Dissertation Title

Analysis of the quality of existing clinical service provided by Bhagirathi Neotia Woman and Child Care Centre

A Dissertation Proposal for

Post Graduate Diploma in Health and Hospital Management

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It is my honor and privilege to have completed our summer project under the banner of Bhagirathi Neotia Woman and Child Care Centre, KOLKATA.
This is a maternal and child care super specialty hospital in kolkata.

But for this achievement I would like to take the opportunity to convey my sense of gratitude and thankfulness to the hospital authorities for giving me the consent to perform my internship in this reputed organization for a period of two months. I am extremely obliged to the **Ms. Maheena Khan** (**HR Department**) to make a way for me into this hospital and **Assistant General Manager of Operations Ms. Ruby Sahni** for being my advisor for the tenure of my dissertation.

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We are very much grateful to our **Director V.K.SINGH** who has been the backbone of our college, **Dean Dr. K.J.Singh** our **Student Coordinator Mr. Indrajit Bhattacharya** and my **Mentor Dr. Nitish Dogra**It was due to their efforts and will that today we have been able to climb the ladder of success and are able to taste the realism of the practical world. Because of their involvement only we have been trained today to face the reality and hardships of life.

At last I want to thank everybody whole heartedly for their authentic assistance to channelise, guide and motivate me properly.

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INTRODUCTION OF REPORT

ABSTRACT

Faced with heightened pressures around transparency, consumer-directed health, quality initiatives and new reimbursement policies, hospital systems and healthcare organizations are under constant pressure to find better ways to improve on clinical care provided by them. To meet the changing information requirements of a dynamic healthcare industry, organizations need a scalable solution that delivers insight into clinical processes for all healthcare workers — from the front-line to the executive management.

The study is being done in Bhagirathi Neotia Women and Child Care Centre kolkata, 85 bedded superspecialty maternity and paediatric hospital. Bhagirathi Neotia Hospital is going for the NABH accreditation. So their main concentration is now on quality analysis and continuous improvement. In any hospital the quality analysis of the clinical care is the most vital one. This analysis will help the organization to understand the shortcomings, loop holes and most revenue generating areas for a hospital in providing care to the patients.

I have done the study on the few chosen parameters (12) to define and analyze the clinical quality of the hospital.

Major findings are:-

This hospital is rendering a good range of clinical services to its patients and consumers which is also very evident from the trend of admissions and bed occupancy rate of this hospital. In the clinical care services this hospital is working well and apart from few areas most of the aspects of the parameters chosen are indicating a good sign of service and continuous improvement.

They should analyze the pattern of the issues like reducing neonatal complications and neonate deaths as well as mode of delivery on a regular basis and should develop certain programmes based on awareness of these issues for general public

The operation theatre department should immediately work on the parameters to provide clarity to the services rendered because of many loop holes in the existing system.

In this way there are many findings and shortcomings of the services provided by the hospital which are definitely immediately required to look upon.

In summary this hospital requires revised policies for hiring, training & motivating manpower and an improved system of communication throughout every department of the hospital

Review of Literature

As hospitals and health care organizations become more competitive, wise investments in technology and quality improvement are keys to financial success and survival for any hospital. A structural equation model is hypothesized using the following five constructs: clinical technology; information technology; clinical quality; process quality; and hospital financial performance. The general research hypothesis tested is that hospital technology directly drives (affects) quality and hospital financial performance. The results indicate that the type of hospital technology (clinical or information) drives different types of quality-related performance (clinical or process), and directly and indirectly affects hospital financial performance. The simple recursive model documented here is an important first step to defining more complete models that accurately predict hospital financial performance as a function of technology and quality investments and initiatives. So measuring clinical quality is definitely an important indicator to analyze the existing performance of the hospital and the investments to be carried out by the hospital in future.

A parameter of the clinical quality is the average length of stay. A study was carried out to demonstrate average length of service (ALOS) bias in the currently used acute-care hospitalization (ACH) home health quality measure, limiting comparability across agencies, and (2) to propose alternative ACH measures. They replicated the correlation between ACH and ALOS in the patient-level simulation but found no correlation between the two parameters.

The clinical performance of any hospital is definitely a responsibility of the R&D department. The aim of the present study is to investigate empirically whether research and development (R&D) in hospitals positively affect their economic and clinical performance. For this purpose, data on R&D (external grants, research projects, publications) and on hospital performance (risk-adjusted mortality, patient satisfaction, official quality rating, annual surplus, turnover per bed, waiting times) were collected in the context of English acute health-care delivery and analyzed using multiple regression analyses. Empirical results suggest a positive relationship between R&D and clinical performance, but do not support the existence of such a relationship between R&D and economic performance.

Quality assurance in diagnostic services includes active participation in the external quality program. Such a program offers valuable benefits to patient care, their safety, and an overall quality of laboratory practices. So this kind of detailed study is required to understand that the level of clinical quality provided by the services. This kind of study helped to significantly improve the transfusion service in terms of performance evaluation, patient care and safety issues, and the overall quality of laboratory practices.

Another important parameter of analyzing clinical quality is definitely clinical audit. Audit is recognized as a crucial component of improving the quality of patient care. Examples include giving patients safe, reliable and dignified care, enhancing their experiences and satisfaction by encouraging them to self-direct their recovery, and reducing the length of stay in hospital, readmission rates and delayed discharge. Clinical audit is definitely an important part of analyzing clinical quality because this is the evidence of actually what is happening in terms of care and how effective it is.

References:-

(1) Chaudhary R, Das SS, Ojha S, Khetan D, Sonker A.Department of Transfusion Medicine The external quality assessment scheme: Five years experience as a participating laboratory., Sanjay Gandhi Postgraduate Institute of Medical Sciences,Lucknow - 226 014, India.
(2) Vera A, Salge TO.Deutsche Hochschule der Polizei, Fachgebiet "Organisation und Personalmanagement"The Impact of Research and Development on Hospital Performance - An Empirical Analysis in the English Hospital Sector.
(3) Schade CP, Brehm JG.West Virginia Medical Institute Improving the Home Health Acute-Care Hospitalization Quality Measure., 3001 Chesterfield Ave., Charleston, WV 25304.
(4) Ling X. Li, David A. Collier The role of technology and quality on hospital financial performance: An exploratory analysis**.**

Background:

Bhagirathi Neotia Hospital is going for the NABH accreditation. So their main concentration is now on quality analysis and continuous improvement. In any hospital the quality analysis of the clinical care is the most vital one. This analysis will help the organization to understand the shortcomings, loop holes and most revenue generating areas for a hospital in providing care to the patients. This project will definitely help them to evaluate their clinical service delivery. Simultaneously it will help me to understand the clinical parameters used by NABH for any hospital quality measurement and also I can understand the clinical process framework as a whole.

Currently they have their internal as well as external audit team but they don't have any kind of written parameters to measure the quality of clinical care. Just gathering or analysis of data will give them a view on the working efficiency of the particular departments but it does not project the level of quality of care delivery in the hospital.

Objectives:

The general objective of this study is to assess the current process and to project future requirements in clinical care delivery for this hospital.

The specific objectives are:

1. To design a framework or parameters for quality assessment for individual department engaged in clinical care delivery.
2. To estimate the additional manpower requirement
3. To estimate the additional equipment requirement
4. To focus on the most revenue generating areas
5. To find out the loop holes.

The Research Problem & Research questions

Analysis of the quality of existing clinical service provided by Bhagirathi Neotia Woman and Child Care Centre.

The Research process:

- On satisfying the parameters given by NABH and few of the parameters are generated by me.
- Based on secondary data collection from various departments.
- Data sources are the manual records maintained in the departments and the HMIS system of the hospital.
- Conducted on the data sources of past 5 months (Dec – April)
- The data will be analyzed by diagrams (pie charts, bar diagrams etc.)

Bhagirathi Neotia Hospital is an 85 bedded maternity and pediatric care hospital. But now a days with development of managed care markets, any kind of health care provider faces increasing clinical risk. For an integrated delivery system to survive, strategies for clinical integration and care management are essential. Care Map tools, collaborative practice groups, and case management serve as the foundation to accomplish care management over the health continuum. Coordination of care, within an institution and across traditional health settings, to achieve the best clinical and cost outcomes is the goal.

The requirement of clinical quality analysis in any hospital is because of these following reasons:-

- Support the introduction of evidence-based medicine and use of clinical guidelines
- Support clinical effectiveness, risk management and clinical audit
- Improve multidisciplinary communication, teamwork and care planning
- Can support continuity and co-ordination of care across different clinical disciplines and sectors;
- Provide explicit and well-defined standards for care;
- Help reduce variations in patient care (by promoting standardization);
- Help improve clinical outcomes;
- Help improve and even reduce patient documentation
- Support training;
- Optimize the management of resources;
- Can help ensure quality of care and provide a means of continuous quality improvement;
- Support the implementation of continuous clinical audit in clinical practice
- Support the use of guidelines in clinical practice;
- Help empower patients;
- Help manage clinical risk;
- Help improve communications between different care sectors;
- Disseminate accepted standards of care;
- Provide a baseline for future initiatives;
- Not prescriptive: don't override clinical judgment;
- Expected to help reduce risk;
- Expected to help reduce costs by shortening hospital stays

RESEARCH METHODOLOGY

STUDY DESIGN: Retrospective qualitative study.

DATA COLLECTION/ABSTRACTION METHODS:

Using information from a literature review and consultation with, I developed a list of characteristics that might impact clinical care effectiveness. I used qualitative parameters for comparative analysis to describe key primary and secondary characteristics that might differentiate effective from ineffective clinical quality of care.

The review of this literature suggests the use of clinical quality parameters improves the quality of care and that reduces the length of patient stay in hospital. It also has a positive impact on outcomes, such as increased quality of care and patient satisfaction, improved continuity of information, and patient education. "

Research Design:-

A Brief summary of the study design used for this study :

Continuous quality improvement is definitely required for any organization in order to mark its footprint in today's market scenario. So for any hospital continuous improvement in quality of clinical care is also equally important.

Clinical Quality Improvement is an interdisciplinary process designed to raise the standards of the delivery of preventive, diagnostic, therapeutic, and rehabilitative measures in order to maintain, restore or improve health outcomes of individuals and populations.

Now the analysis of Clinical quality will include certain indicators which are quantitative measures used to monitor and evaluate the quality of important clinical functions that affect outcomes of patient care. Documenting quality of care using clinical indicators provides a statistically valid and data-driven mechanism that generates a continuous stream of performance information.

Parameters: (calculated in last 4 months DEC'09 to MARCH'10)

- Total number of deaths in the hospital (2% of total hospitalization)
- Transfer of patients (including babies) to high dependency units
- Delay in operation schedule.
- Cancellation of operation schedule
- Bed occupancy ratio in the hospital
- Total number of NICU cases and specifications of those cases being referred to NICU
- Number of surgery category wise
- Trend analysis of IPD admissions
- Trend analysis of lab investigations & radiology
- Procedure wise length of stay
- Frequency of clinical audit done
- HAI rate of hospital

These parameters are used in a comparative manner with certain specified standards and the results are compared with those definite standards to figure out the deviations and thus analyzing the quality of the parameters chosen here.

This study is time specific and specifically based on the parameters chosen above.

RESULTS AND FINDINGS

Clinical audit process and frequency of clinical audit done in the hospital:-

Clinical audit is a process that has been defined as a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change.

