Summer training at

Aster Medcity, Kochi

May10th to July 2nd 2021

A report

By

Abirami Kumaran

MBA Hospital and Health Management

2020-2022

IIHMR UNIVERSITY

AsterMedcity
We'll Treat You Well™

ADMHC/INTC/2020/3437 05th July 2021

TO WHOMSOEVER IT MAY CONCERN

This letter is to certify that **Ms. Abirami Kumaran** has successfully completed **Internship** with Aster Medcity, Kochi from **10th May 2021** to **02nd July 2021**.She was posted in the department of **Operations** and was actively and diligently involved in the tasks assigned to her. During this period, we found her to be punctual and hardworking.

We wish her a successful career and bright future.

For Aster DM Healthcare Ltd.

ASTER DM HEALTHCARE LIMITED
KOCHI
682 027

Nijoy Peter M J
Manager– Human Resources

Aster DM Healthcare Ltd.
Kuttisahib Road, Near Kothad Bridge, South Chittoor PO, Cheranalloor, Kochi 682027, Kerala, India
T +91 484 6699999 E info@astermedcity.com W astermedcity.com
CIN: U85110KL2008PLC021703

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My abundance of gratitude to all of them who helped me to finish this project successfully at this COVID – 19 pandemic situations. I thank IIHMR University Jaipur for giving me this opportunity to know and learn more about the organization that we work after our graduation. As a management student I am keen to experience the theory part in a practical form that was given by the ASTER MEDCITY Kochi.

I am lucky to have Mr. Ashish bandhu sir as a mentor to guide me in each and every step of my project and motivated me to succeed in learning all the process flow of the department in the hospital.

My sincere thanks to ASTER MEDCITY Kochi for having me as an intern and helped me to learn from a multispeciality hospital for 2 months by exploring a cutting-edge technology from the hospital.

Special thanks to my project mentor Mr. Jayesh Nair, Head of Operations for guiding me throughout the project and he played a role of a teacher in teaching me the process flow of the hospital.

Lovable thanks to all the staff members of ASTER MEDCITY Kochi for providing all the information of the process flow in a kind manner with a smile in a face motivated me to learn a lot from the organization.

Last but not the least, gratitude to my family and friends for supporting in all the situations and helped me to complete this project.

I hope that I will inculcate all my learnings in future job and bring innovations in the organization that I work.

Abirami Kumaran

MBA Hospital and Healthcare Management

IIHMR University, Jaipur.

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LIST OF ABBREVIATIONS:

GCC	Gulf Cooperation Council
ILC	Integrated Liver Care
ICU	Intensive Care Unit
CT	Computed Tomography
HIS	Hospital Information System
OPD	Out Patient Department
OT	Operation Theatre
UHID	Unique Health Identification Number
QMS	Queue Management System
PPE	Personal Protective Equipment
RO	Reverse Osmosis
TPA	Third Party Administrator
GOP	Guarantee of Payment
IP	Inpatient
PRE	Patient rights and education
FIC	Financial Counselling
ECHS	Ex-Servicemen Contributory Health Scheme
ESI	Employees State Insurance
COVID	Corona Virus Disease
CACU	Cardiac Acute Care Unit
CCL	Cardiac Cath Lab
CSSD	Central Sterile Supply Department
MRD	Medical Records Department
IT	Information Technology

ORGANISATIONAL PROFILE

ASTER MEDCITY, KOCHI

Aster Medcity is the business capital of god's own country, it is the world-class quaternary care centre with one Multispeciality hospital and there is an eight centre of excellence with 670 beds. There is a world class hospital in Bengaluru, Hyderabad, Maharashtra and GCC.

Founder of Aster DM healthcare is Dr. Azad Moopen, he is a multi – professionals by a Doctor, businessman, philanthropist, educationist and visionary. He worked as a lecturer in Calicut Medical college before going to Dubai, from there he started his incredible journey from a single doctor clinic to the span of 9 countries including in Africa, India and the GCC. The group of employees are over 20,790 people and has the 323 facilities including the hospitals, clinics and pharmacies in which they provide the world class medical care to millions of people every year. He has initiated many innovative corporate social responsibility activities that are DM foundation where their goal was to give importance to the free rural health camps, free community dialysis centres, mobile clinics for early disease detection, etc. He was awarded with Padma shri in the year 2011, prestigious Arabian business Achievement Award for its outstanding contributions to the healthcare industry in the Middle East.

Vision:

"A Caring Mission with a Global Vision"

Promise:

"We'll Treat You Well"

A promise that sums up what they do and why they exist One that strive to honour every day, every moment.

Values:

- Excellence
- Compassion
- Integrity
- Respect
- Passion
- Unity

USP:

- Green operation theater
- Cutting – edge technology
- Accelerated healing
- High quality treatment at an affordable cost

Aster Centres of excellence:

1. Cardiac Sciences
2. Orthopaedics and Rheumatology
3. Neurosciences
4. Oncology
5. Multi – Organ Transplant
6. Nephrology and Urology
7. Gastroenterology and ILC
8. Women's Health
9. Child and Adolescent health

Awards and Accolades:

- Best marketing campaign in healthcare industry by National Award for Excellence in Healthcare.
- Best Healthcare Entrepreneur by Asia Healthcare Excellence Awards
- Asian Hospital Management Awards 2016 for clinical service improvement.
- Health Icon of the year by India Health and Wellness Awards 2016
- Best Digital Solutions 2016 by BW Business World

Technology and Design:

1. First time in Kerala Robotic surgery: Da Vinci Robot (Da Vinci IS3000 Series Single Console Surgery System) for performing surgical procedures in cardiology, Oncology, Gynaecology and urology.

2. For the first time in India, Automatic Drug Dispensing Pharmacy that is fully automated pharmacy robot for faster dispensing.

3. First time in South India digitalized charting in ICUs, like which is integrated to HIS for the medications and medical equipment like ventilators, Patient monitors, Syringe and Infusion Pumps to ensure the efficiency in treatment.

4. World-class Imaging and interventional Radiology one of the fastest CT scanners with lowest radiation dose and live CT Fluoroscopy for guided interventions.

5.Extracorporeal membrane oxygenation (ECMO) takes the function of the heart and lung temporarily in the event of heart failure.

6. The design philosophy of Aster Medcity is simple that are actually spacious, rooms and waiting lounges that don't make one claustrophobic, that assure privacy for the patient.

DEPARTMENT VISIT:

○ Financial Counselling (Self pay) –

Roles and responsibility:

1. Educating patients about their financial responsibility, payment process and assistance options.

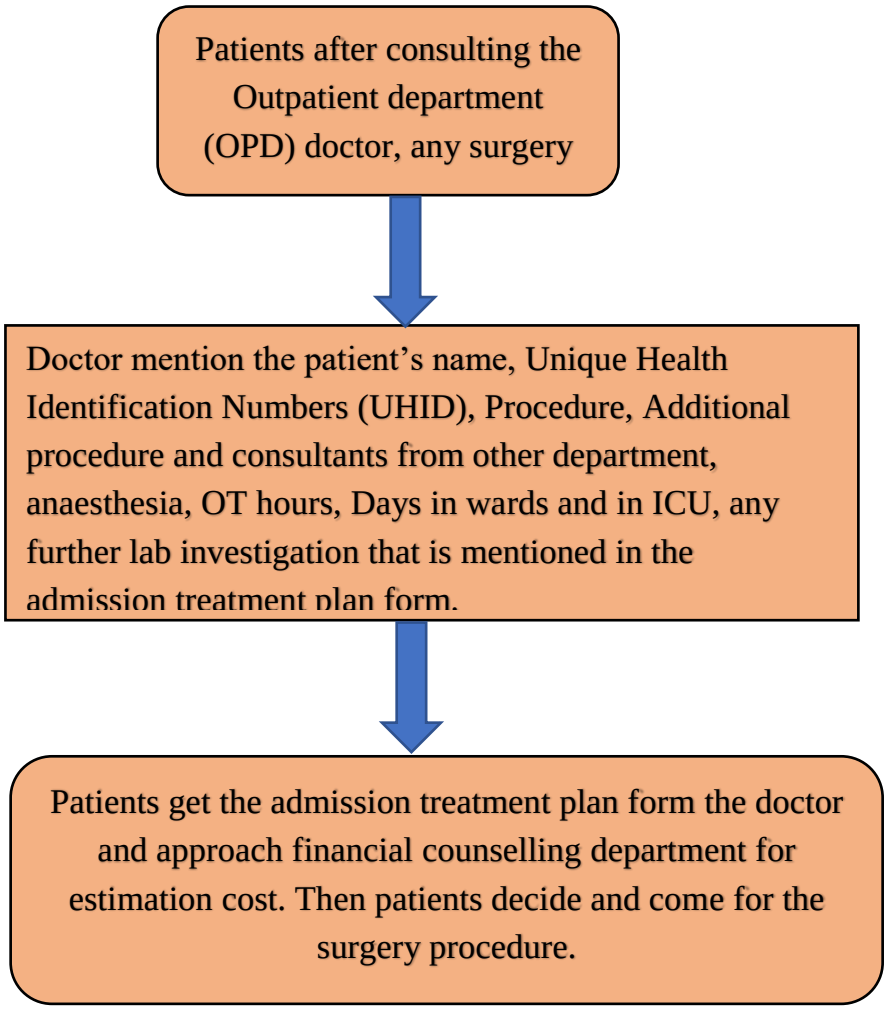
2. Explaining about the estimated cost and types of rooms available in the hospital.

