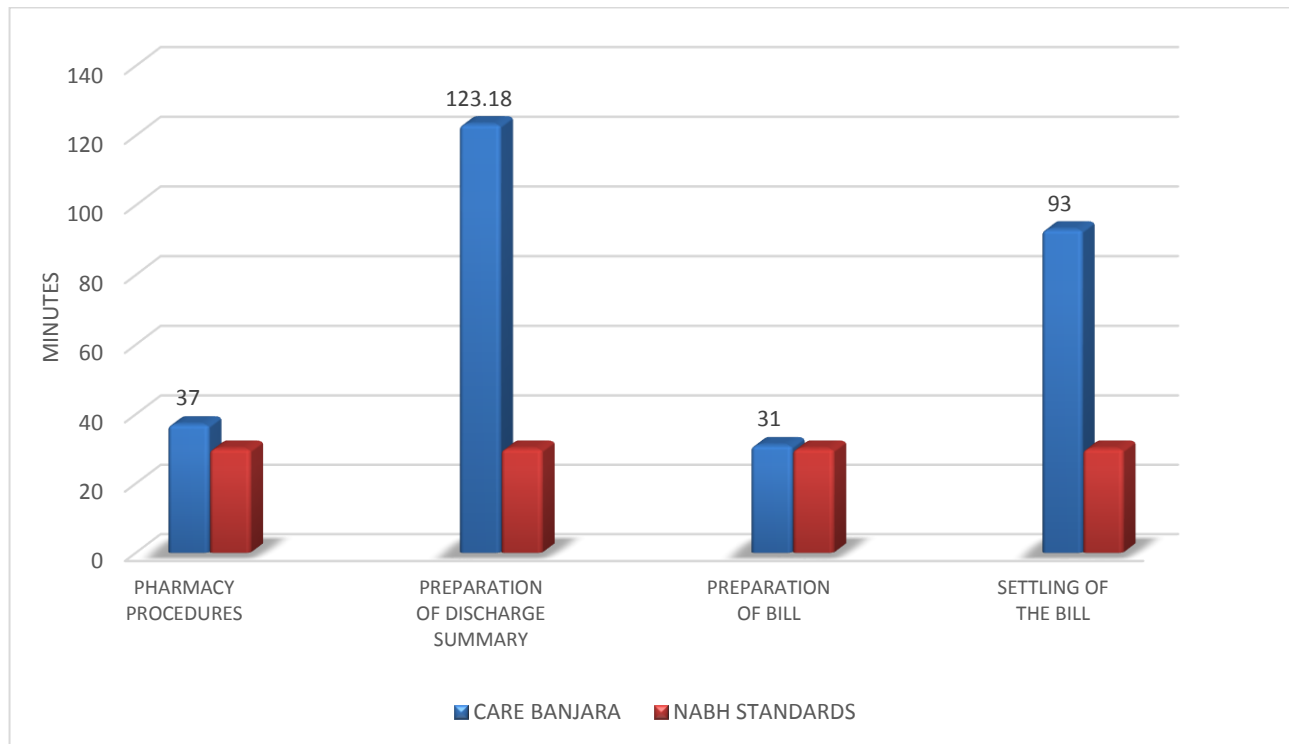


It Can Also Be Observed That the Time Taken for The File to Reach the Billing Department Takes an Average of 36 Minutes. It Can Also Be Seen That the Patient Takes His Own Time to Check Out of the Hospital

The Graph Showing the Total Time Taken Is the Time from When the Consultant Doctor Declares Discharge till The Time He Vacates the Bed Physically and Leaves the Hospital. Which Shows That Average Time Taken for All the Patients to Physically Leave the Hospital Is High Which in Turn Is the Cause of Bed Blocking and Loss of Revenue to The Hospital