The key component of clinical audit is that performance is reviewed (or audited) to ensure that what *should* be done is *being* done, and if not it provides a framework to enable improvements to be made

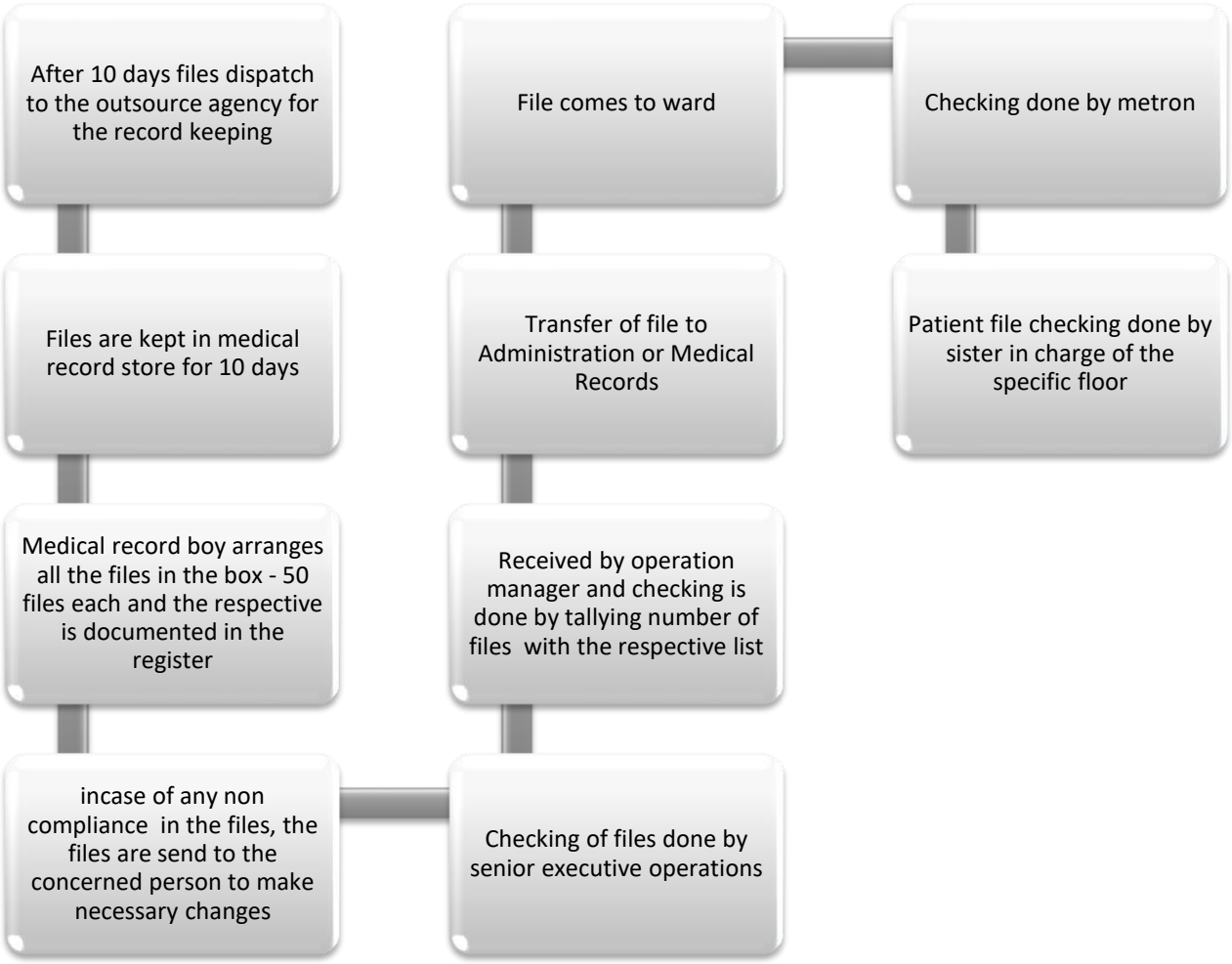
Purpose of Clinical audit has been stated as:

- To improve the quality of patient care
- For professional education and training
- To promote the effective use of resources.

Audit should involve the objective peer review of patterns of care, be sensitive to the expectations of patients and other clinical disciplines and be based on scientific evidence of good medical practice. To this end, cases for review can be selected randomly or by pre-agreed criteria. Patterns of practice, quantified where possible, can be compared with explicit guidelines and these guidelines, though agreed locally, should be consistent with regional and national advice and with the body of scientific knowledge.

This is the basic clinical audit process to be followed in a hospital.

The process followed in Bhagirathi Neotia Women and Child Care Centre in case of clinical audit of patient files:-



Clinical audit is an everyday process and done on a regular basis by the concerned person mentioned above.

periodicity of audit is on a daily basis. daily audit of clinical cases is maintained by the hospital thus it improves quality of medical care by comparing actual practices with agreed standards of practice..areas of audit are :

i) Case audit (mortality review, complications audit, antibiotic utilization, peer review)
ii) Infection control audit (SOPs are followed, swab collection & testing)
iii) Medical record audit (format maintained, forms & entries are proper or not, SOPs for retaining & retrieval of medical records are as per protocol)

So the clinical audit process is definitely well organized and supervised on a regular basis so any kind of discrepancies are immediately reviewed and action taken on the problem areas.

Here I can comment on that the frequency and the flow of the clinical audit process in this hospital is perfect but the authority should focus on the auditing of files as per the authority concerned a huge number of files goes for non compliance checking although I could not get the relevant data of the number of going for discrepancies.

- ✓ The respective departmental heads should check the files thoroughly before sending it to audit.
- ✓ Doctors and nurses should be counseled by the management properly
- ✓ The staff should be aware of the penalties

HAI rate of hospital

HAI are infections which are a result of treatment in a hospital or a healthcare service unit. Infections are considered nosocomial if they first appear 48 hours or more after hospital admission or within 30 days after discharge. *Nosocomial* comes from the Greek word *nosokomeion* (νοσοκομείον) meaning hospital (*nosos* = disease, *komeo* = to take care of). This type of infection is also known as a hospital-acquired infection (or more generically healthcare-associated infection).

Nosocomial infections are commonly transmitted when hospital officials become complacent and personnel do not practice correct hygiene regularly. Also, increased use of outpatient treatment means that people who are hospitalized are more ill and have more weakened immune systems than may have been true in the past. Moreover, some medical procedures bypass the body's natural protective barriers. Since medical staff move from patient to patient, the staff themselves serve as a means for spreading pathogens.

Hospitals have sanitation protocols regarding uniforms, equipment sterilization, washing, and other preventative measures. Thorough hand washing and/or use of alcohol rubs by all medical personnel before and after each patient contact is one of the most effective ways to combat nosocomial infections. More careful use of antimicrobial agents, such as antibiotics, is also considered vital.

Hospital infections usually occur 2 - 3 days after admission. People at risk are premature babies, very young children, very old people, those with medical conditions such as diabetes, people with defective immunity or those treated with chemotherapy or steroids.

The longer the hospital stay the higher risk there is of contracting an infection or virus.

Those who are infected are to wash their hands well, the use of antibiotics (but the over-use of antibiotics can lead them to become less effective.) ICU (Intensive Care Units) are at a higher risk for infections.

Types of Infections:

- Urinary tract,
- Surgical site infection / wound infection,
- Pneumonia or respiratory tract infection
- Bloodstream infection.

Some bacteria are hard to treat because they can be resistant to standard antibiotics.

The aforesaid parameters are defined as follows:

$$\text{UTI} = \frac{\text{Total no. of patients having UTI}}{\text{Total no of patients admitted}} \times 100 \text{ (within a specified time period)}$$

$$\text{SSI} = \frac{\text{Total no. of SSI detected}}{\text{Total no. of surgeries performed}} \times 100 \text{ (within a specified time period)}$$

SSIs are considered to be nosocomial if the infection occurs within 30 days of the operation procedure or within 1year if device or foreign material is implanted.

RTI – Respiratory tract infection

1. Hospital acquired Pneumonia (Total no. of pneumonia cases detected after 48 hrs of hospitalization)
2. Ventilator associated Pneumonia

$$\text{VAP} = \frac{\text{No. of VAP cases}}{\text{Total no of ventilator days}} \times 1000 \text{ days}$$

Infection control Committee

The Infection control Committee will have the responsibility of monitoring the occurrence of Hospital infection control and recommending corrective action.

It is made up of the representatives of various clinical and other disciplines. It is important for the members to devote enough time for the programme.

Role and functions of the ICC

1. Determine the method of surveillance and reporting
2. Determine the criteria for reporting of infections
3. Review occurrence of clusters of infections
4. Review of records of all infected patients
5. Review with the medical audit committee the use of antibiotics and anti infective.
6. Recommendation in relation to selection of equipment used for sterilization
7. Development of forms or data sheets used for collecting and reporting of data for the infection control programme
8. Prepare and update procedure manuals of aseptic techniques used in the hospital
9. Determine the policy on screening and immunization of hospital staff
10. Determine the content and methodology of training programme for hospital staff in prevention and control of Hospital infection.

In this hospital the HIC comprises of the following personnel:-

- CEO
- Chair person
- General manager operations
- Nursing super
- Housekeeping super
- Sister in charge of each floor
- Laboratory supervisor
- Gynecology HOD
- Pediatric HOD
- In charge of CSSD
- In charge of Pharmacy
- Assistant matron

This committee meets up every month once to design protocols, changing of policies, discussing important matters regarding the monthly progress.

Apart from this to look after regular issues there is a Hospital Infection control team. Comprising of:-

- Microbiologist
- Infection control nurse
- Housekeeping supervisor

They go for regular rounds to different wards and meet up weekly to discuss the relevant issues of the concerned areas.

Following is the graphical representation of the HAI rate on a monthly basis since December'09 to March'10.

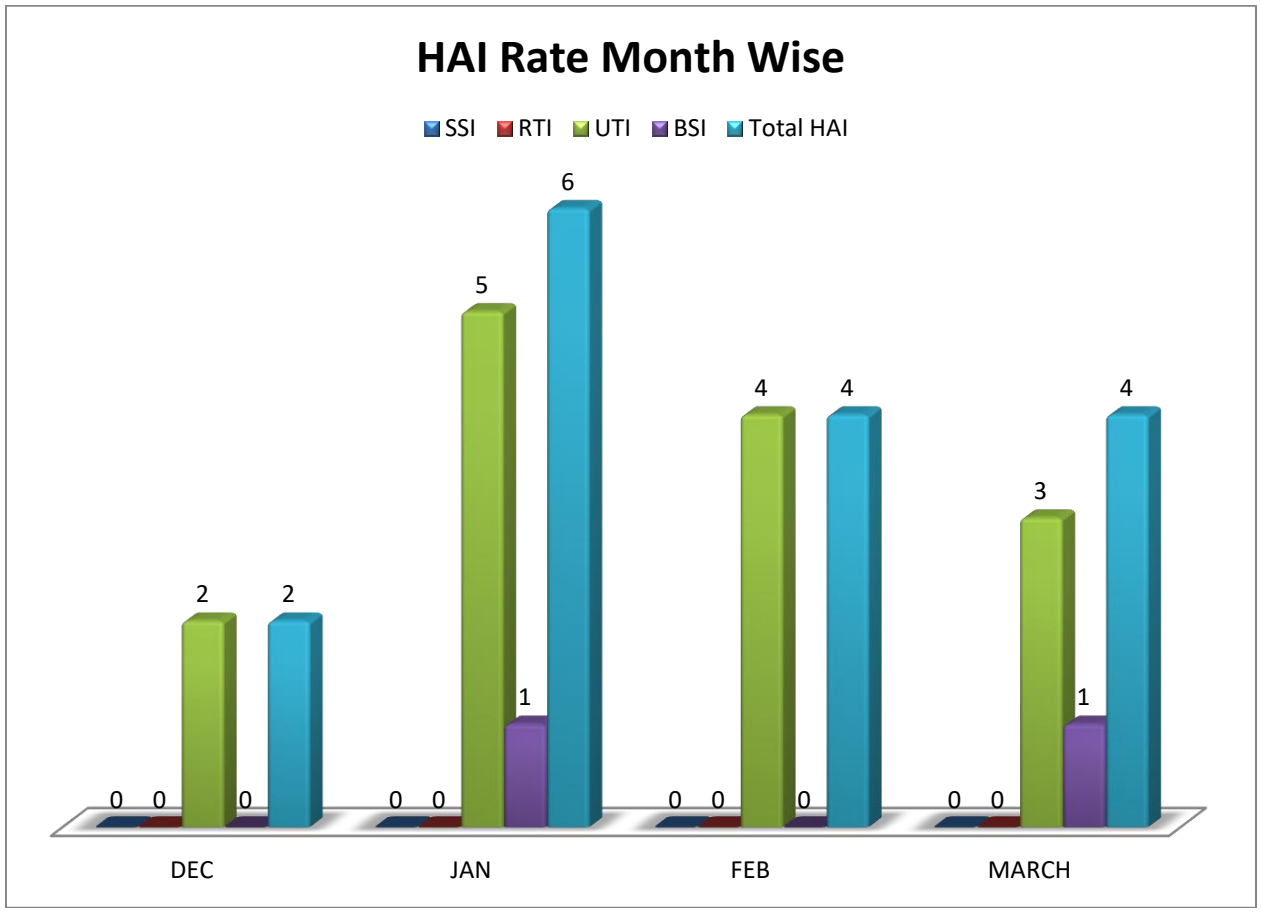


Fig. 3.1

Analysis of the HAI rate of hospital

- Cause wise UTI is the major HAI factor. This can be correlated to majority of the OT performed are Gynae than general surgery/ c-section being more than the normal deliveries so the chances of UTI are more.
- I have calculated a table of HAI based on total no. of admissions month wise & then commented on the effectiveness of the hospital infection control team.