3. Keeping a note on the conversion rate in last day of the month.

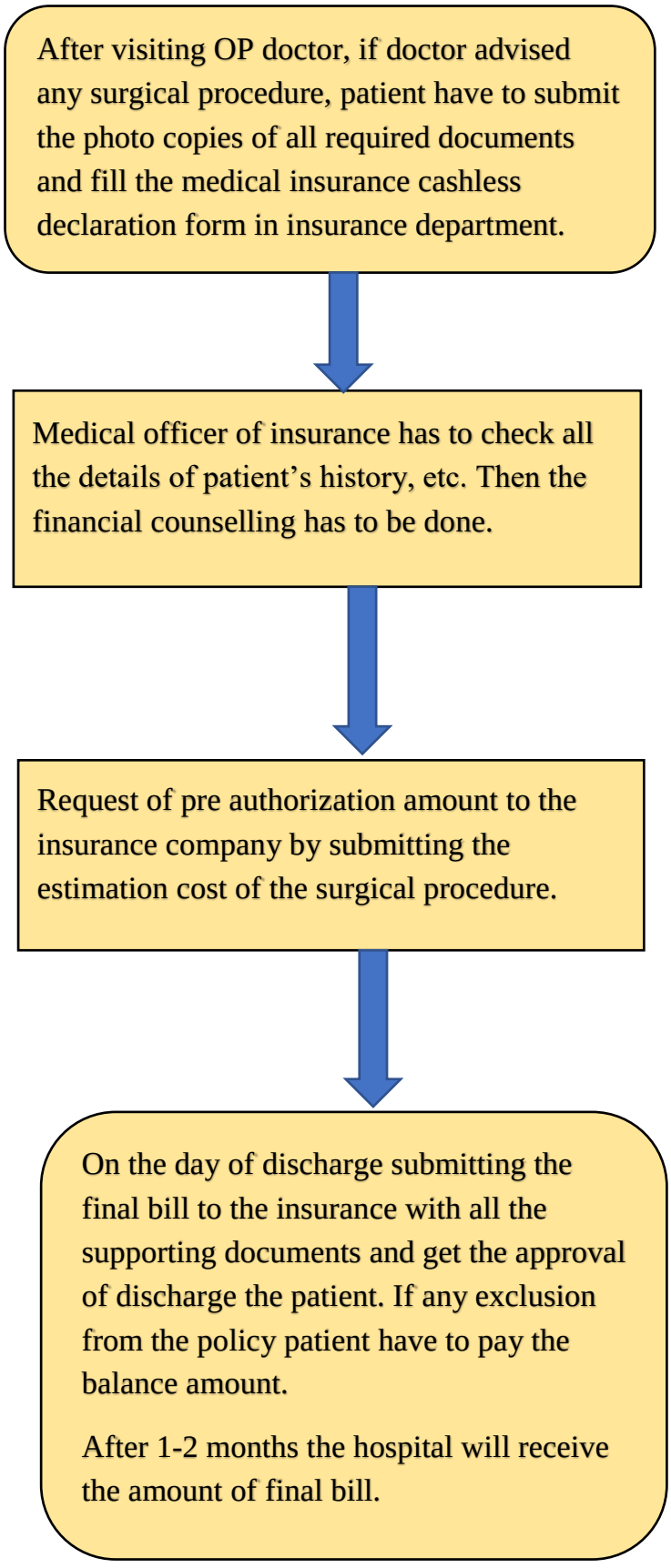
4. Track on patients who didn't come to the hospital for surgery procedure.

5. Patient details checking and procedure rates from Hospital Information system (HIS).

(Fig 1) Process of Financial Counselling:



- **(Fig 2) Process flow of an insurance patient:**



○ Teleconsultation:

- Appointment slot booking is done by the patient through the app by on which date, day, doctor's specialist name. Then they pay the consultation fee in online portal.
- In the contact centre they get confirmation from the doctor of their appointment.
- At the time of consultation, both patient and doctor should start the video consultation.
- Then doctor upload the prescription in consultation summary.

○ Core Outpatient Department (OPD):

- ❖ Patients enter to the core OPD billing desk and fill the registration form if they are new to the hospital, get the UHID number and aster card for future purposes.
- ❖ They pay the consultation fees if they didn't pay in the app.
- ❖ After bill payment the front desk staff activate the token number for the patient.
- ❖ Patients go to the assessment room for checking their vitals and the staff upload it in the HIS.
- ❖ The hospital is following the QMS and the patient see the doctors according to the token number.
- ❖ If there are any lab investigations request from the doctors, the patient pay the bill in billing desk and move on to the further procedures in phlebotomy.
- ❖ For time saving pneumatic tube system control is being used in the hospital for lab investigations.

○ Digital (Intensive care unit) ICU/E – ICU:

- Digitalized charting in ICUs, which is integrated to HIS for medications and to medical equipment like ventilators, patient monitors, syringe and infusion pumps to confirm unmatched efficiency in treatment.
- The ICUs have ceiling mounted pendants to hold equipment, electricity and medical gases to facilitate easier patient care.
- All the vital signs and respiratory ventilator readings are automatically monitoring in the system, the duration of the record can be altered according to the patient condition.
- The other clinical notes, nurse notes are manually uploaded in the system.

○ Central sterile supply department (CSSD)

- Zone 1 (Negative pressure room): Receiving all the equipment from the OT by CSSD person in dumb elevator. This elevator is only for bringing the used products to CSSD department. Pre cleaning is done followed by soaking all the equipment for 10 minutes using enzymatic detergent. Then rinsing it in normal water for metals is in ultrasonic machine and for plastic manually washing is done.
- Zone 2 (Middle phase): Inspecting the equipment according to their functionality, if needed lubricate few items. Then assembling the sets of equipment for each surgery and packing it.
- Zone 3 (Positive pressure room): Complete sterilization area all sterilized items are kept in the room.

CSSD Sterile Storage and Distribution Area:

i. Change in to proper attire then do proper handwash.
ii. Wear PPE
iii. Sterile storage area will be monitored daily for the temperature 20°C-22°C and relative humidity 35% to 65%.
iv. Unloading of sterilization loads as per the load.
v. Content record: Store the items properly on the wire mesh racks/baskets.
vi. Load will be released on the basis of parametric release method.
vii. Release the load for the distribution to the end-user.
viii. Department with proper documentation: Distribution on the basis of first in first out.

CSSD Process Life Cycle:

a) Change in to proper attire then do proper handwash.
b) Wear PPE
c) Receiving of contaminated surgical instruments as per the checklist. Lookout for any sharps. Open all the instruments. Check for any damage.
d) Segregation of surgical instrument/open all the instruments.
e) Primary cleaning/ First rinse with running RO water (Temp < 40°C)
f) High level disinfection process for all the surgical instruments.
g) Ultrasonic cleaning process or automated washer disinfection process.
h) Drying of cleaned cannulated surgical instruments with filtered compressed air.
i) Cleaning efficacy will be checked visually.

- **International Insurance –**

Roles and responsibility:

1.International credit business for international patients

2. Treatment, charity, insurance credit to the patients

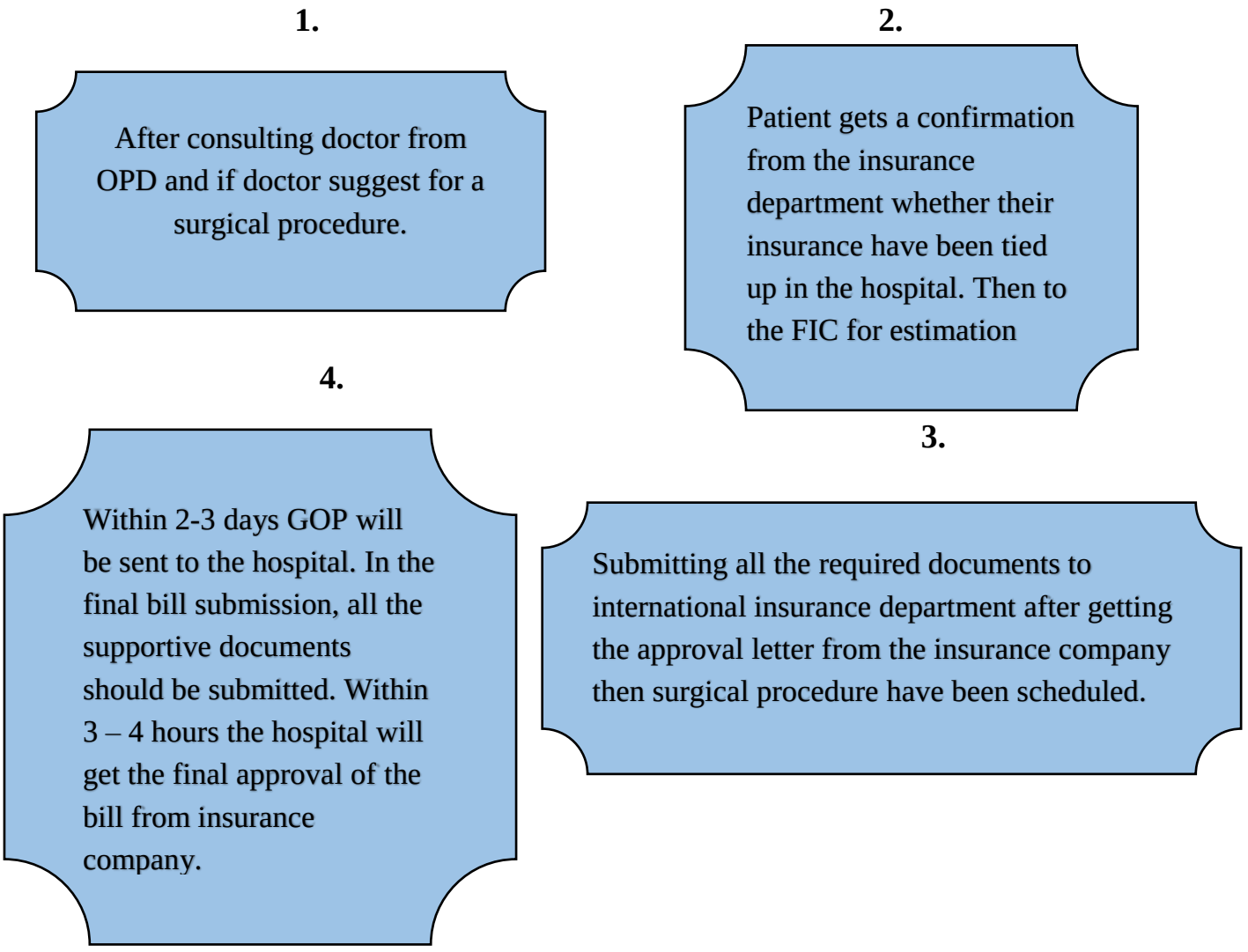
3. Estimate cost, credit letter from the insurance company

4. Keeping a tracker on the UHID number, Insurance name, TPA, country name, rejection reason, IGOP amount and date (Initial Guarantee of payment), Final GOP reference, Total amount, paid by patient, date of admission, date of discharge, treating doctor name, Remarks, Bill received, IP bill number.

5. Submitting all the supportive documents in the final bill submission for reference to the insurance company, it should be done within 7 days.

6. After patient gets discharged, within 60-90 days the payment will be transferred from the insurance company to the hospital.