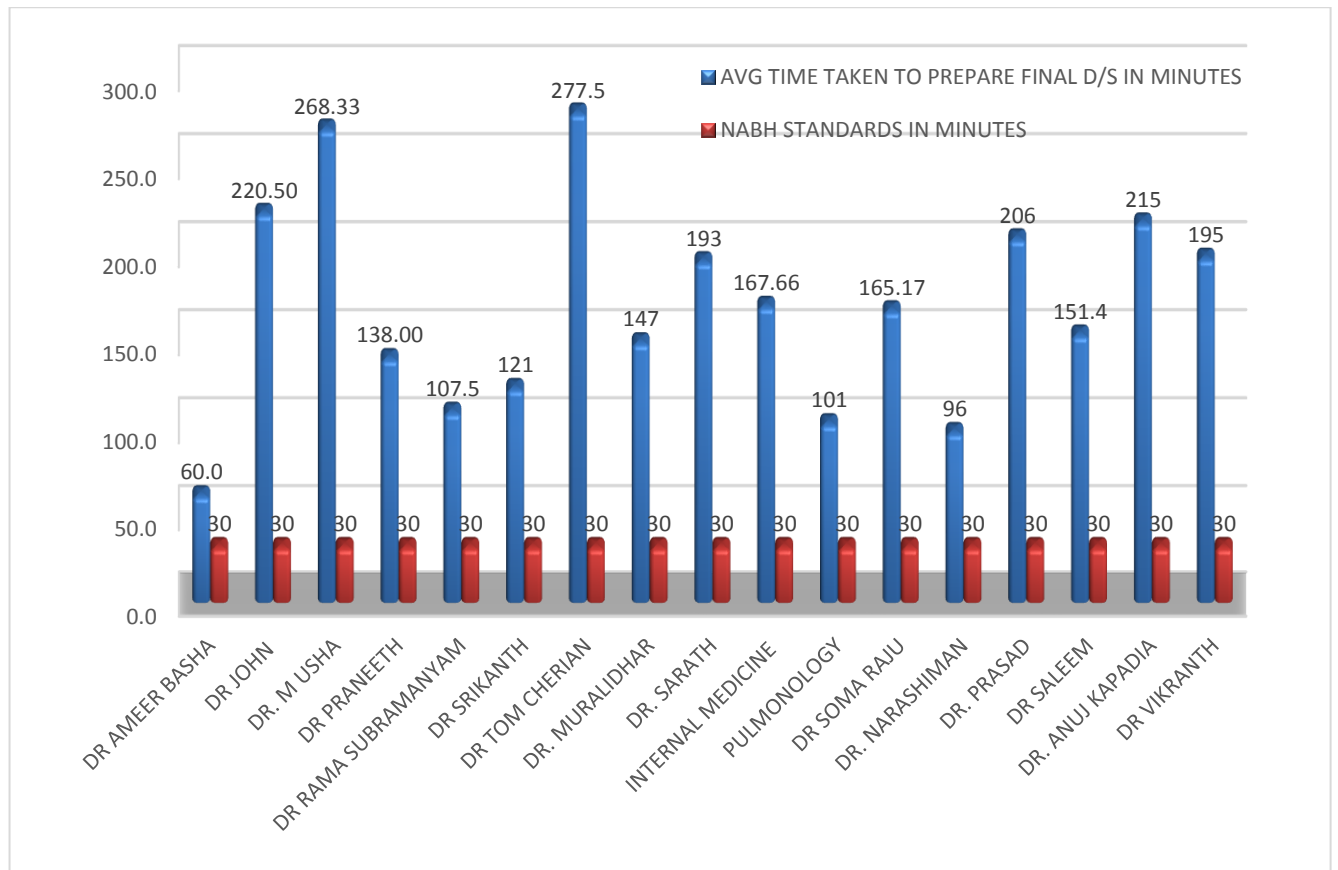
Comparing the Insurance Analysis Data with the NABH Standards

The Following Graph Shows a Comparison of the Time Taken for Various Steps of the Discharge of Corporate Patients with The NABH Standards.



It Can Be observed That All the Procedures Take More Time Than the Standard Set by The NABH with The Main Cause of Concern Being the Preparation of Final Discharge Summary. It Can Also Be Observed That Patient Takes Time in Settling the Bill.

A Graph Showing the Average Time Taken by Each Doctor to Give Out Final Discharge Summary.

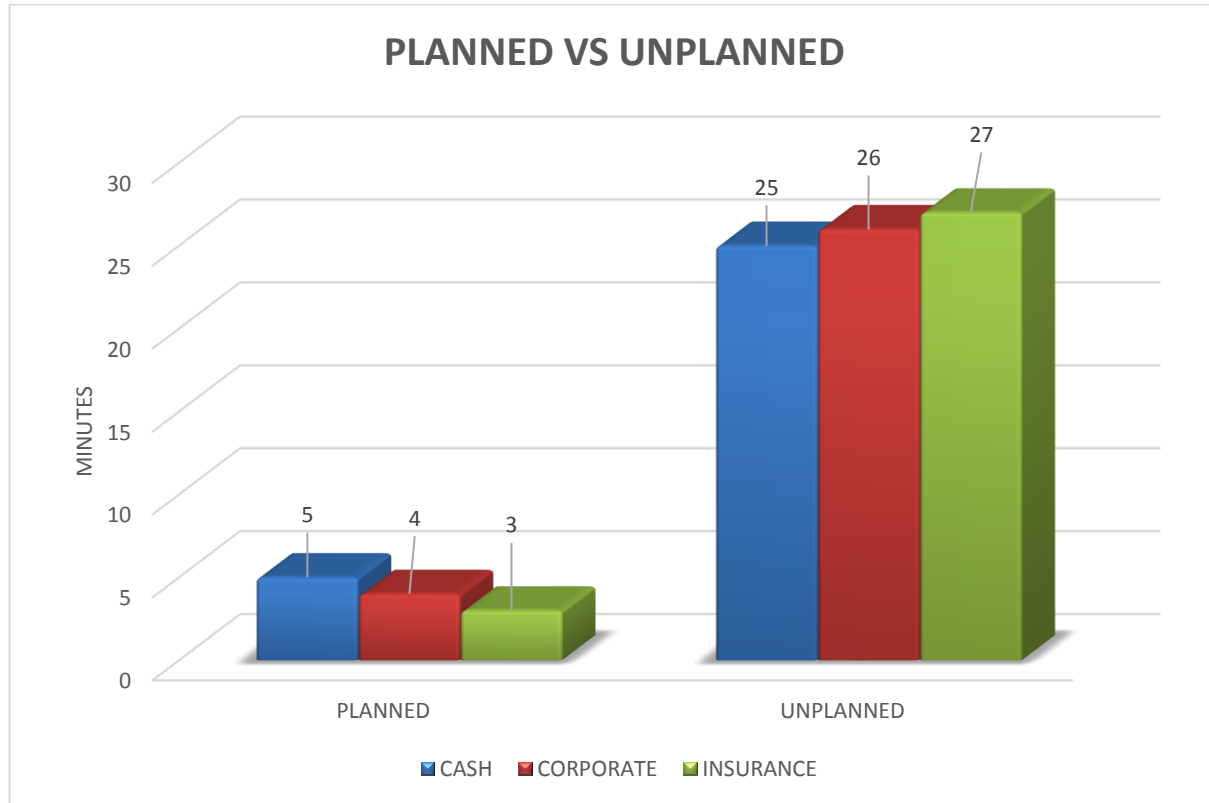


Here is a graph showing the average time taken by the consultant doctors from the data of 86 patients and comparing it to the **NABH** standards. As per the **NABH** standards the average time taken for the doctor to prepare the discharge summary should be 30 minutes but here it is seen that all the consultant doctors take more than the average time to prepare the discharge summary which is one of the main reason for delay in the discharge process.