Table: 1.1

December'09	January'10	February'10	March'10
• Admission - 424 • HAI - 4 • Percentage - 0.94	• Admission - 406 • HAI - 12 • Percentage - 2.95	• Admission - 375 • HAI - 8 • Percentage - 2.13	• Admission - 425 • HAI - 8 • Percentage - 1.88

So, 0.94 % for December 2009 shows that HAI is negligible.

But for January and February month the rate is higher that 2%.

Again in March the rate is declining.

So from this I can comment that the trend is improving and almost an efficient mechanism of infection control exist in the hospital but there is a need for more improvement, to keep the percentage below 1% for every month.

Total number of deaths in the hospital

Death is the termination of the biological functions that define a living organism. The word refers both to a particular event and to the condition those results thereby.

In case of a hospital 2% of death or less out of the total no. of admissions is considered as an acceptable standards of efficiency.

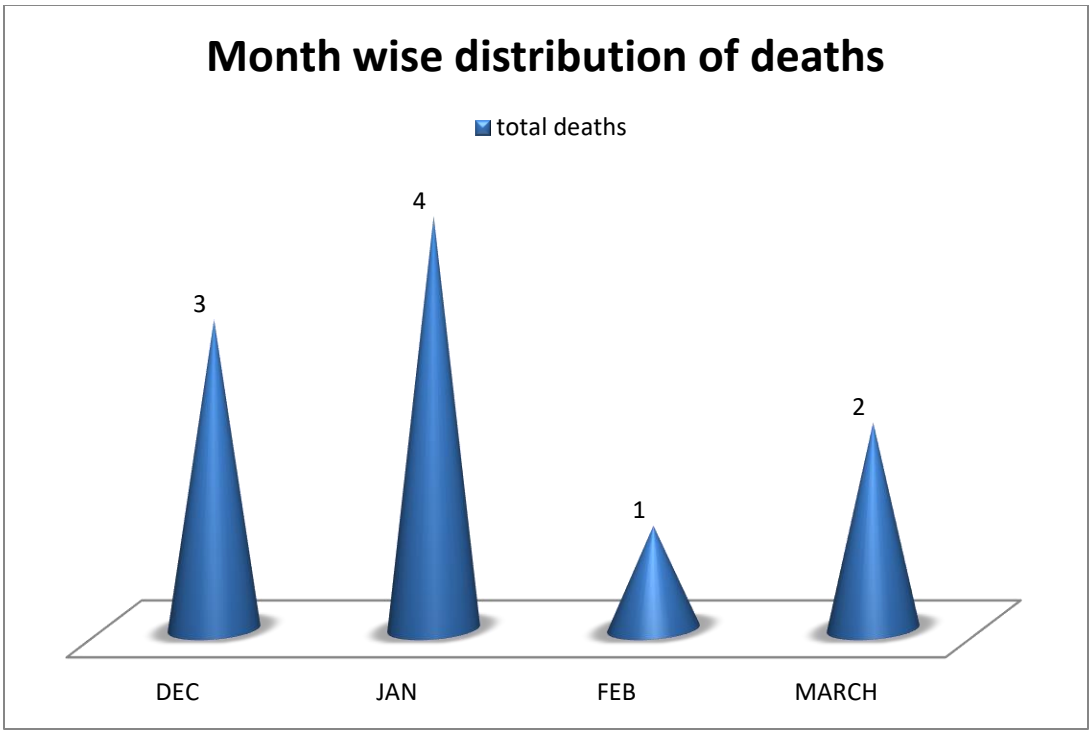
It is Calculated:-

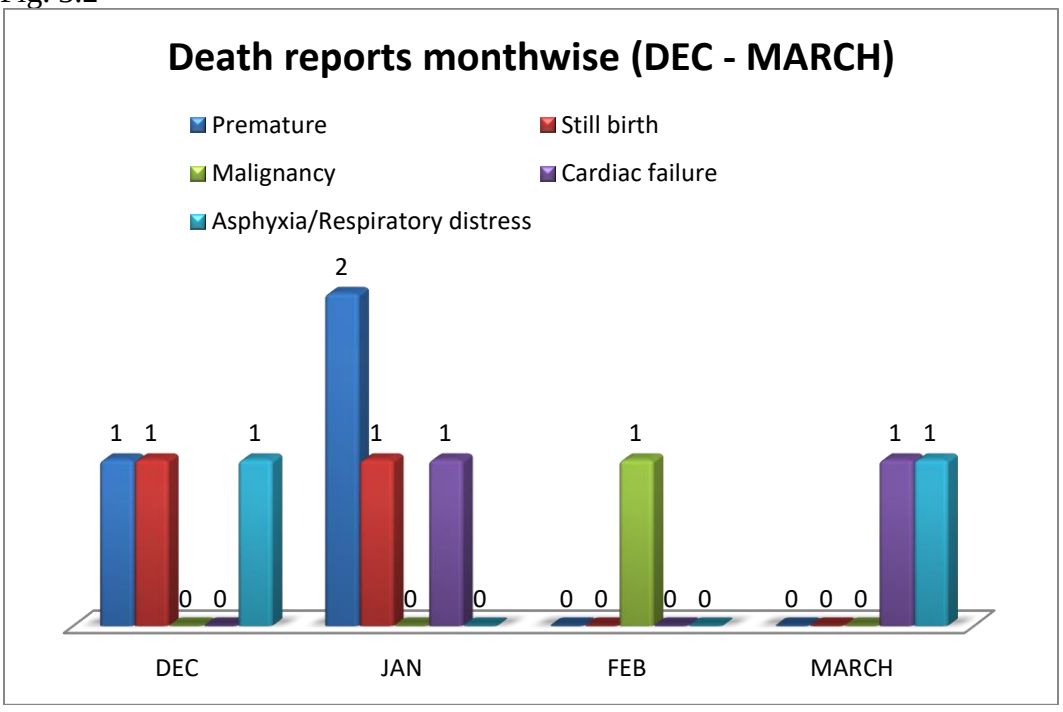
Death rate = total no. of deaths / total no. of admissions (month wise %).

Gross death rate = death within 24 hours of hospitalization (it measures level of emergency services in the hospital)

Net death rate = death after 24 hours of hospitalization (it measures level of clinical efficiency)

Here the graphical representation of total no of deaths of each month (DEC'09 – MARCH'10) and the cause wise distribution of death along with percentage distribution is given:-


Month wise distribution of deaths
total deaths
3
4
1
2
DEC
JAN
FEB
MARCH
Fig. 3.2


Death reports monthwise (DEC - MARCH)
Premature
Still birth
Malignancy
Cardiac failure
Asphyxia/Respiratory distress
1 1 0 0 1
2 1 0 1 0
0 0 1 0 0
0 0 0 1 1
DEC
JAN
FEB
MARCH
Fig. 3.3

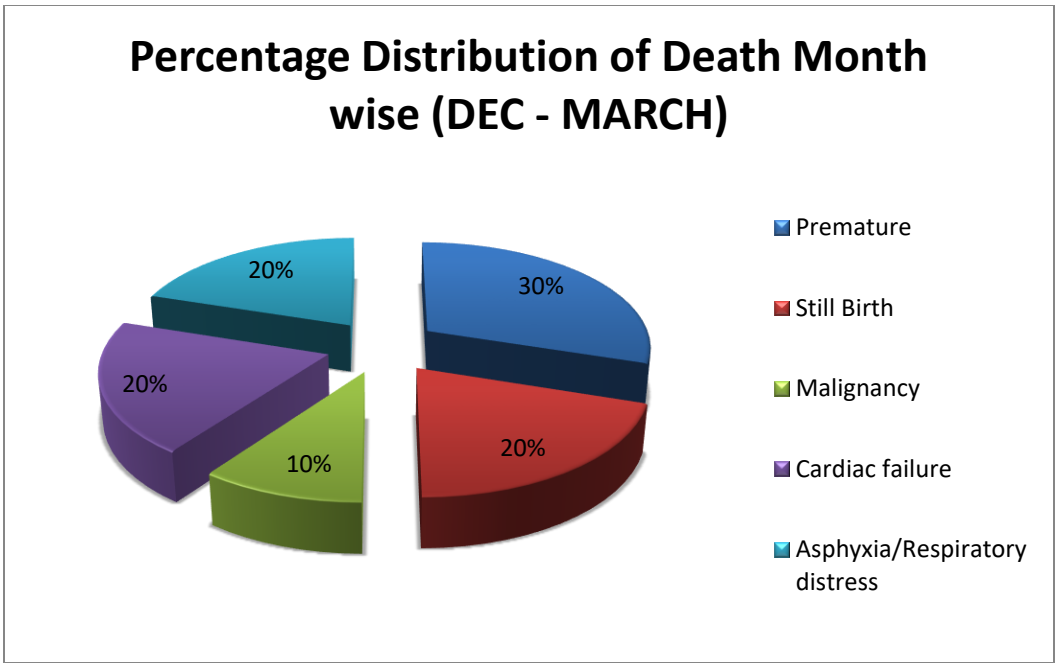


Fig.3.4

Analysis:-

Death rate for the hospital Since DEC'09 to MARCH'10 is as follows:

December'09	January'10	February'10	March'10
• Admission - 424 • Death - 3 • Percentage - 0.7	• Admission - 406 • Death - 4 • Percentage - 0.98	• Admission - 375 • Death - 1 • Percentage - 0.26	• Admission - 406 • Death - 2 • Percentage - 0.49

Table 1.2

So from here I can conclude that clinical efficiency in this hospital is good, death rate is quite lower to 2%.

Now in case of cause wise analysis:-

- **Prematurity** is the prime cause of death. Attempt should be made to prevent premature labor in pregnancy by considering various pregnancy related

  Risk factors

  like use of alcohol, stress, heavy exercise, obesity, hypertension, gestational diabetes, chronic illnesses etc.

- **Stillbirth** refers to fetal death that occurs after 20 weeks of pregnancy (during or after the second trimester) – miscarriage is fetal death before those first 20 weeks. Stillbirth can occur in the uterus (intrauterine death) or within the birth canal during labor and delivery (intra-partum death). Most often stillbirth occurs unexpectedly, and it is important to note that it can occur in both healthy pregnancies and in those complicated by other health issues.

  Risk Factors

  Carrying multiple babies, having a pre-existing health condition (such as high blood pressure), smoking during pregnancy, using illicit drugs during pregnancy, being over the age of 35etc.

  So doctors and consultants should take care of the pregnant women coming for delivery in the hospital since their first consultation regarding all kind of knowledge and education of their motherhood. The hospital authority can also provide free classes to the would be mothers on a regular basis for the better delivery of their child.

- **Cardiac failure** describes a heart that's not functioning properly.

  Risk factors

Abnormal heart valves, Strep throat infection, pump failure etc are the prime reason of heart failure in neonates.

So As newer techniques and medications become available the hospital should provide the neonates with those techniques or in case of non availability should transfer the patients with immediate referral to other hospitals.

Respiratory Distress .syndrome is caused by pulmonary surfactant deficiency in the lungs of neonates, most commonly in those born at < 37 wk gestation. Risk increases with degree of prematurity.

So providing them with proper surfactant therapy and supportive care is the responsibility of the hospital.

Malignancy Malignant neonatal tumors are rare and comprise 2% of childhood malignancies.

So proper treatment and consultation of the hospital is very much important to handle this kind of rare cases.

Operation Theatre is the room within a hospital where surgical operations are carried out. One of the most important department to focus on for analyzing clinical quality.

In order to manage the operating theatre and guarantee constant quality improvement **...** In spite of the increased work load, analysis of the trend in quality **...**Auditing, analyzing and establishing quality indicators in operating theatre departments is very much required.