(Fig 3) Process of International insurance:



A STUDY OF FINANCIAL COUNSELLING ON THE RATE OF CONVERSION FROM OUTPATIENT TO INPATIENT IN A QUATERNARY CARE UNIT

INTRODUCTION:

The nature of competition in health care are the competitions in physician in quality or non – price competition, the other side are the competition in insurer like price competition. The choice of choosing the hospital for treatment is done by the patients with help of the financial counselling where the estimated cost is given, the patients analyse with other hospitals cost and decides for further procedures. In this competition among hospitals, encouraged to increase the value for patients by giving the successful treatments and treating the patients well. In other words, providing the satisfy needs to the patients by better products and services. Health system costs plays a major role in patient satisfaction as an outcome measure of competition. The cost of the treatment decides whether patient is willing to get admitted in the hospital for treatment. So financial counselling plays a very high-ranking role in the hospital for increasing IP admissions and significant support to the revenue of the hospital. Many studies shows that patient satisfaction is based on the high-quality service at lower cost in this competitive environment. Conversion rates of financial counselling are lesser in few departments due to lack of counselling to the patients so finding out the reasons of why patients are not getting admitted in hospital for surgical procedure or medical management. Using tools of six sigma like process mapping, cause effect analysis methods to overcome the challenges and suggestions can be given to improve or increase the conversion rates of financial counselling to IP admissions. This improvement in financial counselling will help the patients to choose the best hospital with advanced treatment.

RATIONALE:

As per the NABH accreditation standards for hospitals, in patient rights and education (PRE) chapter in standard six it says that **"Patients and families have a right to information on expected costs".** The objective elements of standard are the patient and family members are made aware of the pricing policy in different setting (emergency, out-patient, ICU, in-patient). All the expected cost should be explained to them to avoid the financial constraints in the last minute of the IP admission. Any changes in treatment plan and new estimated cost should be informed. Financial counselling in conversion rates of outpatient to inpatient brings revenue to the hospital. Since hospital have the

advanced technology and skilled doctors to solve the complicated cases, and success rates of surgeries in the hospitals. So, the purpose of this project was to calculate the conversion rate of outpatient to inpatient and finding out the reasons why patients are not getting IP admission in the hospital.

REVIEW OF LITERATURE:

- According to Brackertz N research study it explains the positive outcomes on financial counselling in aspect of improved skills in prioritising debt, the patients can plan their budget in advance. Financial counsellors play an important service in people who are suffering from financial stress from low incomes and difficulty coping with their situation.(1)
- Financial counselling process vary in all the hospitals but they help in patient's family in the discussions and play important role in patient care process. Financial counselling process begins at the first visit and before the treatment begins whether it can be surgical procedure or medical treatment to the patient. Financial counselling results in increased revenue and removing the financial distress of the patients from interacting with doctors, billing, front desk staff about the cost of the procedure.(2)
- Study explains about the two-part intervention phone and in person counselling can be done to the patients. In financial counselling communication plays a powerful role in explaining to the patients about the estimation cost of the surgical procedure or the medical management.
- Patients do shopping for prices and do a comparative study from all the hospitals for planning it financially. This study explains that second opinions help the patient to decide for choosing the hospital for the procedure by comparing the rates of different hospitals.
- According to Frances C. Lawrence research study explains the importance of several scales like financial behaviours towards the estimated cost, financial management behaviour of patients can also play a role in the conversion to inpatient admission. Low-income patients are under the financial issues so risk taking behaviour are also involved in the conversion rate of the patient.

RESEARCH QUESTION:

- What is the conversion rate of financial counselling from outpatient to inpatient admission services?
- What are the top reasons by patients for less conversion to inpatient?

RESEARCH OBJECTIVE:

- To understand the process flow of financial counselling to the patient from the hospital.
- To analyse the conversion rates of financial counselling in all the departments from outpatient to inpatient.
- To analyse the reasons for less conversion rates of inpatient, using six sigma tools like process mapping, cause and effect analysis.
- Inculcating few new suggestions to increase the conversion rates in financial counselling.

METHODOLOGY:

The study was conducted from secondary data that was collected from November 1st 2020 to April 30th 2021 further the data was analysed.

Study location: Study was conducted in Aster Medcity, Kochi

Study duration: A period of two months (May10th – July 2nd 2021)

Sampling method: Convenience sampling

Sample size: 4449 in Self-pay patients and 3813 in Insurance patients

Inclusion criteria: All departments for whom doctors advised for surgery or medical management with admission treatment plan form for estimation cost

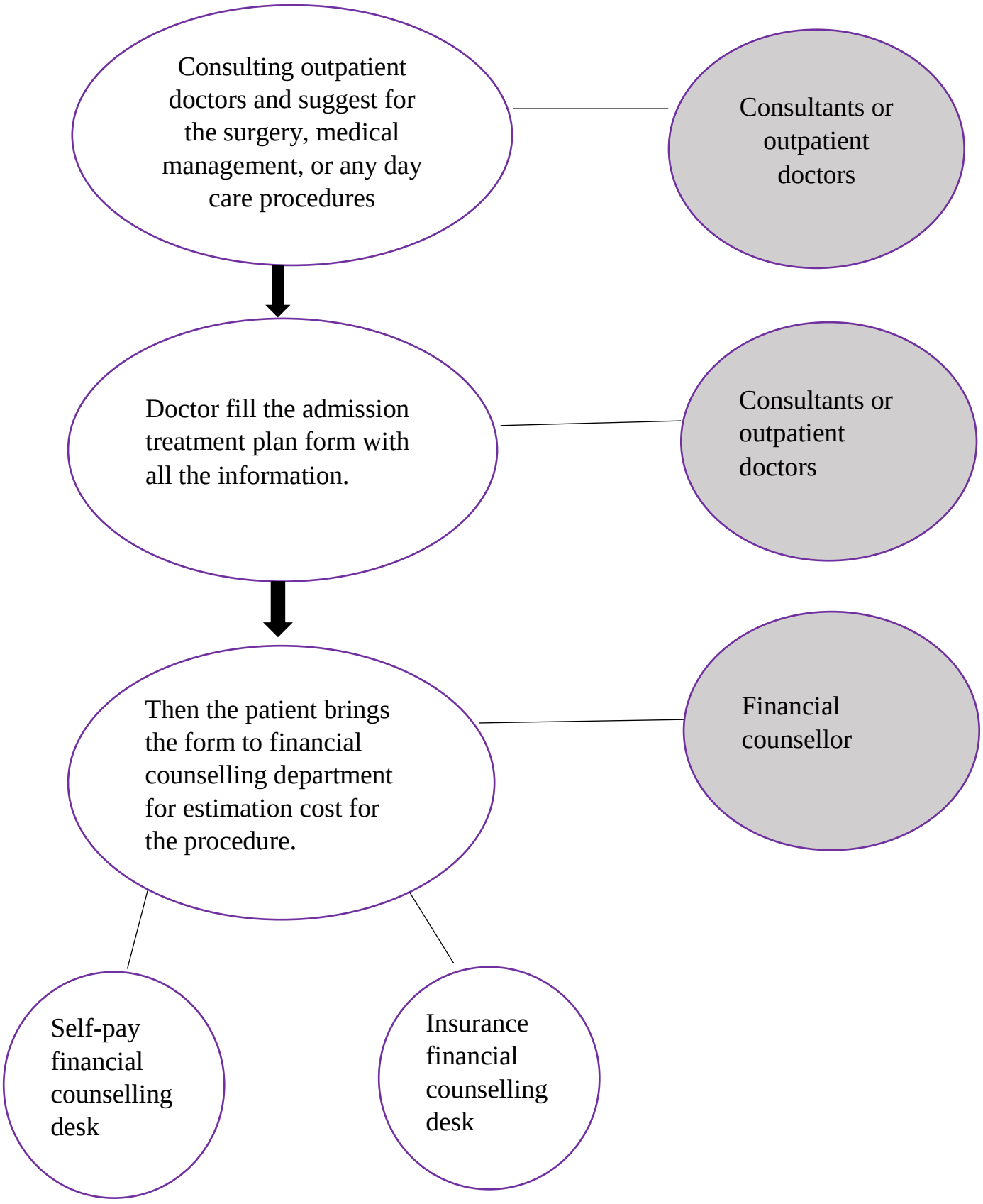
Exclusion criteria: Duplicate entries are excluded from the project, error in documentation, incomplete data

Study area: Financial Counselling department in self-pay and Insurance desk

Data collection method: Secondary data, which was documented in financial counselling department of self-pay and insurance.

Data analysis tool: Process mapping, cause and effect analysis tool

(Fig 4) PROCESS MAPPING FOR FINANCIAL COUNSELLING:



ANALYSIS:

Analysis was done using MS Excel and the conversion rates were calculated separately for Self-pay and Insurance patients.

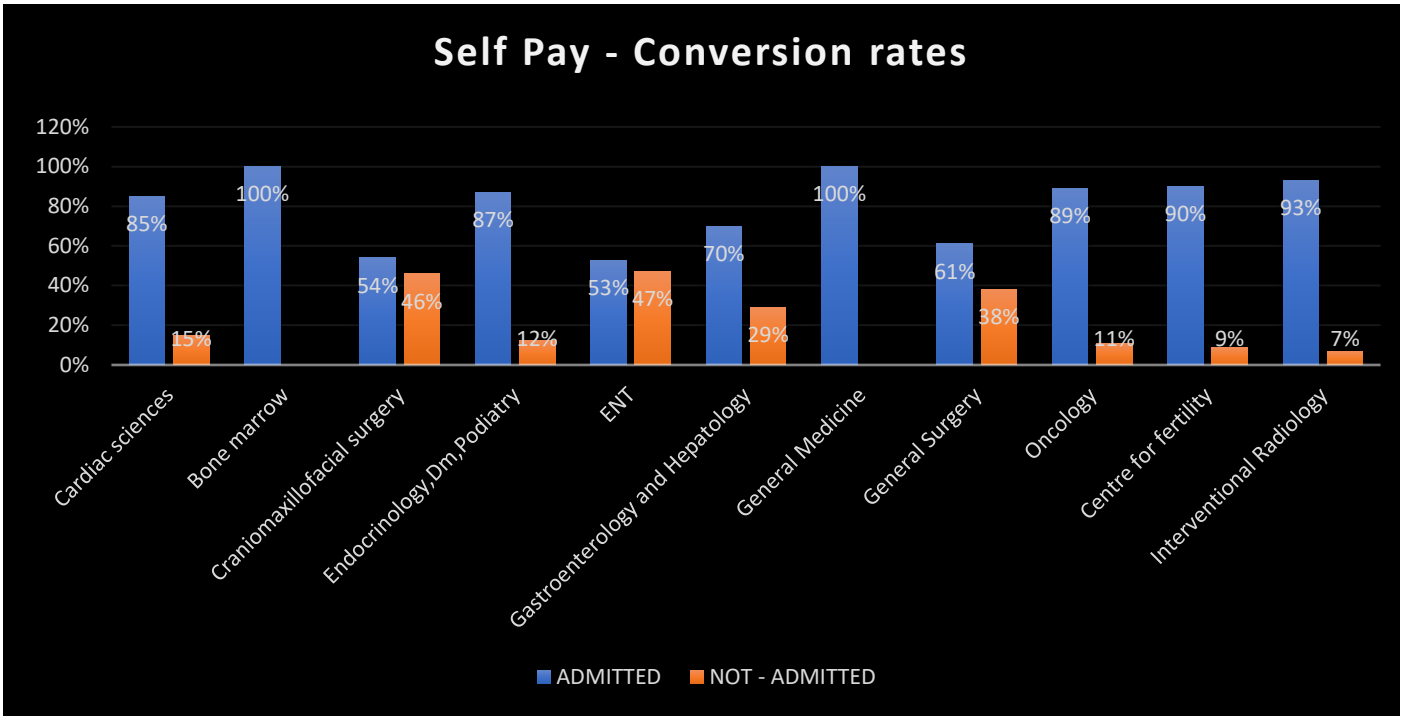
Sample size: 4449 in Self-pay patients and 3813 in Insurance patients