A Table Showing the Average Time Taken and Total Number of Cases Considered to Get an Average of the Time Taken To Give Out Final Discharge Summary

<u>CONSULTANT DR. NAME</u>	<u>AVG TIME TAKEN TO PREPARE FINAL D/S IN MINUTES</u>	<u>TOTAL NUMBER OF CASES CONSIDERED FOR CALCULATING AVG</u>
DR AMEER BASHA	60.0	2
DR JOHN	220.50	2
DR. M USHA	268.33	3
DR PRANEETH	138.00	2
DR RAMA SUBRAMANYAM	107.5	2
DR SRIKANTH	121	2
DR TOM CHERIAN	277.5	2
DR. MURALIDHAR	147	2
DR. SARATH	193	3
INTERNAL MEDICINE	167.66	3
PULMONOLOGY	101	3
DR SOMA RAJU	165.17	6
DR. NARASHIMAN	96	6
DR. PRASAD	206	7
DR SALEEM	151.4	5
DR. ANUJ KAPADIA	215	9
DR VIKRANTH	195	6

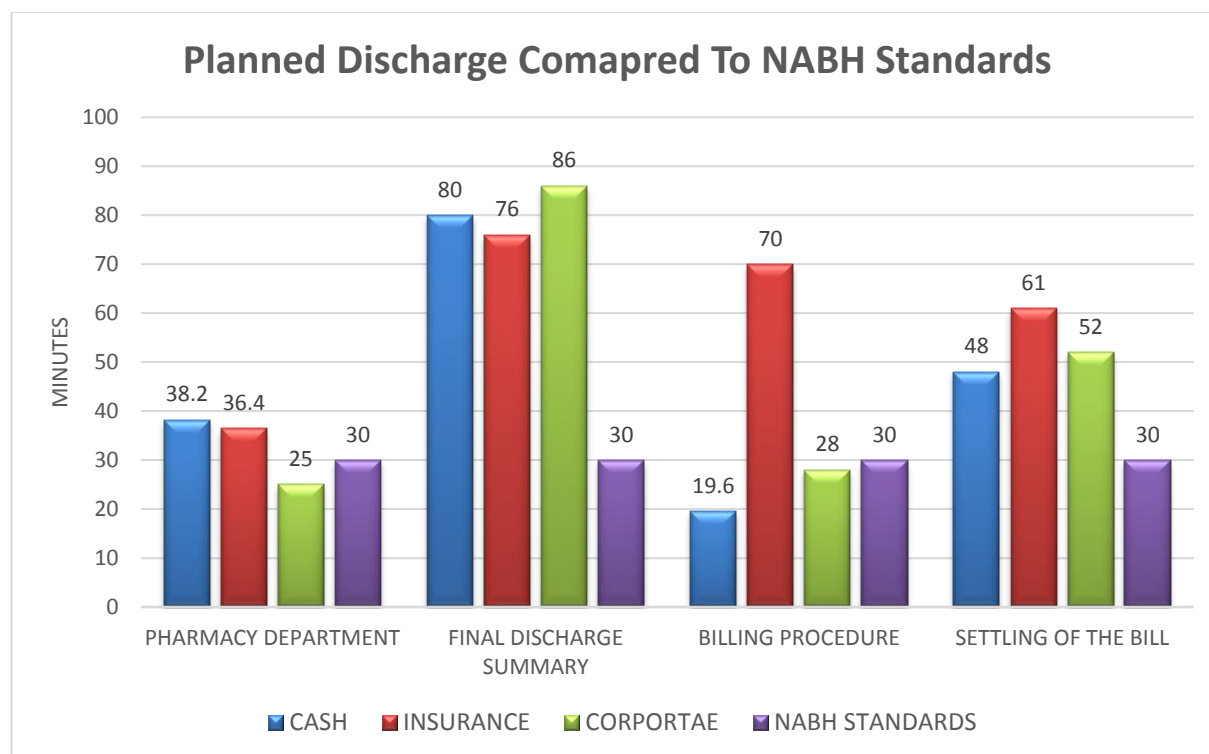
A Graph Showing Total Number of Planned and Unplanned Cases from the Data Collected



Here we can see that out of 86 cases of combined cash, insurance, and corporate credit, only 12 cases are planned discharge. That is only 13.95 % of cases are planned for a discharge and the rest 86.05 % are unplanned.

As This Shows That the Rate of The Planned Discharges Is Very Low and Unplanned Discharges Are High Which Is the Main Reason for Delay in The Discharge. As Unplanned Discharges Cause Delay in Discharge Summary Delay in Bill Updation Delay in Other Formalities Also.

A Graph Showing the Time Taken in Every Department for The Planned Discharges Only and Comparing Them To The NABH Standards.



Here It Can Be Observed That the Planned Discharges Have a Comparatively Better Discharge Time Than the Unplanned Discharges Which Shows That the Unplanned Discharges Are the Main Reason For The Delay In The Discharge Process Due To Which In Each And Every Department It Takes Time Due To Being Unplanned.