So the indicators I have chosen are as follows:-

1. OT mix

Procedure wise OT = no. of C/S or Lap etc OT / total no. of OT (monthwise %)

2. Delay in operation schedule.

Delay rate = total no. of delays / total no. of OT (month wise %)

3. Cancellation of operation schedule

Cancellation rate = total no. of cancellation / total OT (month wise %)

Graphical representation of total no. of OT performed, total no of OT booking, OT cancelled, OT delayed and types of procedures performed in the hospital from December'09 to March'10 are as follows:-

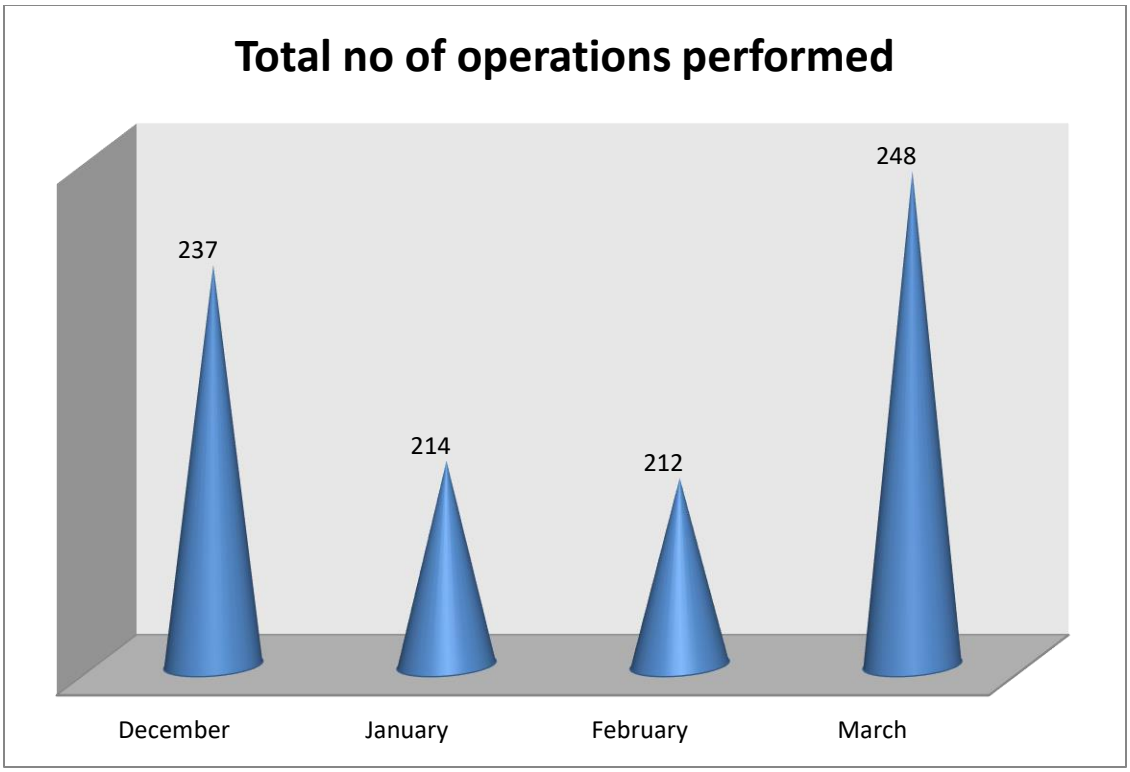


Fig.3.5

No. of surgery category wise (OT mix):-

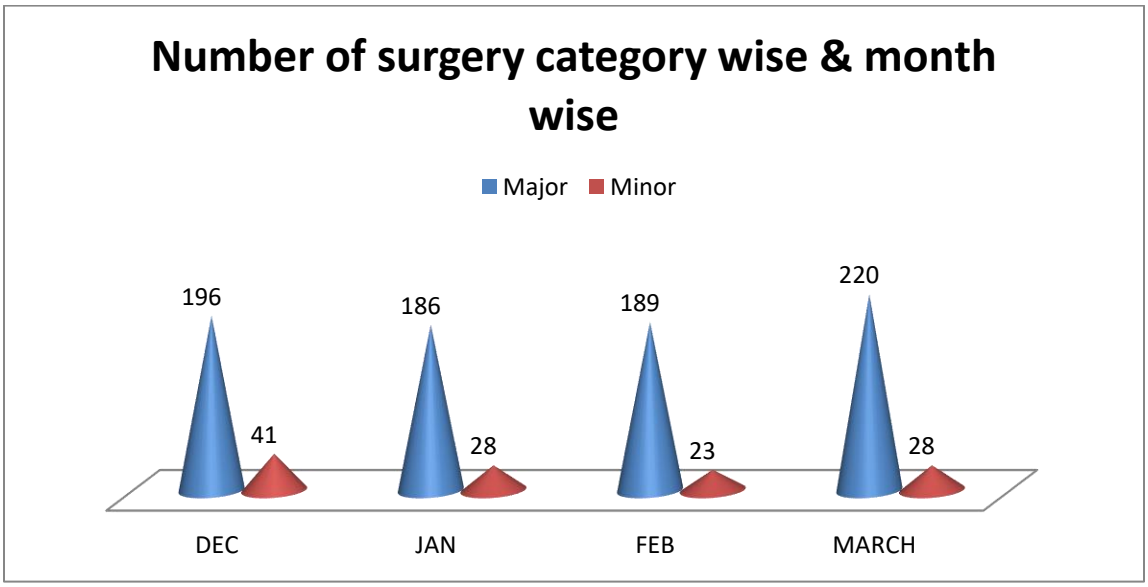


Fig 3.6

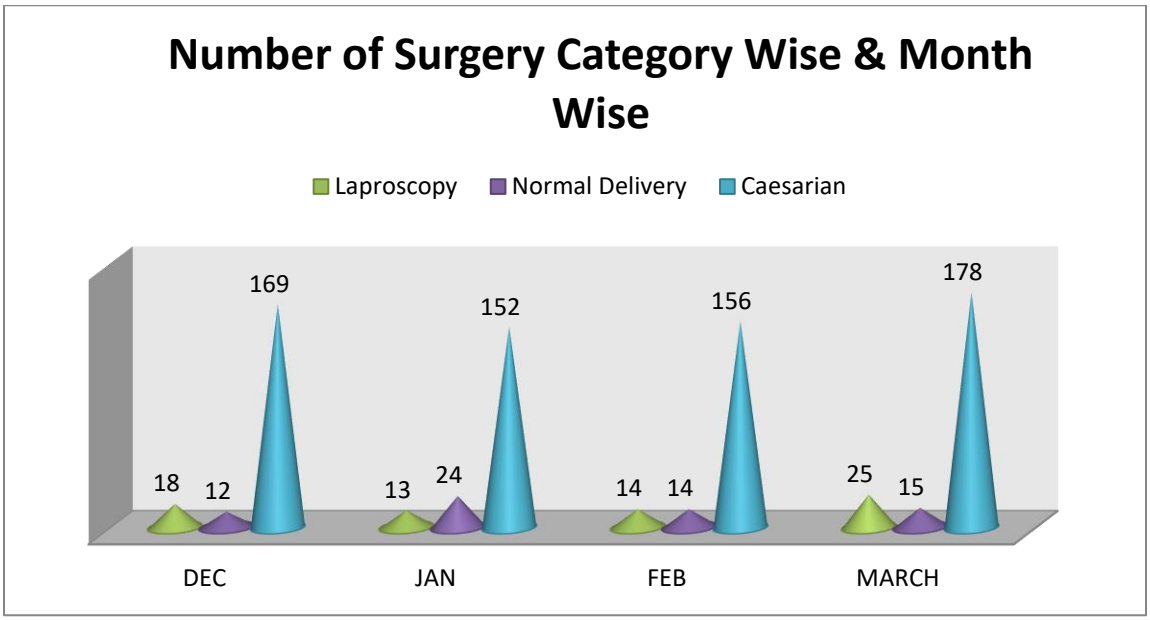


Fig. 3.7

December'09	January'10	February'10	March'10
• Major - 82.7% • Minor - 17.3% • Laproscopy - 7.6% • Normal delivery - 5.06% • C/S - 71.3%	• Major - 86.9% • Minor - 13.08% • Laproscopy - 6.07% • Normal delivery - 11.2% • C/S - 71.02%	• Major - 89.1% • Minor - 10.84% • Laproscopy - 6.6% • Normal delivery - 6.6% • C/S - 73.6%	• Major - 88.7% • Minor - 11.3% • Laproscopy - 10.08% • Normal delivery - 6.05% • C/S - 71.7%

Table. 1.3

Comment :

A high % of C-section indicates that the hospital is predominantly keeping OT mix in favor of C-section/maternity rather than laparoscopy/gynecology.

Thus there exists an IPD maternity advance booking system based on such ratio of bed nights while no such facility of booking advance bed is made available to non-maternity procedures

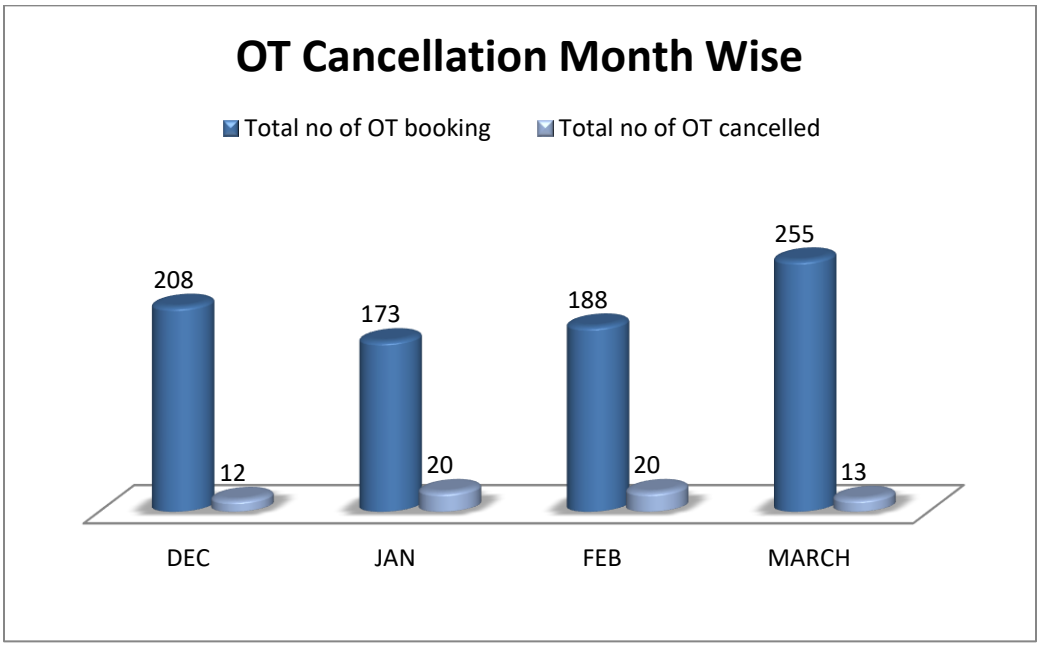


Fig. 3.8

The calculated percentage of cancellation rate:-

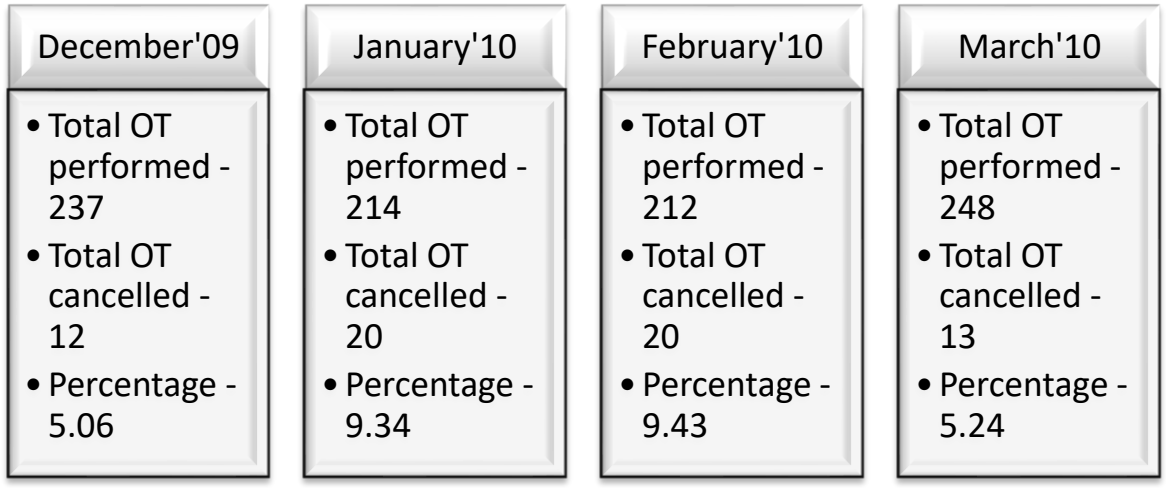


Table. 1.4

- Trend over these months – as it is clearly evident that in the months of January and February there is an increasing trend of cancellation but again in march it has gone down.