SELF PAY PATIENTS:

DEPARTMENT NAME	NET FIC	ADMITTED		NOT -ADMITTED	
Cardiac sciences	**442**	**377**	**85%**	**65**	**15%**
Bone marrow	**1**	**1**	**100%**	**-**	**-**
Craniomaxillofacial surgery	**89**	**48**	**54%**	**41**	**46%**
Endocrinology, DM, Podiatry	**49**	**43**	**87%**	**6**	**12%**
ENT	**195**	**103**	**53%**	**92**	**47%**
Gastroenterology and Hepatology	**537**	**381**	**70%**	**156**	**29%**
General Medicine	**12**	**12**	**100%**	**-**	**-**
General Surgery	**132**	**81**	**61%**	**51**	**38%**
Oncology	**283**	**251**	**88%**	**32**	**11%**
Centre for fertility	**22**	**20**	**90%**	**2**	**9%**
Interventional Radiology	**144**	**134**	**93%**	**10**	**7%**

Tab 1.1: This table explains the first half of departments in self-pay patients FIC of admitted and not admitted

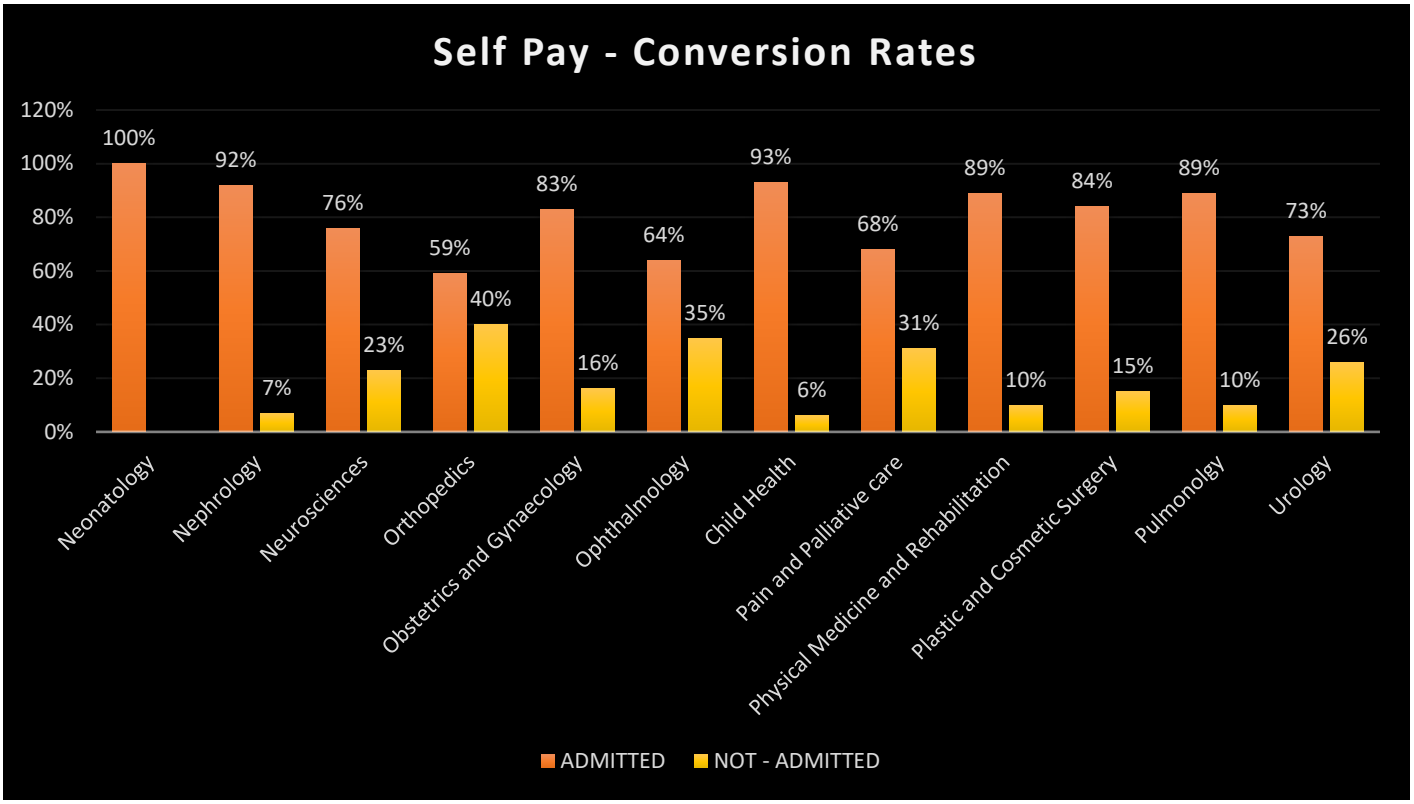
(Fig 5)



DEPARTMENT NAME	NET FIC	ADMITTED		NOT - ADMITTED	
Neonatology	**85**	**85**	**100%**	**-**	**-**
Nephrology	**114**	**105**	**92%**	**9**	**7%**
Neurosciences	**455**	**347**	**76%**	**108**	**23%**
Orthopedics	**360**	**214**	**59%**	**146**	**40%**
Obstetrics and Gynaecology	**823**	**688**	**83%**	**135**	**16%**
Ophthalmology	**17**	**11**	**64%**	**6**	**35%**
Child Health	**45**	**42**	**93%**	**3**	**6%**
Pain and Palliative care	**54**	**37**	**68%**	**17**	**31%**
Physical Medicine and Rehabilitation	**56**	**50**	**89%**	**6**	**10%**
Plastic and Cosmetic Surgery	**189**	**159**	**84%**	**30**	**15%**
Pulmonology	**69**	**62**	**89%**	**7**	**10%**
Urology	**276**	**204**	**73%**	**72**	**26%**

Tab 1.2: This table explains the second half of departments in self-pay patients FIC of admitted and not admitted

(Fig 6)

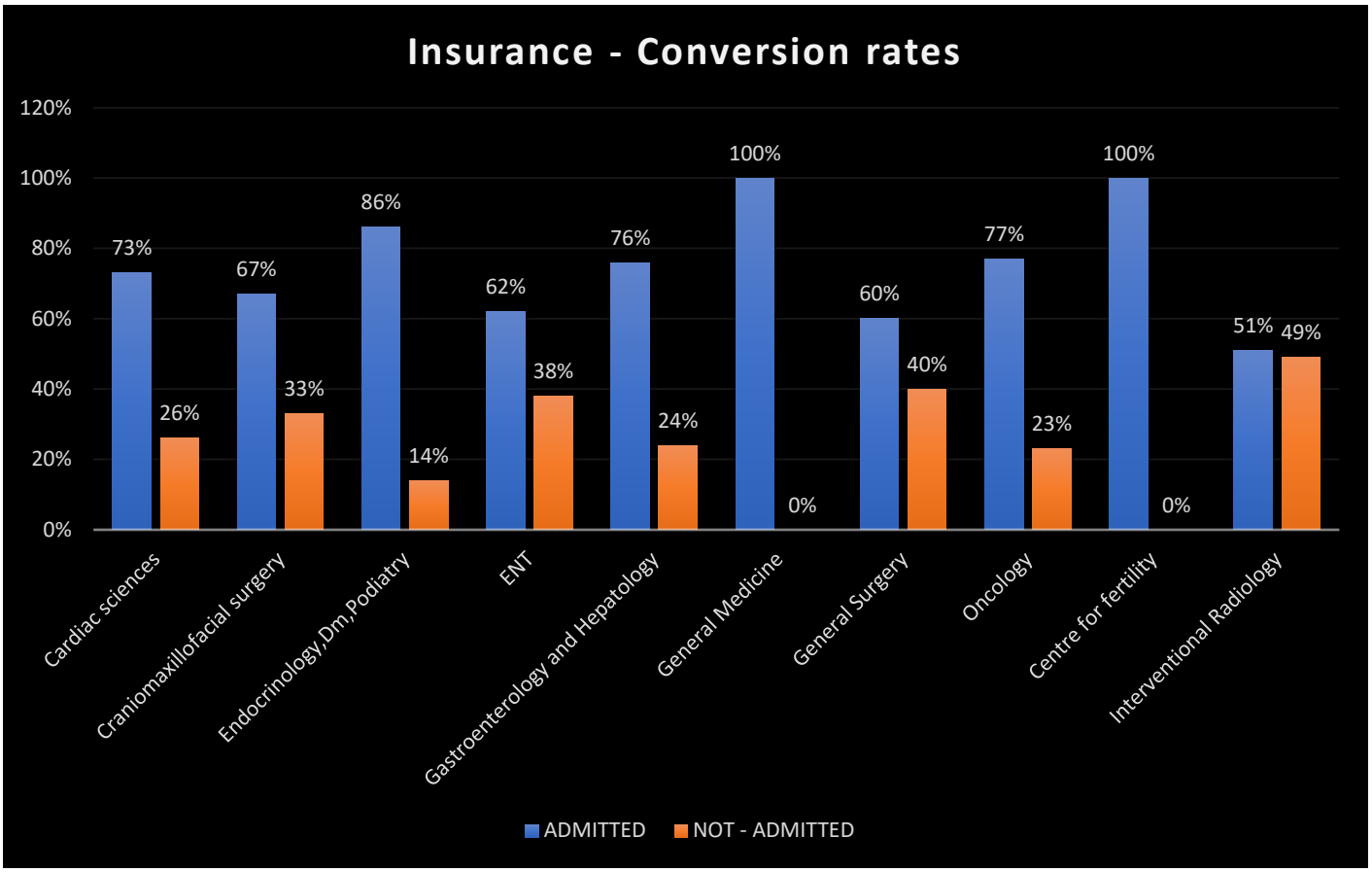


INSURANCE PATIENTS:

DEPARTMENT NAME	NET FIC	ADMITTED		NOT - ADMITTED	
Cardiac sciences	**272**	**199**	**73%**	**70**	**26%**
Craniomaxillofacial surgery	**6**	**4**	**67%**	**2**	**33%**
Endocrinology, Dm, Podiatry	**7**	**6**	**86%**	**1**	**14%**
ENT	**142**	**88**	**62%**	**54**	**38%**
Gastroenterology and Hepatology	**438**	**333**	**76%**	**105**	**24%**
General Medicine	**299**	**298**	**100%**	**1**	**-**
General Surgery	**98**	**59**	**60%**	**39**	**40%**
Oncology	**670**	**518**	**77%**	**152**	**23%**
Centre for fertility	**1**	**1**	**100%**	**-**	**-**
Interventional Radiology	**35**	**18**	**51%**	**17**	**49%**

Tab 1.3: This table explains the first half of departments in insurance patients FIC of admitted and not admitted

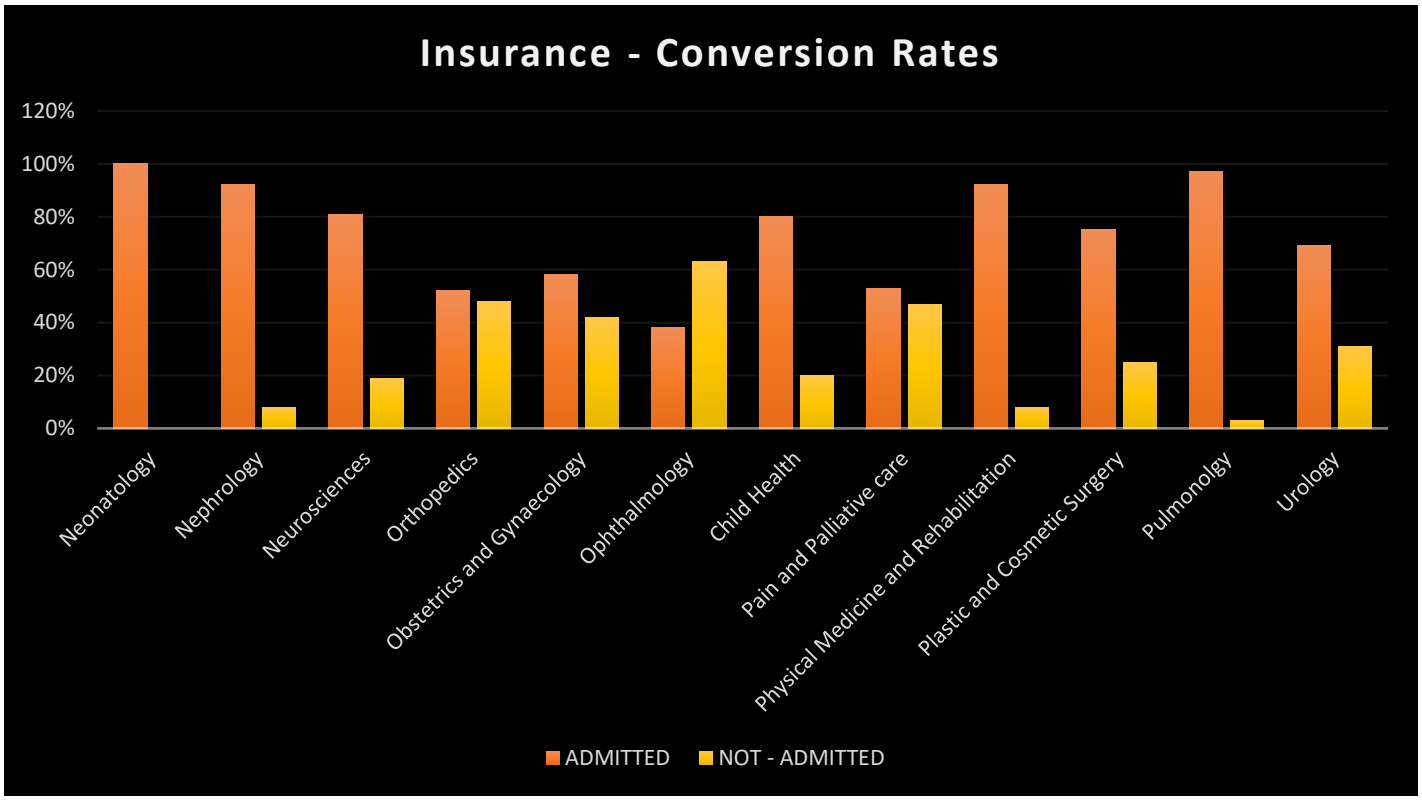
(Fig 7)



DEPARTMENT NAME	NET FIC	ADMITTED		NOT - ADMITTED	
Neonatology	**46**	**46**	**100%**	**-**	**-**
Nephrology	**167**	**153**	**92%**	**14**	**8%**
Neurosciences	**258**	**210**	**81%**	**48**	**19%**
Orthopedics	**250**	**129**	**52%**	**121**	**48%**
Obstetrics and Gynaecology	**508**	**294**	**58%**	**214**	**42%**
Ophthalmology	**8**	**3**	**38%**	**5**	**63%**
Child Health	**89**	**71**	**80%**	**18**	**20%**
Pain and Palliative care	**15**	**8**	**53%**	**7**	**47%**
Physical Medicine and Rehabilitation	**12**	**11**	**92%**	**1**	**8%**
Plastic and Cosmetic Surgery	**52**	**39**	**75%**	**13**	**25%**
Pulmonology	**207**	**201**	**97%**	**6**	**3%**
Urology	**233**	**161**	**69%**	**72**	**31%**

Tab 1.4: This table explains the second half of departments in insurance patients FIC of admitted and not admitted

(Fig 8)



Reasons for not opting IP admissions in hospital as reported by patients in phone call by financial counsellors.

Clinical Reasons:

- 1or 2week / 1 month / 10 days/ 2 months medicine given to the patient
- As per the instruction of consultant surgery is not required.
- After lowering creatinine level, the surgery is recommended
- Feeling better now after medication
- Date of surgery not confirmed
- In 2nd opinion – No need for procedure
- After diabetic control
- Medical management
- Patient is underweight and surgery is planned only after 1 month.
- Patient is malnourished.
- Patient's platelet count is very less so undergoing treatment in aster itself and will do the surgery after 3 months.
- They are trying for Ayurvedic treatment so not doing surgery on an emergency basis.
- They are waiting for biopsy result, as per the result will proceed the surgery.

Enquiry:

- Came for FIC just enquiry of rate, they are not planning the procedure
- For enquiry, will do in insurance
- Just enquired about rate will discuss and inform

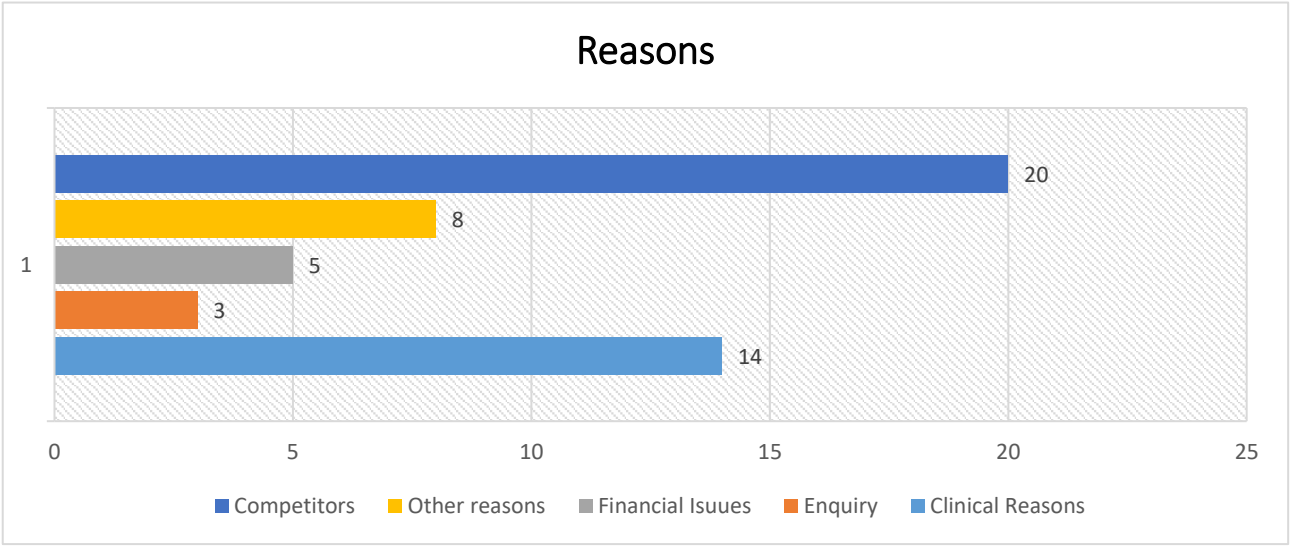
Financial Issues:

- Due to financial issues will plan later.
- Due to financial issues not doing the surgery
- Finance not ready/ Bajaj
- Insurance card will not cover the surgery
- They have ECHS so going to claim ECHS.