Main Reasons Causing Delay in the Discharge Process

- Delay in preparing discharge summary because doctor on rounds.
- Delay at pharmacy boy not available to transfer pharmacy clearance.
- Delay by the patient because he was applying for reimbursement.
- Delay by doctor, tracheotomy closure to be done to the patient.
- Delay by the patient due to his personal reasons.
- Delay because patient had to receive concession which has to be instructed by doctor.
- Delay by patient as his relative has to pay the bill who was not available.
- Delay at the pharmacy due to one of the instrument used was not billed.
- Delay by the patient due to inability to pay the amount billed.
- Delay due to discharge summary on which MLC number was not typed.
- Delay due to software problem at billing which was not accepting any manual entries of the procedure done.
- Delay at insurance desk due to query raise by TPA.
- Delay due to non-availability of surgery code at billing.
- Delay due to staff on leave at billing.
- Delay due to letter pending from the organization (corporate).
- Delay caused due to delay in transfer of file to various departments.
- Delay caused due to the lift which was busy causing delay in file transfer.

A Table Showing the Number of Patients Who Are Having the same reasons for Delay in Discharge Process

<i>REASONS FOR DELAY</i>	<i>CASH</i>	<i>CO RPORATE</i>	<i>NSURANCE</i>	<i>TOTAL</i>
<i>DISCHARGE SUMMARY</i>	8	3	10	21
<i>PHARMACY CLEARANCE</i>	1	4	2	7
<i>DOCTORS</i>	3	0	1	4
<i>PATIENTS</i>	10	4	8	22
<i>ELAY DUE TO STAFF (NURSE, PRE, BOYS, AYYAS, ETC)</i>	1	8	4	13
<i>BILLING</i>	0	4	6	10
<i>TOTAL 86</i>				77

Suggestions to Decrease the Time in Discharge Process

- **Billing Updation:** Regular or Day by Day Billing Updation Can Help Out to Decrease the Delay.
- **Patient Attendee Counselling:** Regular Counselling of the Patient Attendee about the Procedure, Cost and Time Taken.
- **Planned Discharges:** As There Are Very Less Number of Planned Discharges This Is Also a Main Reason for Delay So Increasing the Number of Planned Discharges Can Save Time and Also Increase the Revenue.
- **Discharge Summary Typing:** Discharge Summary Can Be Prepared a Day Prior of the Discharge So Decrease in the Delay.
- **Approximate Bill:** Patient Paying by Cash Should Be Regularly Updated with A Printed Approximate Amount to Pay Because Most of the Times There Is a Delay in Paying Cash Because the Patient Is Unaware of His Increasing Bill Amount and Also Inability to Pay It.
- **On the Day Of Discharge:** Regular Follow Up To Be Done With The Patient Attendees So That On The Day Of Discharge The Patient Should Only Pay The Bill And Receive The Discharge Summary
- **Floor Billing:** If the Bill Recording and Conversions Are Done by Trained Staff on Each Floor and Sent to Concerned Departments it can save the time by reducing the transportation of the file.
- **File Transfer:** The Concerned House Keeping Staff for Transferring Files Use Lift to Transfer File to Its Concerned Department. In This Process He/ She Waits for Lift for A Long Time Causing Delay Instead Hospital Can Use a Basket System.

- **Departmentalization:** Conversion to Insurance Tariff at Billing Department and Then Transfer of File to Insurance Desk Takes Time, Instead Hospital Can Use a Trained Staff at Insurance Desk to Convert to The Bill into Insurance Tariff and Forward It to Other Employee for Other Process Which Can Reduce Inefficient Phones Calls as Well as Less Travelling of File.
- **Code availability:** If A Particular Code Was Not Available It Can Be Informed to The HOD of The Billing and Accounts Department to Make a List of the Procedures Which Do Not Have a Code and Add a Code to Them and Circulate the List to The Billing Section to Manually Enter the Code by Themselves to Decrease the Delay.
- **Discharge summary for correction:** For the Discharge Summary Correction, The Typed Summary Could Be Mailed to The Doctor Instead Taking the Typed Copy to Him and Asking Him to Reply to The Needed Corrections. This Could Decrease the Delay as The Doctor Could Reply to The Needed Even on Rounds.

Conclusion

From the Data Collected in The Period of Study It Has Been Observed That There Are Various Reason for The Cause of Delay In Discharge Process. The Main Reasons Are

1. The Preparation of Discharge Summary
2. The Patient Paying the Bill in Cash
3. Transfer of File from One Department to Another.
4. Problems in Billing Software
5. Late Reply of the TPA
6. Late Reply by The Organization for Corporate Credit Patients

These Were the Main Problems Where There Is a Delay in Hours to Resolve This Issue. Out of Which the Discharge Summary Preparation by The Doctor Takes More Than 3 Hours on An Average Which Is the Reason the Other Processes Are Delayed.

This Caused a High Dissatisfaction to The Patients Because They Had To Wait For Hours For The Process To Reach Till The Final Stage And Leave The Hospital.

PROJECT - 2

A Project on Audit and Efficient Use of Ventilators in ICU

Introduction

Ventilator Is Defined as A Device to Assist or Control Respiration Continuously, Inclusive Of The Weaning Period, Through A Tracheostomy Or By Endotracheal Intubation

A Mechanical Ventilator Is the Use of Ventilator to Move the Room Air or Oxygen Enriched Air in and Out of Lungs Mechanically to Maintain Proper Levels of Oxygen and Carbon Dioxide in The Blood.