- major reasons for cancellation –

1) Medical ground like patient developing fever/ gynecology complications / menstrual periods in case of laparoscopy OT.

2) Consultant's discretion – unavailability of surgeon,

3) Choosing to operate elsewhere.

Actually the in the OT register or any other register available in OT do not have any data regarding the reason of cancellation which is definitely a very big loop hole in the system because it is impossible to gather the information which are the most predominant reason for cancellation of the OT.

The reasons mentioned above are based on verbal data of the OT staff.

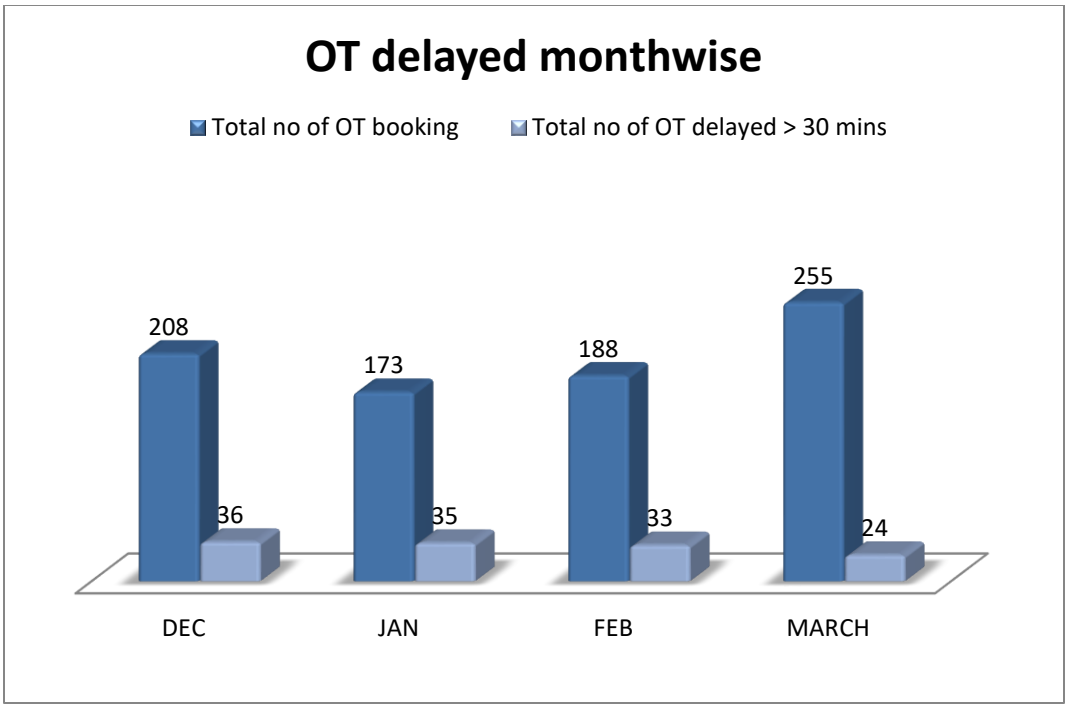


Fig. 3.9

The calculated percentage of delayed OT rate:-

Table. 1.4

December'09	January'10	February'10	March'10
• Total OT performed - 237 • Total OT delayed - 36 • Percentage - 15.2	• Total OT performed - 214 • Total OT delayed - 35 • Percentage - 16.35	• Total OT performed - 212 • Total OT delayed - 33 • Percentage - 15.6	• Total OT performed - 248 • Total OT delayed - 24 • Percentage - 9.67

- **T**rend over these months – there is a trend of decreasing percentage of delay in OT schedule so that in indicates a sign of improvement in arranging OT.

- Major reason for delay is

  Due to emergency OT which are slotted into the scheduled planned OT timings to accommodate at the last hour,

- Minor reasons are

  The consultants/surgical team members arriving late

  OT suite is not prepared in time/fumigation procedure is late due to some internal problems etc.

Here also I would like to comment that OT department does not have any data regarding the reason of delay which is definitely a very big problem to understand what are the shortcomings and who share the responsibility of the delay in performing the procedures of the OT.

So it is really vague to comment on the services provided by OT and analyzing the clinical efficiency based on these amounts of information and data.

The OT department should work on these parameters to provide clarity to the services rendered and also to assist in proper auditing of services by the staff and surgeons.

1. **Total number of NICU cases and specifications of those cases being referred to NICU**

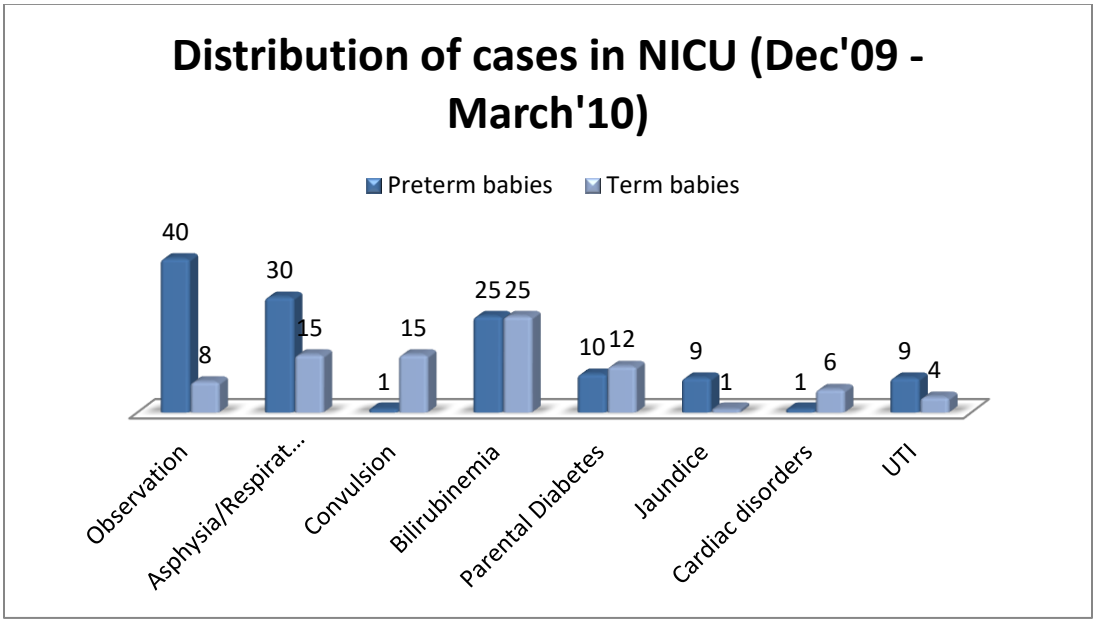


Fig. 3.10

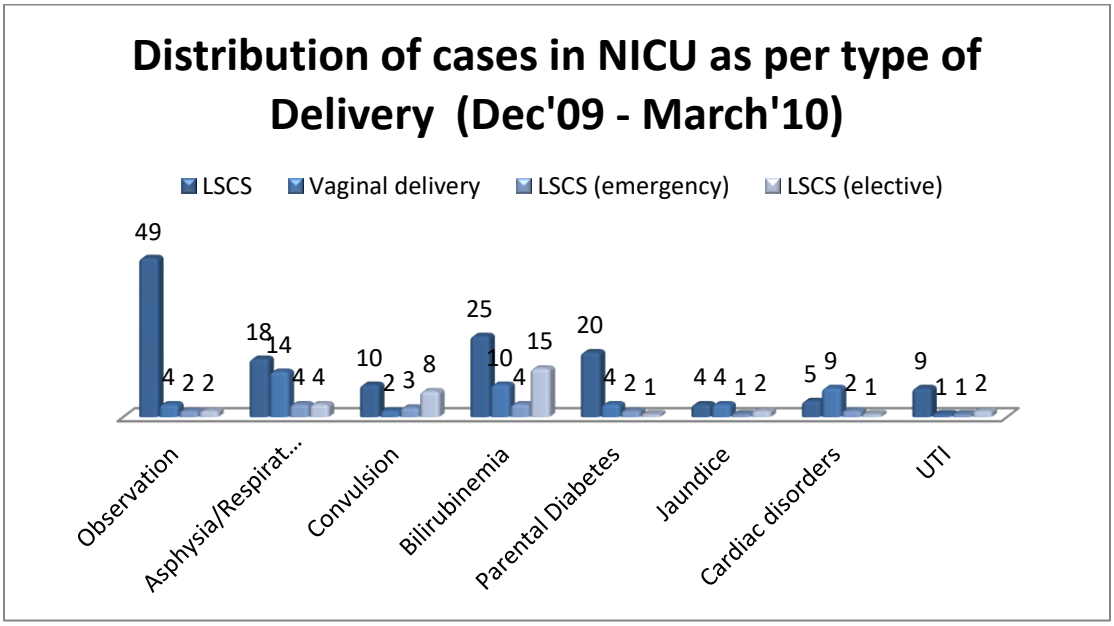


Fig. 3.11

Analysis:

Preterm babies are more requiring NICU admissions than term babies for purposes like observation & respiratory disorder syndrome mainly because of monitoring due to prematurity conditions, thus preterm labor is a major cause for NICU admissions for observation purposes.

However for causes like hyperbilirubinemia, parental diabetes (infant of diabetic mother) there are comparatively equal likelihood of admission to NICU meaning that such risk factors like neonatal jaundice & gestational diabetes of mother can cause NICU admission even if they are term deliveries.

For term babies convulsion is a serious cause for admission in NICU so the team conducting delivery should be conscious enough about the consequences of such cases so that the baby can be recovered as soon as possible.

LSCS deliveries resulting in higher admissions in NICU than normal deliveries.

But there is nothing to comment on the pattern on admission as twin deliveries or triplet deliveries are not showing a high frequency of transfer to NICU.

This finding suggest that LSCS can be avoided wherever possible for increasing the chances of a healthy newborn & that normal delivery should be the first choice for parents.

Pre-delivery counseling to be made along this line for would be parents.

A suggestion may be made that such risk assessment is to be made beforehand by the gynaecologist who are delivering even in nearby hospitals even in case of at-term deliveries so that quick referral can be made to NICU of this hospital soon after delivery.

Transfer of patients (including babies) to high dependency units

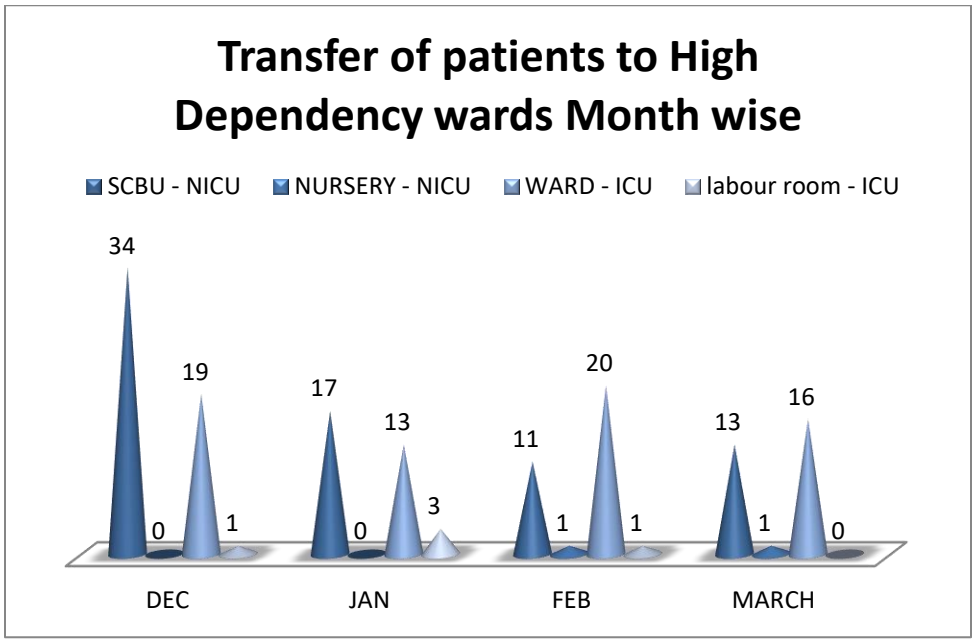


Fig. 3.12

- High dependency transfer rate = Total no. of transfers / total no. of admissions (month wise %).