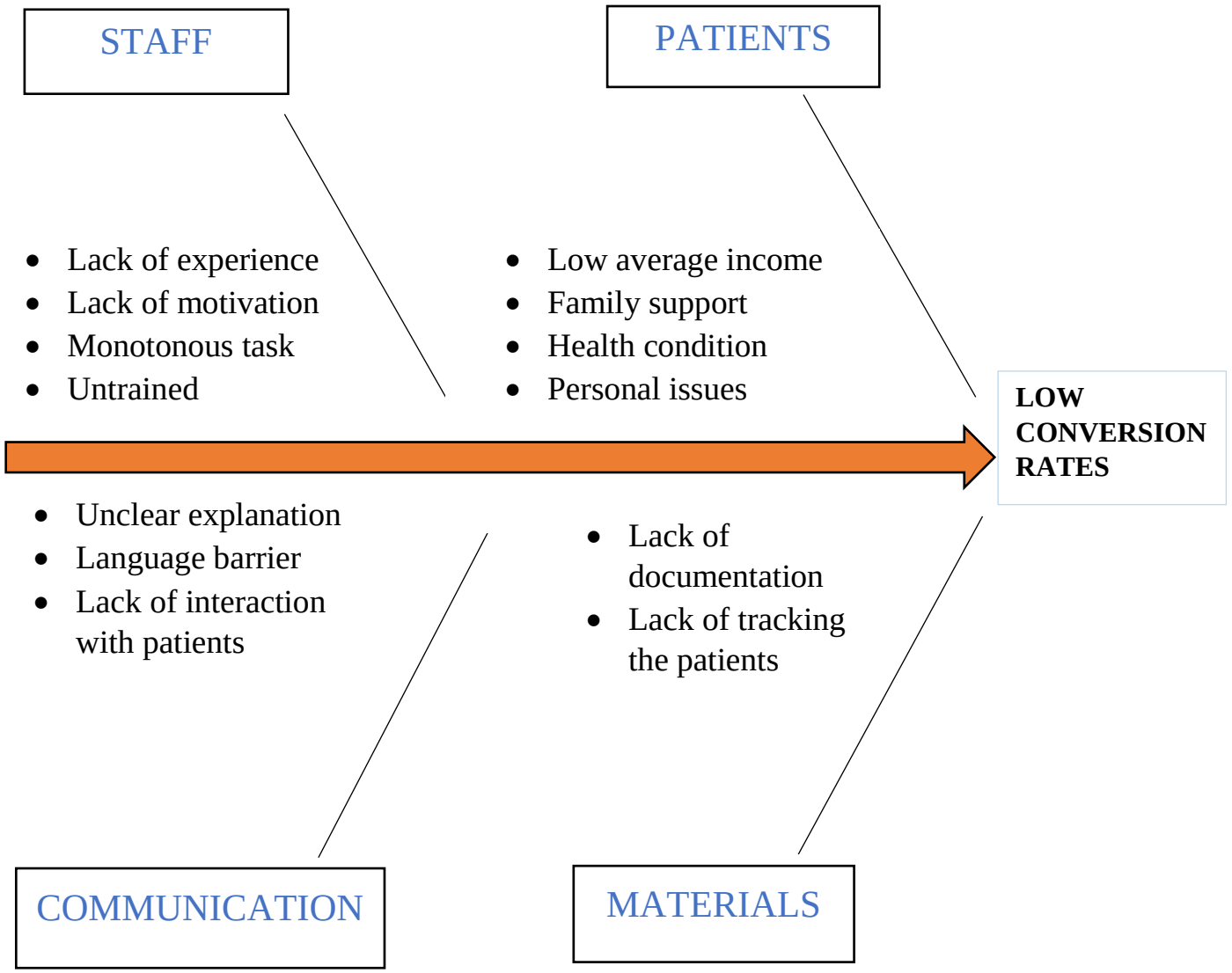
Other Reasons:

- Need to discuss with family members to know about the fund
- No financial issues due to some personal reasons she is not interested to do the procedure
- Nobody to look after her children when she gets admit for surgery so dropped surgery temporarily.
- Patient have ESI referral but here we are not accepting ESI for ortho.
- Patient have to go to abroad in few days but after surgery at least 3 months rest is recommended.
- Patient's cousin is a doctor and she is working in Mumbai, so they will go there for a second opinion only after that will take decision reg surgery.
- Patient's mother got COVID positive so delay.
- We were committed, the patient is very aged around 84yrs so they are not proceeding the surgery as consider the risk.

(Fig 9)



(Fig 10) CAUSE AND EFFECT ANALYSIS:



RESULT:

After analysing the data of conversion rates, self – pay NET FIC are higher than the insurance patients by 4449 in self-pay and in insurance 3813. Conversion rates varies in all the departments. 100% conversion rates departments in self- pay are General medicine, Neonatology, Bone Marrow. In insurance General Medicine, Centre of fertility, neonatology.

CONCLUSION:

According to the responses of financial counselling staff are there is lot of financial distress of low-income patients, due to less manpower there is a delay in explaining the estimation cost to the patient. These results in low conversion rates to inpatient admissions.

SUGGESTIONS:

- Financial counselling can be polished up by explaining ASTER concept, how special they are and the world class medical team.
- Images of different types of rooms can be shown to the patients for better clarity of the room rent. It can be done through digital platform or flyers.
- Financial counsellors can track the patient via phone and counselling in phone to get admission in the hospital.
- Manpower can be increased in insurance financial counselling desk as there is delaying process in providing the estimation cost.
- Requesting management to provide packages for most common procedures.
- Collaboration between the consultants, patients and service providers.
- By encouraging patient feedback and working on patient complaints can also increases the conversion rates, it brings a strong relationship with the patients.
- Providing discounts to the patients who all are under financial constraints.
- Management should encourage consultants to ask their patients to get their procedures done.

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A STUDY OF FINANCIAL COUNSELLING IN SELF-PAY AND ESTIMATION OF VARIANCE BETWEEN ESTIMATED BILL AND FINAL BILL OF CORONARY ANGIOGRAM/ANGIOPLASTY IN QUATERNARY CARE UNIT

INTRODUCTION:

Cardiac catheterization is a non-surgical procedure that are recommended to the patients who suffer from chest pain, this shows signs of blocked arteries. Coronary angiogram/angioplasty is the procedure of day care case by dynamic X-ray pictures to identify the narrowed or blocked arteries and to find out the abnormalities of heart muscle and valves in heart. Coronary angioplasty is done to widen the narrowed and blocked arteries, stent is used to stretch open a narrowed or blocked arteries. As per the secondary data in financial counselling, the top procedure in the hospital is coronary angiogram/angioplasty, since Cath lab is among the highest revenue generators in the hospital. So, variance of the estimated cost and the final bill should be financial solvent. Staff working in Cath lab should heavily focus on the patient's satisfaction, improving quality and outcomes. The combination of positive care in Cath lab and cost control results in lasting impact in financial performance.

RATIONALE:

Financial counselling plays a high-ranking role in conversion of patient from outpatient to inpatient, so the estimated bill should be calculated with the less variance compared to the final bill. Patient's satisfaction does not end in the IP admissions itself it ends at the time of billing final bill and at discharge of the patient. Patients make their financial planning according to the estimated cost by financial counselling and get admitted for the procedure. If the variance is higher between the estimated cost and final bill this makes the patient financial constraint this leads to the poor patient's satisfaction. So, less variance can boost up the patient's satisfaction level towards the hospital.

REVIEW OF LITERATURE:

Financial counselling to the patients is given according to their plan of surgery/medical management/day care cases. Estimated cost should be calculated with less variance of final bill, this is done only with the help of experience in financial counselling. Consultants also play an important role in this variance of bill; they are the people who make the patients admission procedure plan for their surgery. In the admission procedure plan it explains OT hours, general anaesthesia/Local anaesthesia, how many days stay in ICU, lab test that are advised to be taken before the surgery are also mentioned in the plan. The number of days should be stayed in hospital are also mentioned so patient can choose their type of rooms for the stay where there are different types of rooms from single room, wards, twin sharing, deluxe rooms. This type of rooms plays a most important role where the rent of the room changes in all the categories for the stay. Patient should choose the types of room wisely in financial counselling session so their estimated bill calculated with less variance of final bill and less financial constraints to the patient. So, from that plan only the financial counsellors calculate the estimated bill and do counselling to the patient.

As many research papers explains that this estimation cost of the surgery in financial counselling makes the patient to decide which hospital is affordable to get admitted. In the time of financial counselling the exclusion of estimated cost should be briefed to the patient by explaining the registration charge, more than the estimated hours in ICU and OT, special lab investigations after the surgery or before the surgery are excluded, in the pandemic protective gear are also excluded from the estimated cost. Special medicines, consumables used and discharge medicines are also excluded from the estimated bill.

RESEARCH QUESTION:

- What is the variance between estimated bill and final bill of self-pay in coronary angiogram/angioplasty?
- What were the gaps and errors for difference in the bill?

RESEARCH OBJECTIVE:

- To understand the concept of financial counselling in the hospital
- To calculate the variance of estimated bill and final bill of coronary angiogram/angioplasty
- To identify the variance of the bill and suggest solutions using process mapping, gap analysis and fish bone diagram.
- To suggest key recommendations to minimize the variance in the final bill.

METHODOLOGY:

The study was conducted from secondary data that was collected from November 1st 2020 to April 30th 2021 further the data was analysed.

Study location: Study was conducted in Aster Medcity, Kochi

Study duration: A period of two months (May 10th – July 2nd 2021)

Sampling method: Convenience sampling

Sample size: 183 patients admitted for coronary angiogram/angioplasty

Inclusion criteria: Patients who are advised to undergo coronary angiogram/angioplasty and financial counselling for estimation cost in self-pay.