There Are Two Types of Ventilators Used for the Patients

1. Non-Invasive Ventilator
2. Invasive Ventilator

The Non-Invasive Ventilators Provide Breathing Support Through Either Mask or Nasal Prongs. They Can Be Used for Several Hours a Day [3] and Can Also Be Used During Sleep. The Non-Invasive Are the Positive Airway Pressure Ventilators That Use Positive Pressure to Force Gas into A Patients Lungs. The Constant Flow Permits the Patients to Take Spontaneous Breaths. [4]

These Are Most Commonly Used for COPD, Respiratory Acidosis Etc. The Most Commonly Used Non-Invasive Ventilators at Home as Well as Hospitals Are CPAP and BIPAP

The Project Was Done on Invasive Ventilators. Invasive Ventilators Are delivered through an Endotracheal Tube Inserted into Patient's Nose or Mouth or through a Tracheotomy, A Surgical Incision in the Neck to Access the Trachea. [3]

An Invasive Ventilator Delivers Air on a Timed Cycle Through the Tube and Ensures That the Patient Takes a Minimum Number of Breaths Per Minute. Ventilators Can Be adjusted to respond to the Patient's Own Effort to Breathe or to reduce the Efforts. [3]

The Decision to Start Invasive Ventilators Can Often Be a Permanent One for The Patient Who Are Unlikely to Recover the Ability to Breathe on Their Own. [3] The Main Drawback of the Invasive Mechanical Ventilation Is That It Cannot Clear the Respiratory Tract Mucus Which Forms Regularly and Which Must Be Cleared Manually by A Suction Tube.

As the Invasive Ventilators Are Used in A Critical Condition Where the Patient Cannot Breathe on Their Own and Can Breathe Only by The Help of the Ventilator a Proper Care and Maintenance Should Be Done to The Mechanical Ventilator by The Bio Medical Department.

The Care Hospital Banjara Hills Wanted to Know If the Ventilators Used in Their Intensive Care Unit Were Maintained or Used Efficiently. So, A Study Was Conducted on How Well the Mechanical Ventilators Are Maintained by The Bio Medical Staff

Each Intensive Care Unit at Care Hospitals Banjara Hills Had a Total of 105 Patients Who Were on Invasive Mechanical Ventilator on That Period of Study Where the Audit Was Conducted. On an Average 15 New Patients Were Advised by Their Consultant for an Invasive Ventilator, And Non-Maintained Ventilator Could Be Fatal for The Patients and Also a Loss of Reputation to The Hospital. So, It Is Mandatory That the Ventilator Should Be Maintained Well for Better Outcome and Beneficial to The Patients as Well as The Hospital.

RESEARCH QUESTION

Is There a Proper Maintenance and Efficient Use Of The Mechanical Ventilator In The Intensive Care Units At Care Hospital, Banjara Hills?

RESEARCH OBJECTIVES

1. To Find Out If There Is Proper Maintenance of The Mechanical Ventilators in The Intensive Care Units.
2. To Find Out If There Is Efficient Use of The Mechanical Ventilators in The Intensive Care Units.

METHODOLOGY

Study Design

An Audit Was Conducted in All the Intensive Care Units Which Use the Mechanical Ventilators, At Care Hospital Banjara Hills

Period of Study

23 days

SAMPLING

A Sample of Total 105 Patients Has Been Collected in the Duration of 23 Days from All the Intensive Care Units of the Care Hospital