December'09	January'10	February'10	March'10
• Total transfers - 54 • Total admission - 424 • Percentage - 12.7	• Total transfers- 33 • Total admission - 406 • Percentage - 8.3	• Total transfers - 33 • Total admission - 375 • Percentage - 8.8	• Total transfers - 30 • Total admission - 406 • Percentage - 7.4

Table. 1.5

So here the trend is showing a decreasing number of transfers to high dependency ward which projects a good sign of improvement in clinical care.

Facility wise transfer rate = total no. of transfer to NICU / Total no. of transfer (facility wise like NICU, ICU)

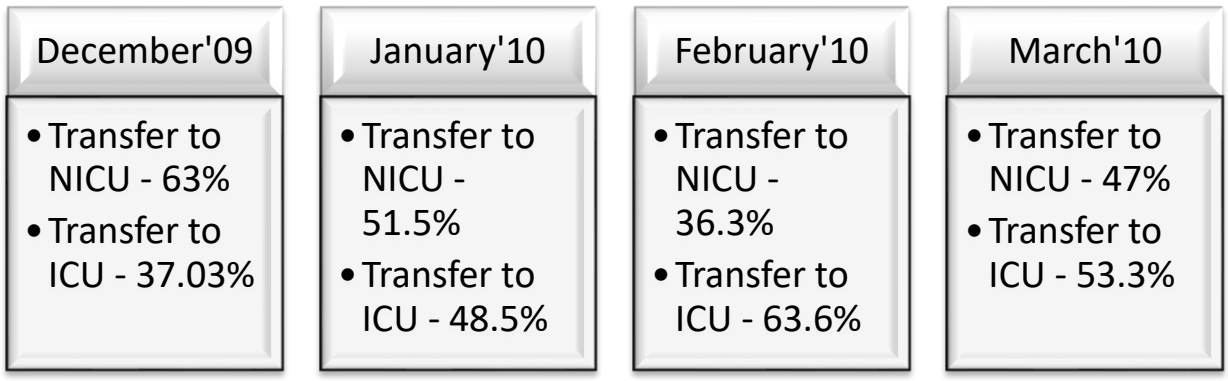


Table. 1.6

Analysis:

More transfers to NICU – this one is better utilized

A higher rate of NICU than ICU indicates that the hospital is more dependable in case of neonates requiring critical care than adult cases requiring critical care.

Accordingly the referrals are more to this hospital for critically born babies than adult care. A suggestion may be made here that the existing ICU backup can be more improved to act as a referral for adult cases also.

Trend analysis of lab investigations & radiology

A medical laboratory or clinical laboratory is a laboratory where tests are done on clinical specimens in order to get information about the health of a patient as pertaining to the diagnosis, treatment, and prevention of disease.

Radiology is the branch or specialty of medicine that utilizes imaging technologies like x-rays, CT scans, and MRIs to diagnose and treat disease.

Credibility of medical laboratories and radiology services is paramount to the health and safety of the patients relying on the testing services provided by the lab.

So in case analyzing of clinical quality, the analysis of the trends of lab investigation and radiology department is very important.

Here are the graphical representations of the trends of lab and radiology services:-

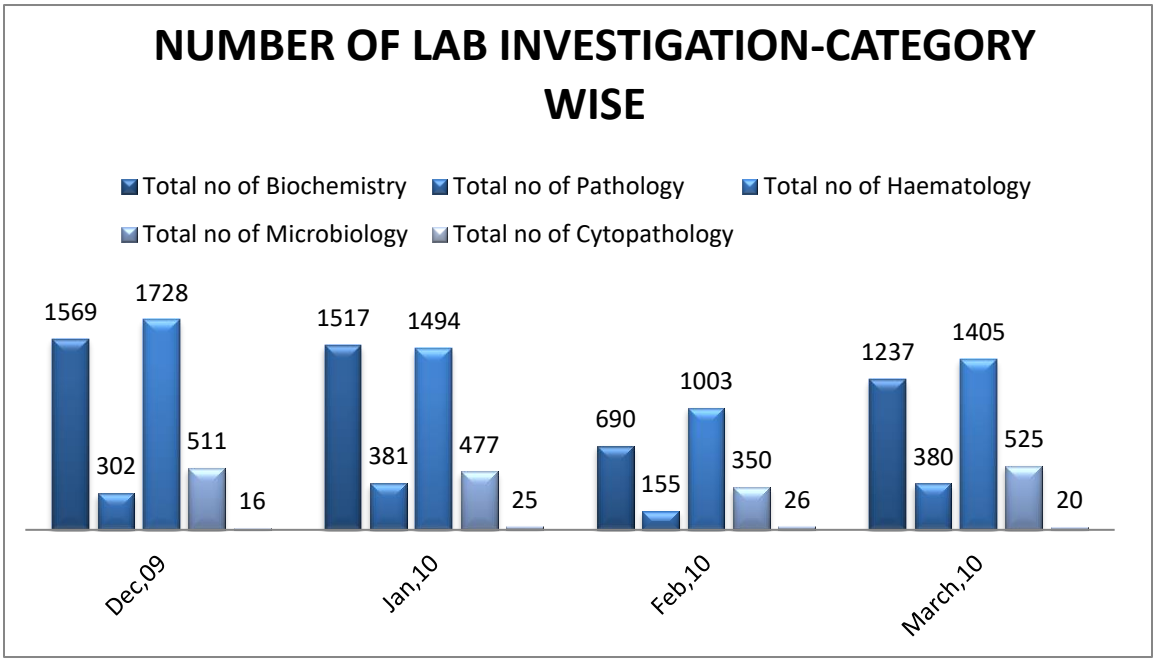


Fig. 3.13

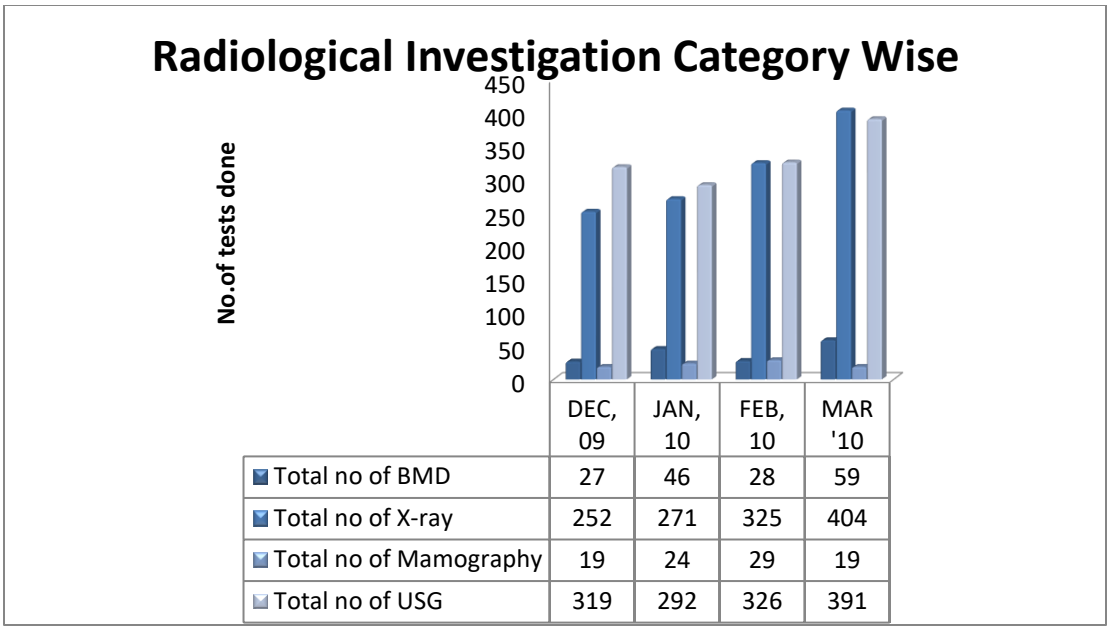


Fig. 3.14

Analysis:

In case of radiology a high % of USG is correlated due to the referral of IPD cases which are predominantly maternity/gynae cases which requires a USG mandatorily.

A high % of X-Ray can be correlated with the high OT since chest X-ray is a mandatory radiological pre-operative investigation.

In case of lab investigations haematology & biochemistry dominates the mix since both form a part of preoperative investigations as well as post-operative monitoring of maternity cases hemoglobin & Packed Cell Volume blood levels.

Pathology cases are comparatively low which can be correlated with the low level of HAI.

Thus the diagnostic services are thus predominantly functioning as in house referrals.

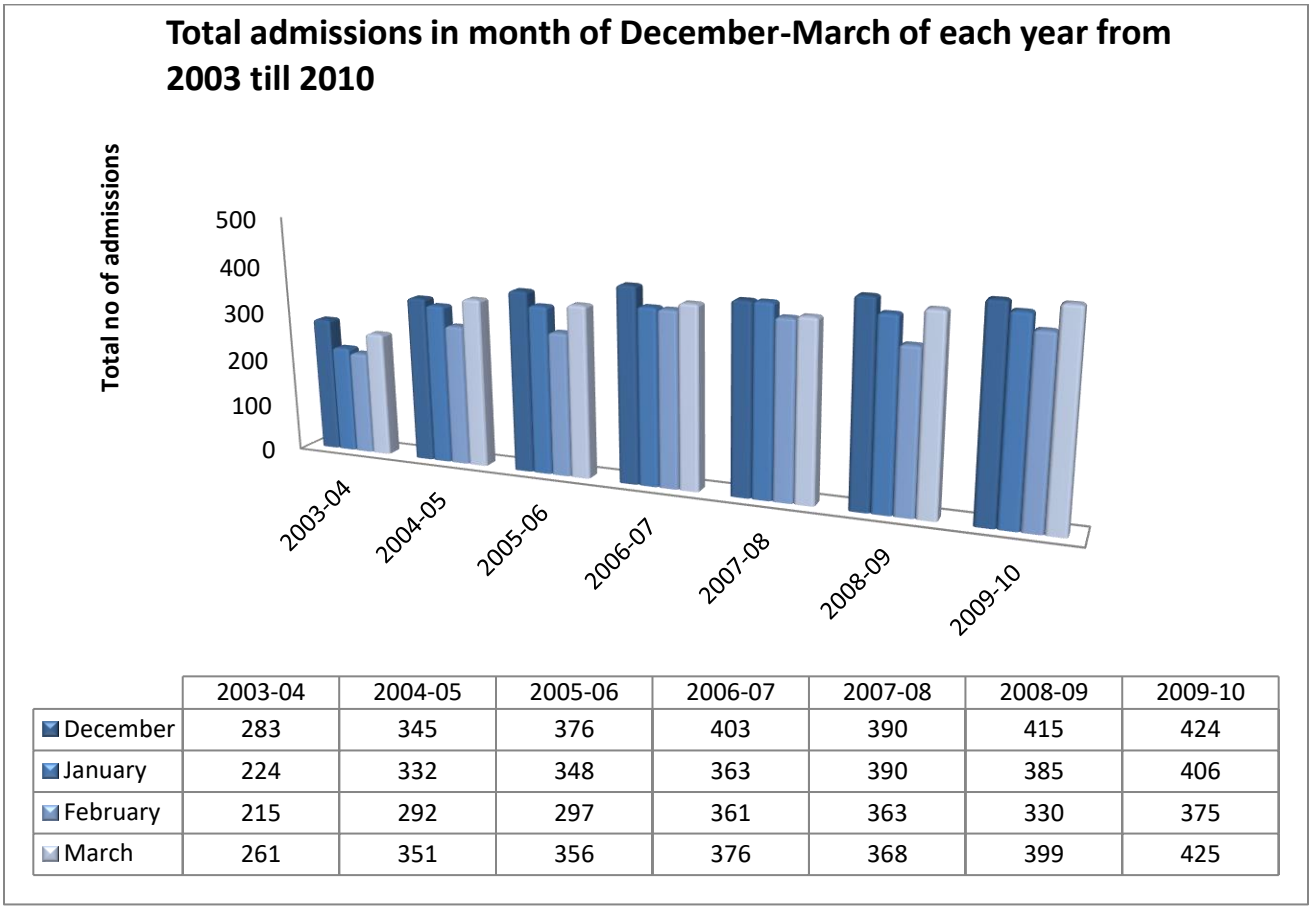
A suggestion can be made here to increase flying cases for services like Pathology, Cytopathology, BMD, Mammography from outside referrals, a need for more aggressive marketing initiative.

May be more attention to OPD clinics like breast cancer clinics, oncology clinics, orthopaedic clinics can fuel more cases for better utilization of these services.