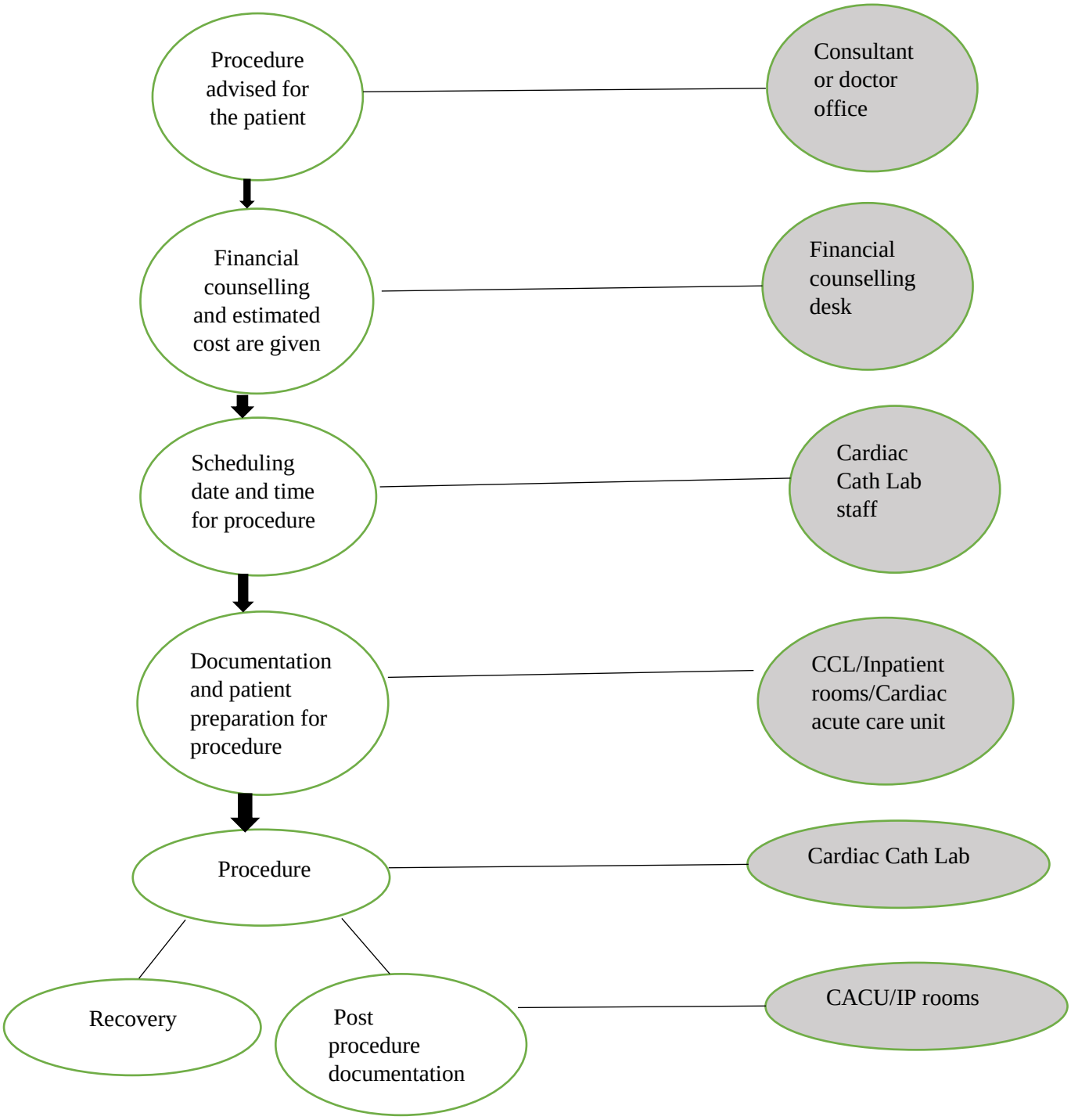
Exclusion criteria: As this study is only for self-pay patients, insurance patients are not included, other than coronary angiogram/angioplasty are not included in the project, duplicate entries, error in documentation, incomplete data.

Study area: Financial counselling department in self-pay and inpatient billing counter

Data collection method: Secondary data was documented in financial counselling department and billing counter

Data analysis tool: Process mapping, Gap analysis, fish bone diagram

(Fig 11) PROCESS MAPPING OF FINANCIAL COUNSELLING AND CARDIAC CATH LAB:



ANALYSIS:

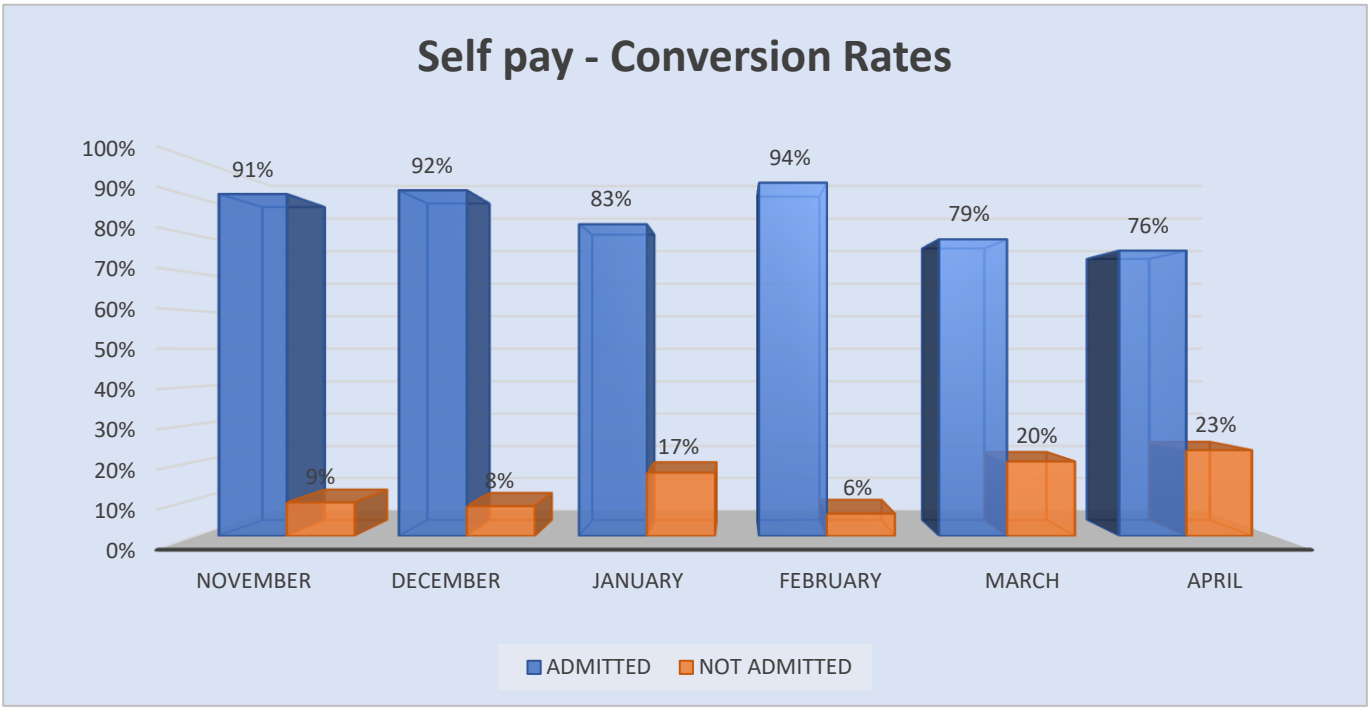
Analysis was done using MS EXCEL and the variance of estimated bill and final bill was calculated only for self-pay patients.

Sample size: 183 patients admitted for coronary angiogram/angioplasty

SELF-PAY PATIENTS:

MONTH -CORONARY ANGIOGRAM/ANGIOPLASTY	NET FIC	ADMITTED		NOT ADMITTED	
November	**43**	**39**	**91%**	**4**	**9%**
December	**38**	**35**	**92%**	**3**	**8%**
January	**41**	**34**	**83%**	**7**	**17%**
February	**34**	**32**	**94%**	**2**	**6%**
March	**34**	**27**	**79%**	**7**	**20%**
April	**21**	**16**	**76%**	**5**	**23%**

Tab 2.1: This table explains the self-pay patients FIC conversion of admitted and not admitted in Coronary angiogram/coronary angioplasty

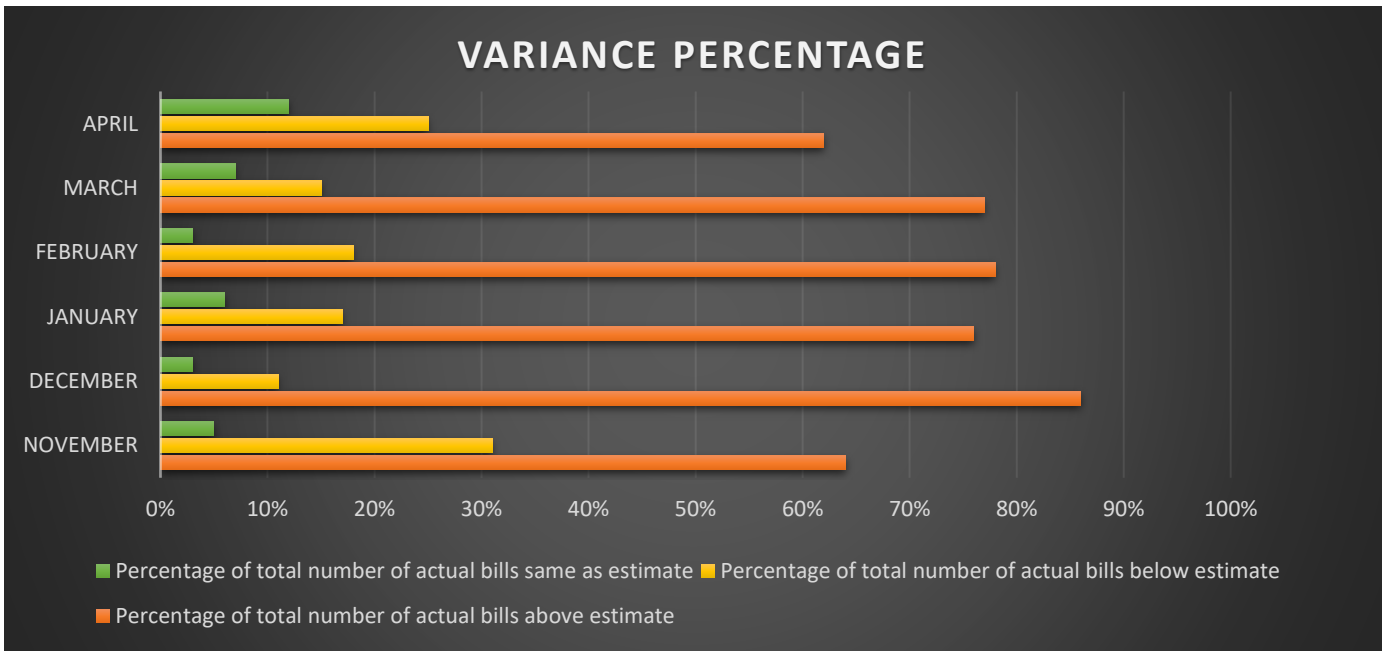


(Fig 12)