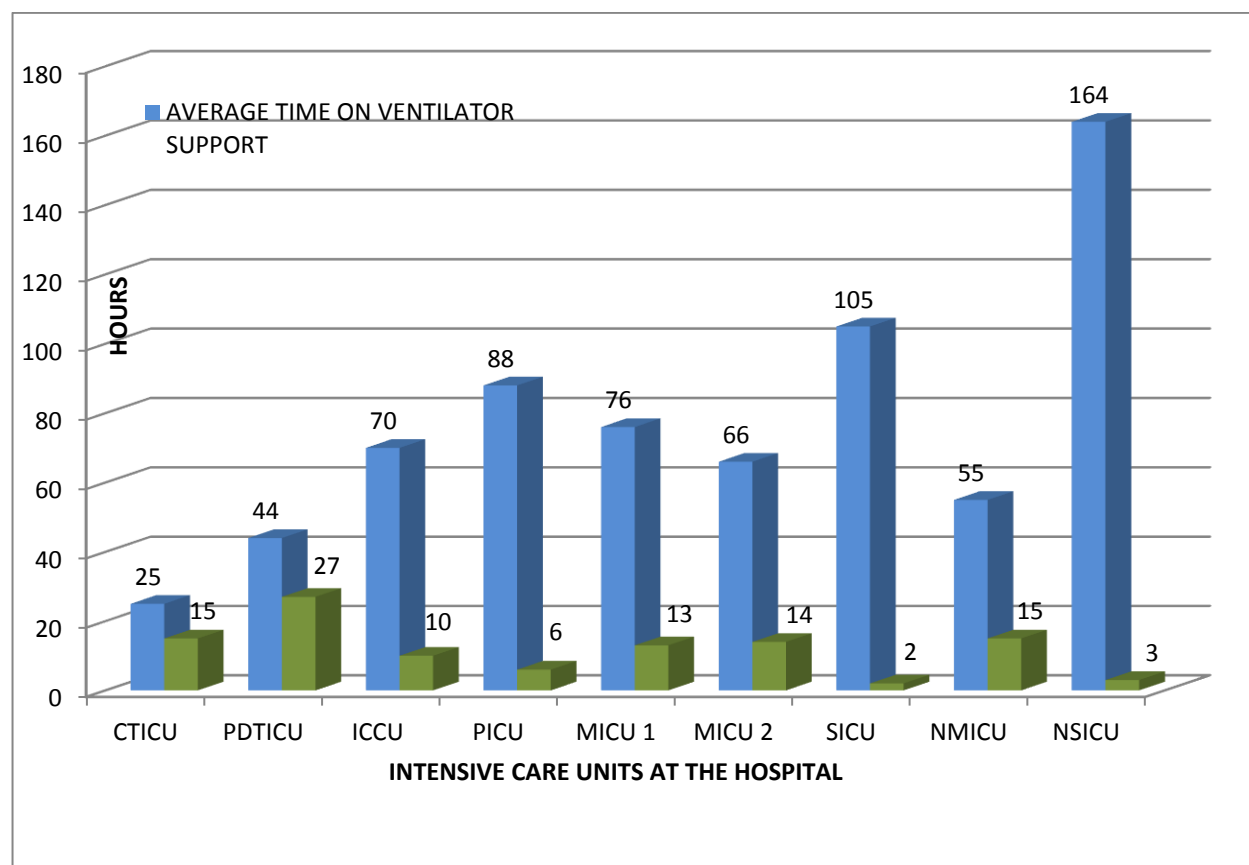
DATA COLLECTION

The Sample Includes All the Patients Who Are on Invasive Mechanical Ventilation During the Period of Study from All the Intensive Care Units and The Time and Date of Intubation and Time of Extubating of the Ventilator and Total Number of Ventilator Stock in That Particular Intensive Care Unit and How Many Are Used in That Particular Month Is Noted Down and Are They

Maintained by The Bio Medical Department. Was the HEC Cassette Changed or Cleaned for Every Patient or A Patient with High Intubated Days.

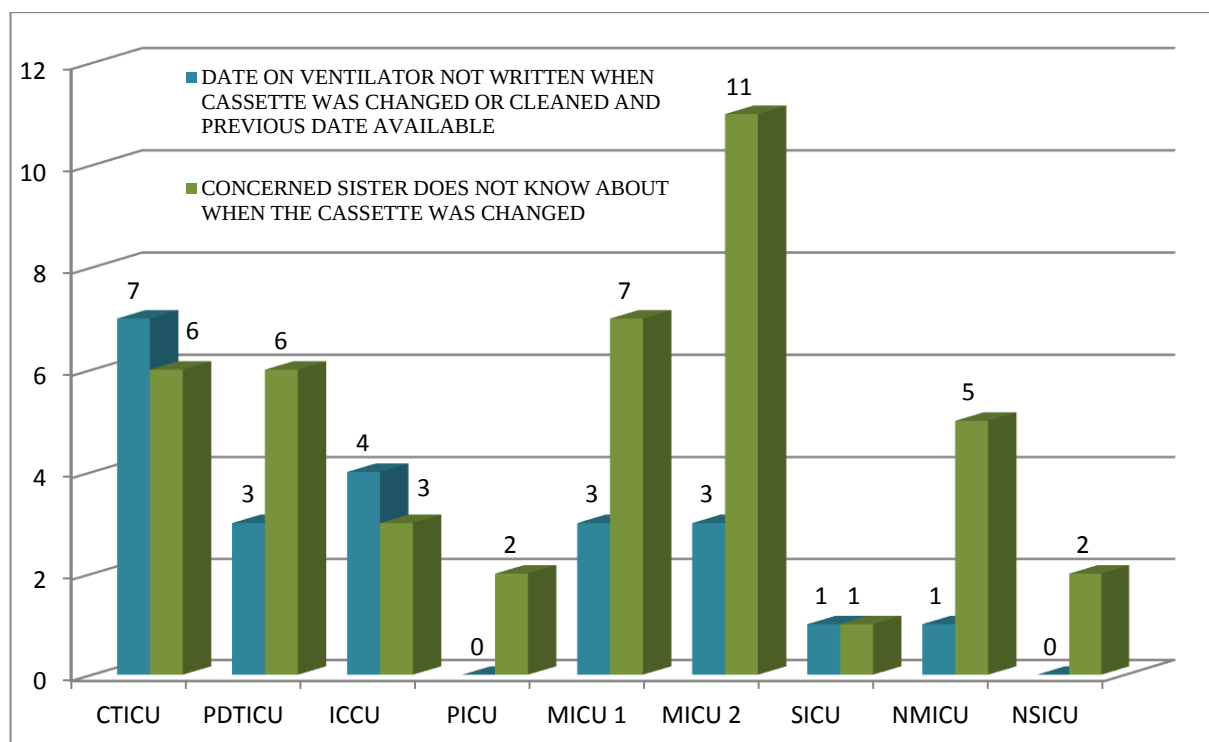
Analysis of the Total Number of Patients Collected During the Time Period.

The Following Graph Showing the Average Time a Patient Was on Ventilator in Every Intensive Care Unit Comparing It to Total Number of Cases Considered.