Trend analysis of IPD admissions

The process by which patients enter into inpatient department of a hospital is called as IPD admissions. This is definitely an important indicator to show the level of satisfaction of patients related to clinical care and clinical services provided by the hospital as well as the satisfaction of physicians regarding the quality of clinical service by making the referrals to this particular hospital.

Based on the admission trend over the last 5 years I have made a comparative graphical analysis on the no. of admissions of the four months December – March for the last 7 years.



	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
December	283	345	376	403	390	415	424
January	224	332	348	363	390	385	406
February	215	292	297	361	363	330	375
March	261	351	356	376	368	399	425

Fig. 3.15

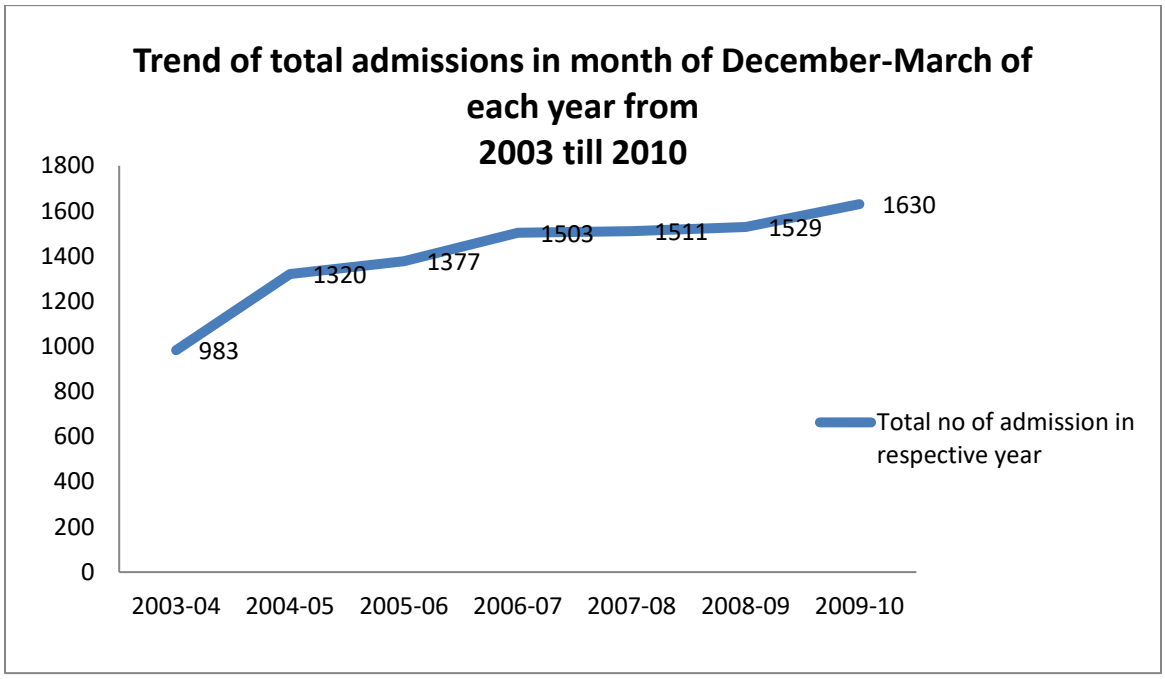


Fig. 3.16

Analysis:-

Here we can see the growth of the hospital in terms of increasing number of admission for these four moths over a period of five years and which is an indicator of clinical care provided by the hospital.

Definitely for any hospital clinical care is the most vital part, based on that service only patient satisfaction level enhances along with an increase in the annual turnover of the organization. So that leads to a better business prospect and a definite improvement in market share and regenerates the good will of the hospital in the market.

So here the sign of improvement of clinical care & satisfaction of the patients /consultants in the industry is very evident for this hospital.

Bed occupancy rate in the hospital

The occupancy rate is a calculation used to show the actual utilization of an inpatient health facility for a given time period. It is expressed as a percent and other terms which are often used synonymously include “percent occupancy,” “percentage of occupancy,” or “occupancy ratio.”

This information is very useful for health planning purposes

The occupancy rate is a valuable statistical measurement and is usually calculated for a certain period of time (month, year, etc.) as opposed to calculating for one particular day. Determining the occupancy for a longer time period reflects the degree to which hospital beds have been utilized even though the number of beds may have changed during the reporting period. For the occupancy rate to be a true utilization indicator, bed days available must be calculated to correctly reflect changes in the number of beds available for use during the year

To calculate occupancy rate, use inpatient days of care and bed days available in this formula:

(Inpatient Days of Care / Bed Days Available) x 100

Occupancy rate = total patients / 30 / 85 beds * 100 (month wise %)

Bed occupancy rates have been proposed to reflect the ability of a hospital to provide safe efficient patient care.

Department of Health in the United Kingdom (UK) has found that bed occupancy rates exceeding 85% in acute hospitals are associated with problems dealing with both emergency and elective admissions. That county has instituted a target bed occupancy of 82% as one of its hospitals’ quality measures.

Normally 82% - 85% of bed occupancy rate is considered as a good standard for any hospital.

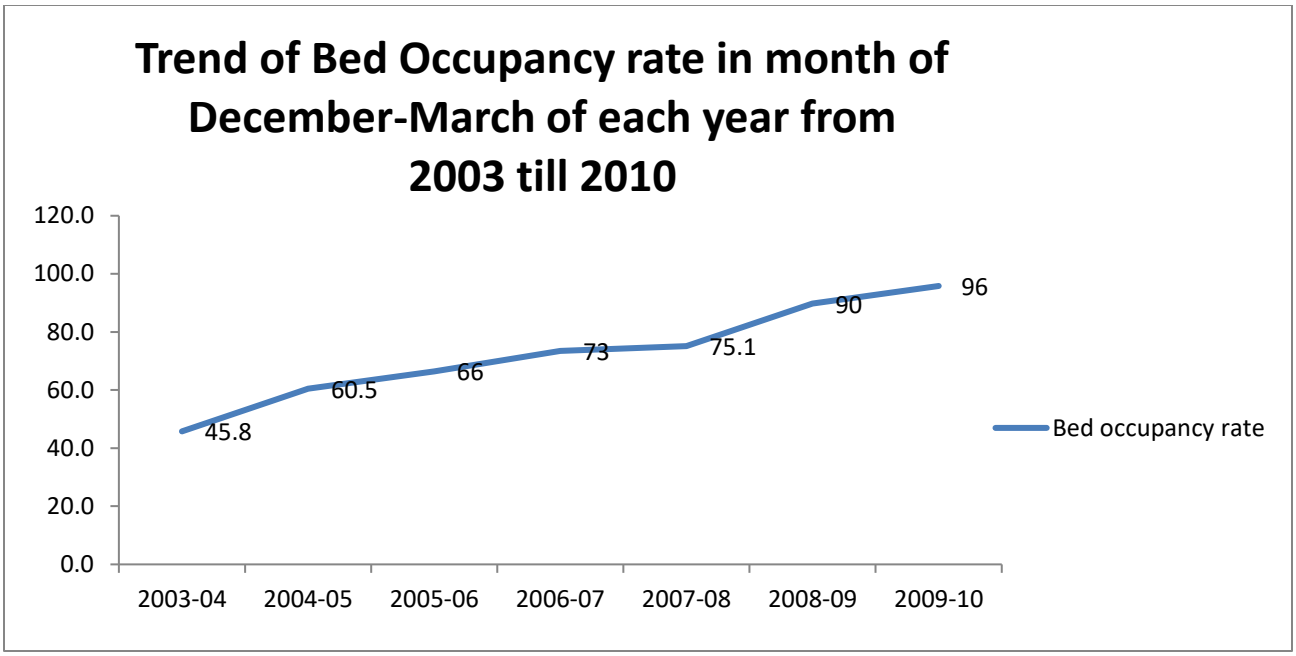


Fig. 3.18

Analysis:

So here we can see that the bed occupancy rate is increasing in a quite a high rate for each year during this period.

But since the last two years it has crossed the standard as well (more the 85% bed occupancy)

So this kind of trend projects that the hospital is not functioning well and is associated with problems dealing with both emergency and elective admissions.

But for a superspeciality maternity and neonatal care hospital (85 bedded) this kind of high bed occupancy rate can occur because of preference of specific seasons for delivery, although it exerts a high pressure on the service providers of the hospital .

Here I have made another analysis for last four months to see the trend of delivery along with the bed occupancy rate.

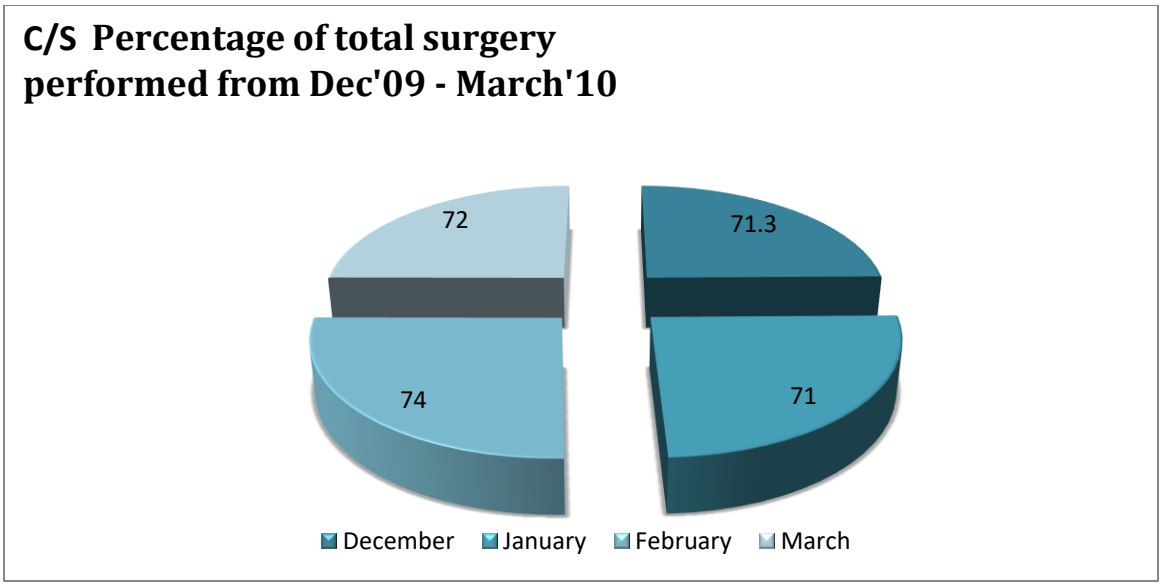


Fig. 3.19

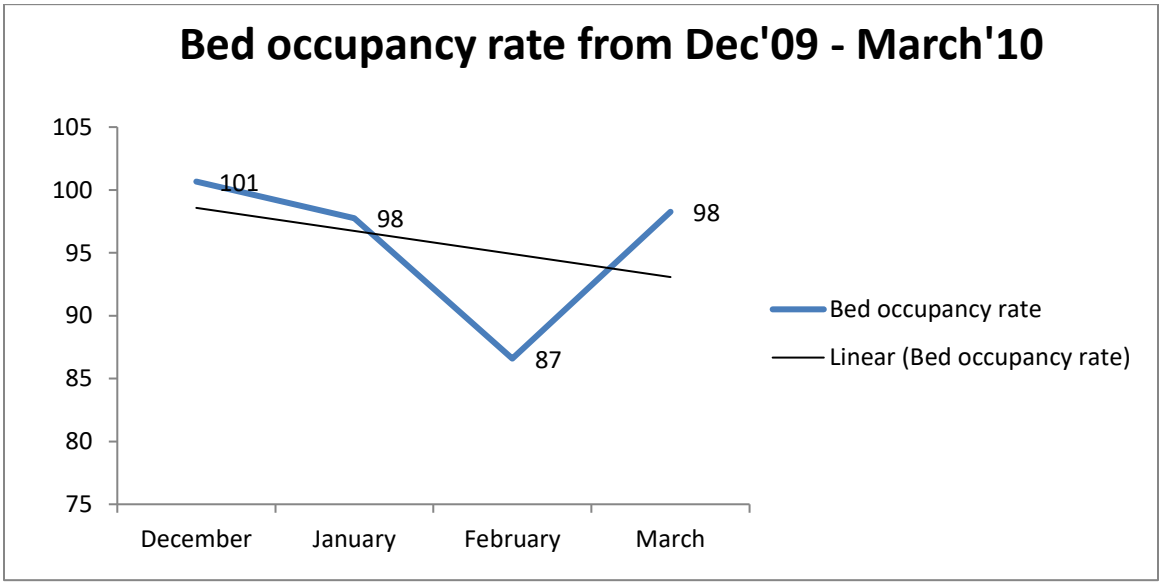


Fig 3.20

So from these two representation it is evident that there is a correlation with the high no. of c-section OT (as a % of total OT) concluding that the study period (winter) being a preferred time for surgery gives such high occupancy.