MONTH	Total number of actual bills above estimate	Percentage of total number of actual bills above estimate	Total number of actual bills below estimate	Percentage of total number of actual bills below estimate	Total number of actual bills same as estimate	Percentage of total number of actual bills same as estimate
November	25	64%	12	31%	2	5%
December	30	86%	4	11%	1	3%
January	26	76%	6	17%	2	6%
February	25	78%	6	18%	1	3%
March	22	77%	4	15%	2	7%
April	10	62%	4	25%	2	12%

Tab 2.2: This table explains the number of actual bills above/same/below than the estimate bill

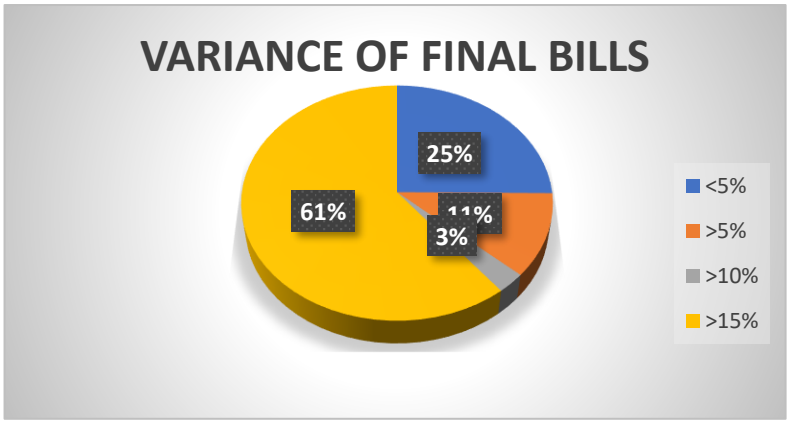
(Fig 13)



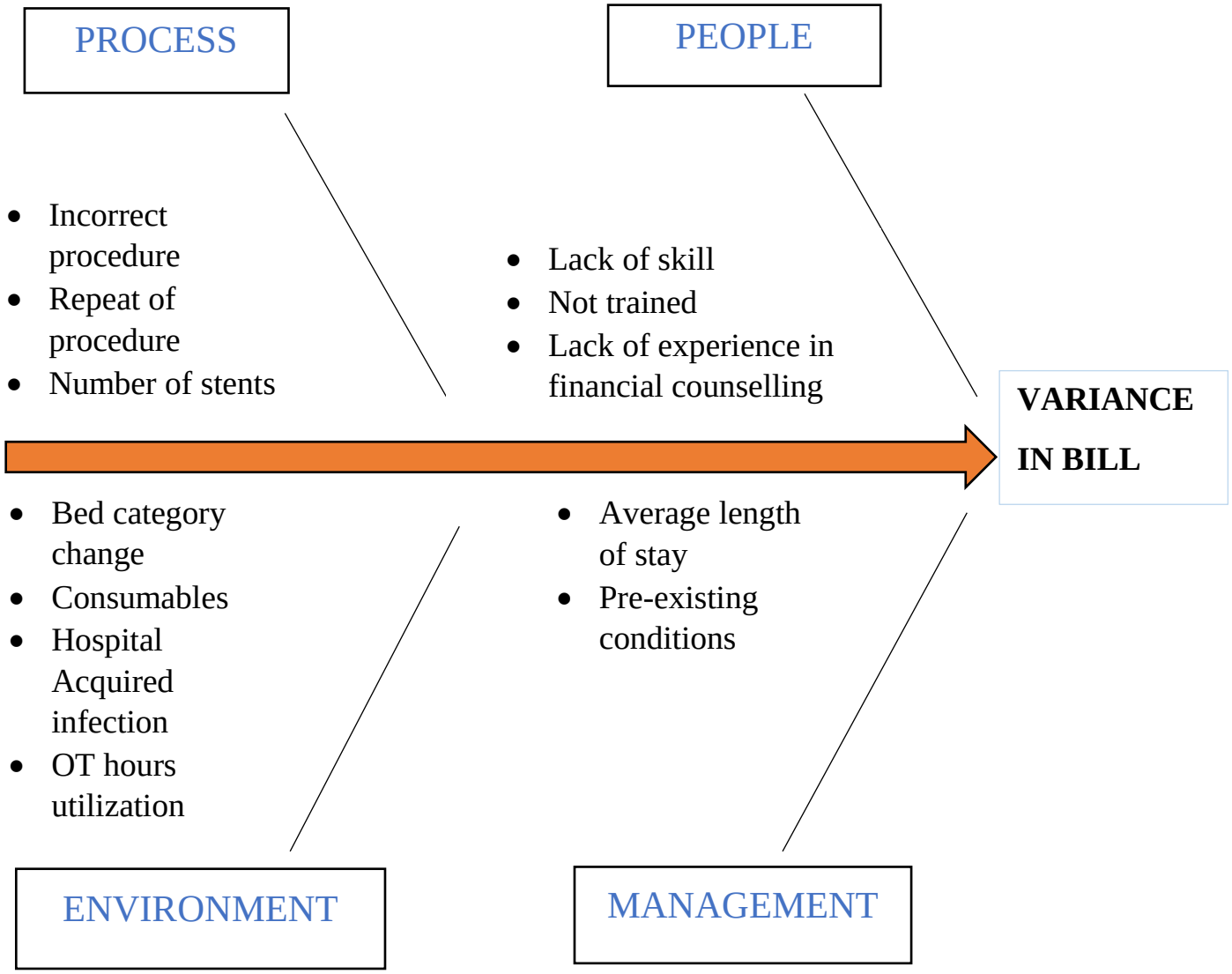
VARIANCE	NUMBER OF FINAL BILLS
<5%	46
>5%	21
>10%	5
>15%	111

Tab 2.3: This table explains the variance of final bills

(Fig 14)



(Fig 15) FISH BONE DIAGRAM – CAUSE AND EFFECT ANALYSIS:



(Tab 2.4) GAP ANALYSIS:

SR.NO	ERROR	JUSTIFICATION
1.	Number of stents used	Number of stents used is variable according to the condition of the patient. The types of stents are also according to the blockage in each patient.
2.	Average length of stay	Following standard operating procedures and it can be controlled by providing quality care to the patient.
3.	Incorrect procedure	Diagnostic procedures should be followed properly and second opinion for procedure can be taken for better clarity.
4.	Pre-existing conditions	Cost may vary for each patient according to their pre-existing conditions and medical history of each patient
5.	Repeat of procedures	Use of skilled labour and trainings can be given to upgrade their knowledge. It can be controlled by following the standard operating procedure.
6.	Consumables	Consumables usage depends on each patient's case and due to this pandemic protective gear have been added in the list.
7.	Human errors	This error is by entering wrong estimated cost information and it can be clarified by double checking the estimation cost before giving to the patient.
8.	Surgeon's charges	It can be controlled by standardizing the charges
9.	Lack of training and skill	Trainings should be given to financial counsellors and estimation cost should be calculated properly to avoid more variance in the bill
10.	Room charges	According to patient's choice types of rooms can be allotted like single room, twin sharing, deluxe room, etc.
11.	Hospital acquired infections	This can be controlled by following the quality control department of the hospital or following NABH/JCI measures to reduce the hospital acquired infections.

RESULT:

After analysing the data out of 183 self-pay patients of procedure coronary angiogram/angioplasty, 36 patients final bill was below the estimated bill, 10 patients final bill was same as the estimated bill, 137 patients final bill was above the estimated bill. In other note of variance <5% are 46 final bills of patient, >5% of variance are 21 final bills of the patient, >10% of variance are 5 final bills of the patient, >15% of variance are 111 final bills of the patient. As there is a high amount of variance in estimated bill and the final bill following measures can be adopted to reduce the variance in final bill.

CONCLUSIONS:

Gap analysis was done to find out the error and some of the suggestions can be implemented to less variance in the bill.

SUGGESTIONS:

- A proper medical management of patient should be done with proper diagnostic procedures that ensure the length of stay is maintained to the standard average.
- Financial counselling should be done by experienced staff for the less variance between the estimated cost and the final cost.
- Trainings should be given to all the staff for appropriate skilled force to avoid repeated procedures and incorrect procedures.
- Quality department in the hospital should conduct regular intervals of trainings to reduce the hospital acquired infections, it can be controlled by adopting measure by quality department.
- Consumables should be used in appropriate number and extra usage of consumables can be reduced.

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Annexure: Time Schedule

Sr. No	Name of the Department	Date(s) of visit	% of Time Spent	Interacted with (Name and Designation)	
1.	Human Resources (ASTER Induction program)	10-14/05/2021	100%	Krishnanand	HR Manager
2.	Human Resources (Hospital Tour)	15/05/2021	100%	Krishnanand	HR Manager
3.	Financial Counselling (Self Pay)	17-19/05/2021	100%	Anurag	Manager
4.	ESI and Financial Counselling (Insurance)	17-19/05/2021	100%	Sonu	Manager
5.	ECHS	24-25/05/2021	100%	Sonu	Manager
6.	Health Insurance	26-29/05/2021	100%	Anil	Manager
7.	International Insurance	31/05/2021, 1-3/06/2021	100%	Saveetha	Manager
8.	Financial counselling	4-5/06/2021	100%	Jeena	Asst.manager
9.	Core OPD	7/06/2021	100%	Parul	Asst.manager
10.	Centre of excellence	8/06/2021	100%	Reshma	Asst.manager
11.	Dialysis, Endoscopy, Liver integrated care, Emergency department	9-11/06/2021	100%	Rosh	Asst.manager
12.	Lab, Radiology, Nuclear medicine, Blood bank	12/06/2021	100%	Sabrish	Asst.manager
13.	Contact centre, billing, Insurance	14-15/06/2021	100%	Maria	Manager
14.	Admissions and IP service, ICU	16/06/2021	100%	Dhanya, Seena,Jacob	Manager
15.	Operation Theatre, Clinical Nutrition, Pharmacy	17/06/2021	100%	Jacob	Asst.manager
16.	CSSD, Facilities/Engineering, Security, Biomedical	18/06/2021	100%	Merly, Deepa	HOD
17.	IT, Supply chain management, Housekeeping, Pharmacy	19/06/2021	100%	Emil,Reshmi	HOD
18.	International desk, Nursing,Quality, Business Development	21/06/2021	100%	Ajay,Anoop, Rajeev	HOD
19.	Finance, MRD, F&B	22/06/2021	100%	Veena, Hariharan, Chandrababu	HOD
20.	HR	23/06/2021	100%	Anoop	HOD
21.	FIC and Cath Lab	24/06/2021-02/07/2021	100%	Anurag, Jeena	HOD