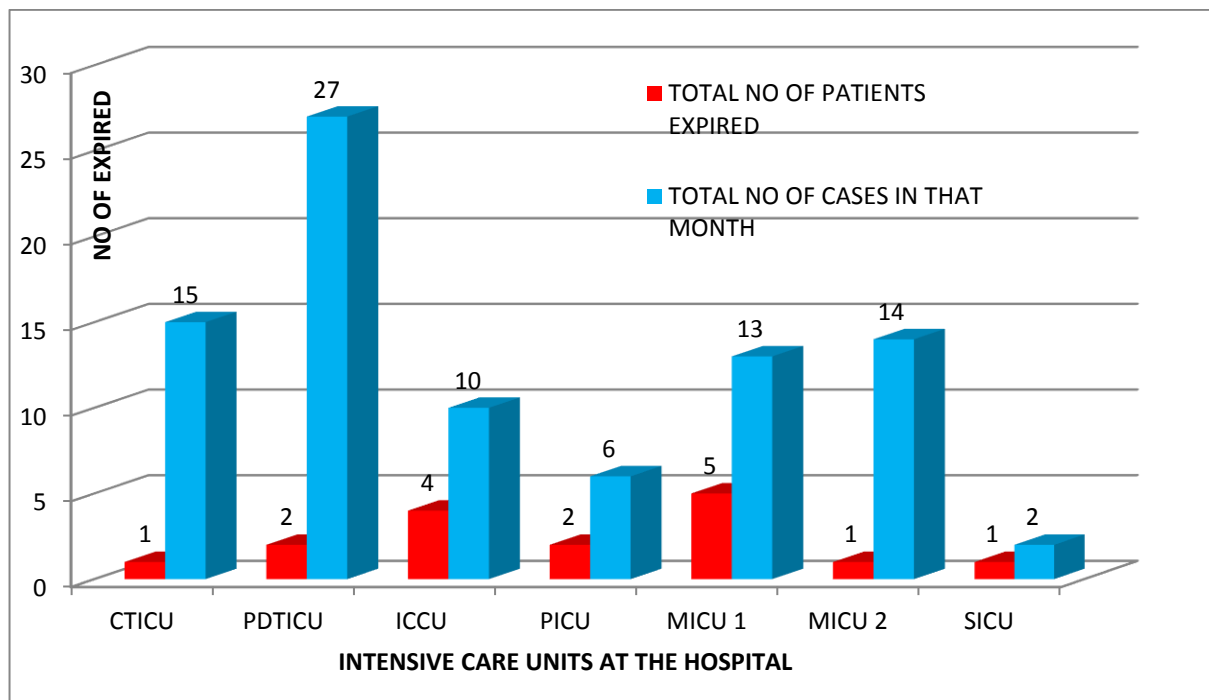
The graph shows the average time of all the patients on invasive mechanical ventilation in each and every intensive care unit of the hospital. It is seen that almost all the patients are invasive intubated at an average of 25 hours minimum (CT-ICU).

A Graph Showing About the Maintenance by The Bio Medical Department of the Hospital and The Concerned Sister In charge of a Patient Knowing About the Maintenance of the Ventilator. A Comparison Is Made Between the Both to See How Responsible Are the Bio Medical and The Sister In Charge About the Maintenance of the Ventilator and for The Patients Health Wellness



It Can Be Observed That Almost All the Time the Concerned Sister In Charge Of The Patient Has No Information About When The Cassette Was Changed Or Cleaned And Also Even The Bio Medical Department Has Not Mentioned On The Ventilator When The Cassette Was Changed Or Cleaned.

Total Number of Patients Who Expired During the Time of Intubation or On Ventilator Support.



As we can see in the graph that all the intensive care unit have at least a minimum of 1 patient death when patient is on the ventilator support, so it is mandatory that the bio medical department should do a regular maintenance of the ventilators and as well the sister in charge should keep a track on the maintenance for the welfare of the patient.

Ventilator Associated Events.

VAE protocol first made available “live” in January 2013

VAE are invention of the Centre for disease control, which was invented to get a good epidemiologic data for ventilator associated pneumonia. [10]

The definition of a ventilator associated event is A 3 TIRED [10]

- Tier 1: Ventilator-Associated Condition (VAC) —The Patient Develops Hypoxemia (As Defined Above) For A Sustained Period of More Than 2 Days. The Etiology of The Hypoxemia Is Not Considered.
- Tier 2: Infection-Related Ventilator-Associated Complication (IVAC) —Hypoxemia Develops in The Setting of Generalized Infection or Inflammation, And Antibiotics Are Instituted for A Minimum Of 4 Days.
- Tier 3: Probable or Possible Ventilator-Associated Pneumonia (VAP) —Additional Laboratory Evidence of White Blood Cells on Gram Stain of Material from A Respiratory Secretion Specimen of Acceptable Quality, Or (=Possible)/And (=Probable) Presence of Respiratory Pathogens On Quantitative Cultures, In Patients With IVAC. Additional Criteria Are Also Available for Use in Meeting the Possible or Probable VAP Definitions. [10]

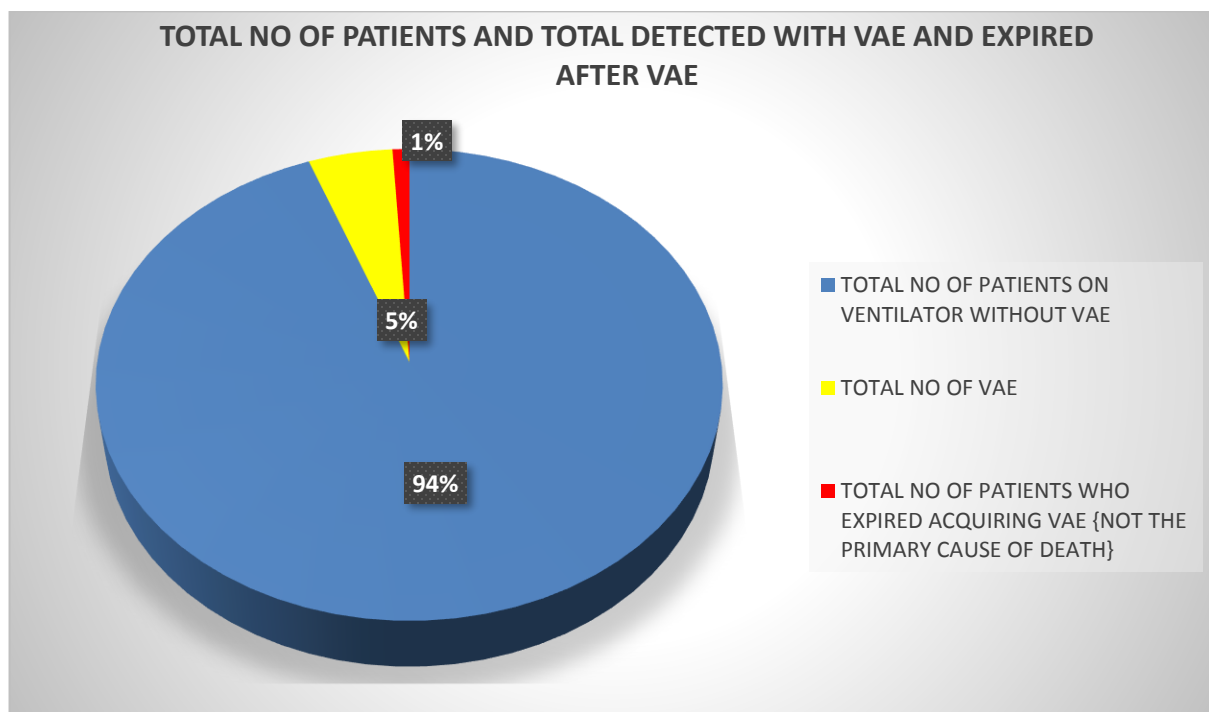
Ventilator associate events occur to the patients who are on ventilator support for a longer time, could be more than a week. It most occurs mostly in the patients who are on invasive ventilation and as previously described the patients on mechanical invasive ventilation the mucus which is produced must be cleared manually by suction and sometimes mucus which cannot be cleared can lead to VAE. Ventilator associated events can happen even due to improper maintenance of the ventilator pressure. It happens even when the patient is on tracheostomy.

The common events on ventilator support are

1. Pneumonia
2. Laryngitis
3. Pharyngitis
4. Laceration

The ventilator associated events are seen mostly in the patients who are intubated through an ET tube connected to the mechanical ventilator for more than 4 days

A Graph Showing Total Number of VAE of The Patients Who Are on Ventilator Support.



In the Above Graph It Can Be Observed That a Total Of 5 Patient Were Affected by The VAE and 1 Of the Patient Was Expired After Acquiring VAE But Not the Primary Cause of Death.

This Shows That the VAE Occurrence Is Not High but It Is Affecting the Patients Whose Condition Is Very Critical and Which Is Increasing His Criticality and Decreasing His Chances to Get Well Soon. This Proves That the Bio Medical Department Isn't So Regular on Maintenance of The Ventilators as Well the Nurse in Charge

Gaps in the Maintenance of the Ventilator.

- Date of The HEC Cassette Change or Cleaning Not Mentioned Anywhere.
- If the HEC Cassette Changed or Cleaned Date Not Mentioned Anywhere
- HEC Cassette Changed or Cleaned Only After the Request of the In-Charge Nurse.
- Delay Caused in Cleaning or Changing the HEC Cassette.
- No Record Is Maintained When the Cassette Is Changed or New Cassette Is Used for The Ventilator.
- Sister Complains That Due to Emergency Ventilators Are Used to Other Patients Before Maintenance or Before Cleaning the Cassette.
- Most of The Concerned Sister in Charge Do Not Know When the HEC Cassette Was Changed or Cleaned
- Day to Day Rounds of the Bio Medical in Charge Is Not Been Done to Check the for Gaps.
- One of The Sisters Complains That According to New Protocol Cassette Changing Not Done for Every New Patient.
- Sister Do Not Know the Time of Ventilator Intubation.

Suggestions to Reduce the Gaps

A Register to Be Maintained by Bio Medical Department and Sister In charge of the Intensive Care Unit to Make an Entry of When the HEC Cassette Was Changed or Cleaned.

Sister In charge of the Patient Should See That the Maintenance of the Ventilator Keep Happened Regularly.

After Extubating of Each Patient, a Call to Bio Medical Department Should Be Made and See That They Clean the Cassette and Make an Entry Their Register as Well as The Intensive Care Unit Register.

A Special Care Should Be Taken in Cleaning the HEC Cassette Which Was Previously Used to The Patient Who Had Expired When on Ventilator Support.

Every Sister Must Know the Time of Intubation and Extubating so that they could help out for regular maintenance of the ventilators.

After every maintenance, the date should be mentioned on the ventilator and what was done should also be mentioned in short.

Conclusion

From the data collected at Care hospitals at Banjara hills Hyderabad it is observed that the ventilators are not maintained correctly by the bio medical department. The ventilator HEC cassette is been changed only on request by the in-charge nurse of the ICU and when it is changed the date and time is not mentioned anywhere by the bio medical. It is also being observed that the sister in charge of a patient does not know when the cassette was changed or cleaned. This could lead to more ventilator associated events and could hamper the patients' health more and more and could cause the delay in patient recovery. By maintaining a record about when the ventilator cassette was changed or installed or when the ventilator was last been repaired or was under maintenance could help the patients as well as could save the hospitals revenue and keep the name of the hospital name intact.

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