The reason may be:-

- Since the hospital is predominantly a maternity hospital so based on the school admission schedule the parents prefer to have the deliveries during this period which gives a higher occupancy.

Procedure wise length of stay

Length of stay is a term commonly used to measure the duration of a single episode of hospitalization. Inpatient days are calculated by subtracting day of admission from day of discharge. However, persons entering and leaving a hospital on the same day have a length of stay of one.

The average length of stay in hospitals is a statistical calculation often used for health planning purposes.

Such parameter should permit precise evaluation and comparison of clinical effectiveness and efficiency, and will result in improved methods of risk prediction and evaluation of new medical practices.

Therefore, with increased interest in the average length of a hospital stay, a review of this calculation seems to be very appropriate.

Prepare a data table based on procedure, no. of cases having normal length of stay, no. of case having extended length of stay & generate %.

Normal length of stay will be like:-

- For Caesarean section: 7 days or below
- D&C, D &E , Polypectomy, Hysteroscopy, Circumcision,– 1 day
- Hysterectomy, TAH with BSO – 8 days or below
- Appendicectomy – 5 days or below
- Laparoscopy & proceed, lap ovarian cystectomy, herniotomy, normal delivery, lap cholecystectomy - 3 days or below.

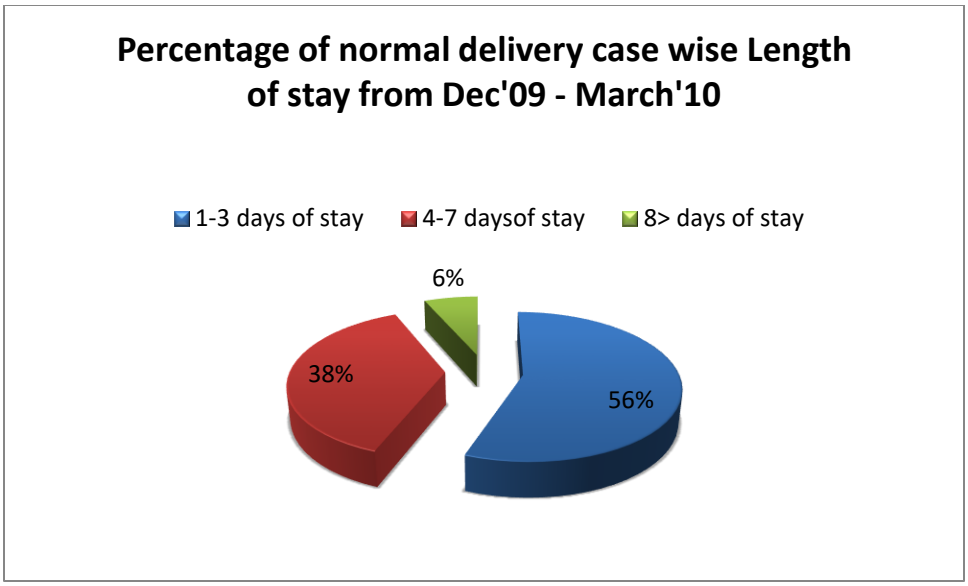


Fig. 3.21

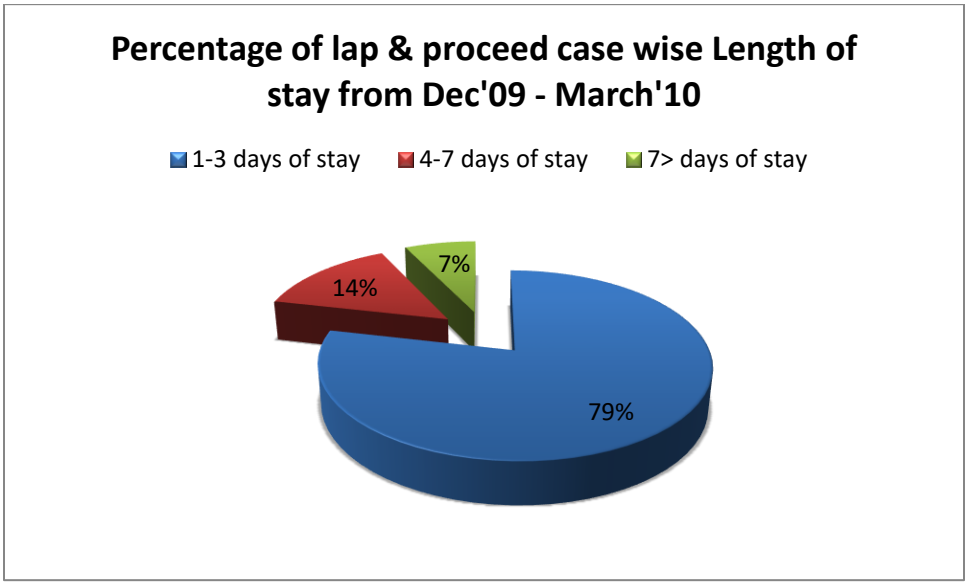


Fig. 3.22

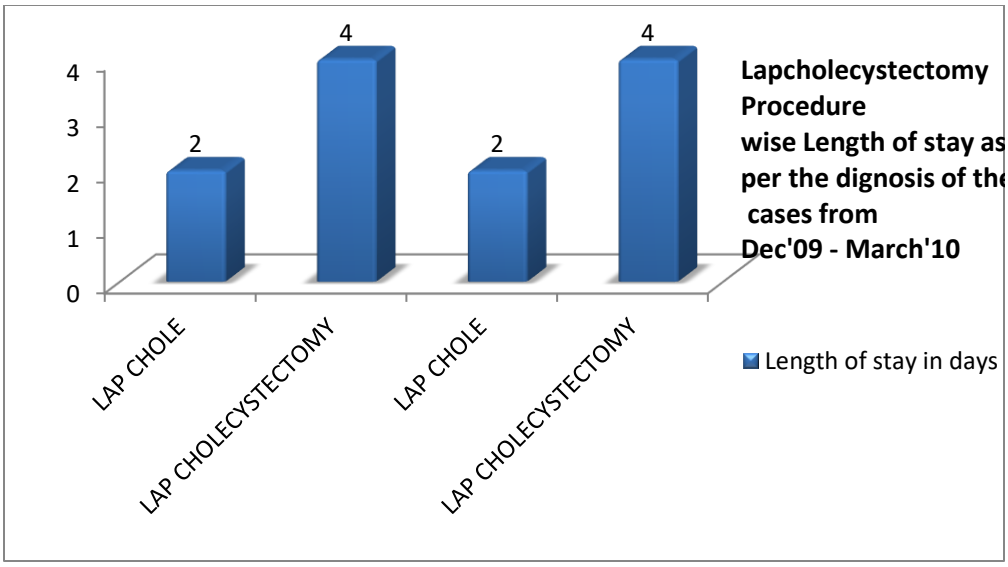


Fig. 3.23

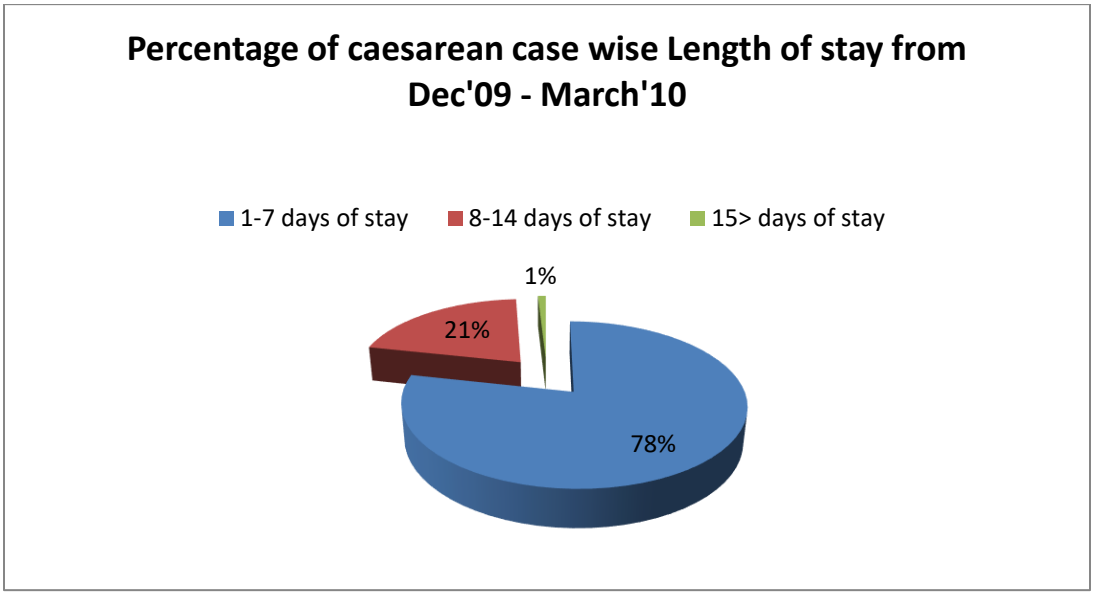


Fig. 3.24

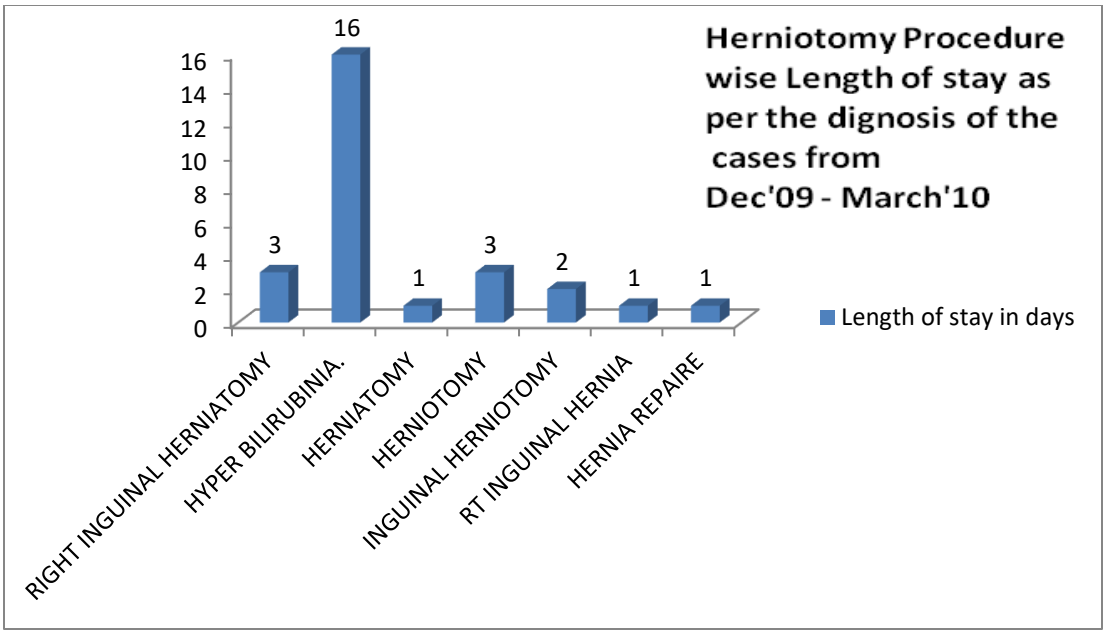


Fig. 3.25

So Graphical representations of Laparoscopy & proceed**, herniotomy,** normal delivery, lap cholecystectomy along with caesarean section are shown above.

Reasons:-

For caesarean section

Extended length of stay for C/Section are due to baby care for NICU admissions as a correlation to earlier findings of point 7 parameter.

In case of twin delivery or triplet delivery also there can be risk factor for the babies so they are kept in high dependency ward leading to a prolonged stay of the mother as well.

Complications like diabetic mother, stitch removal is not proper, wound infection or any kind of serious problem happened to the mother after giving birth

For normal delivery

Here the reason can be also the longer stay of the babies causing any kind of complication and shifting to the high dependency units.

There can be also a risk of getting trouble with breastfeeding, caring for the baby, or may be at increased risk of developing postpartum depression.

Note: 5% of doctors believed that new moms aren't ready to leave, and 11% of new moms thought they are unprepared at discharge. While the majority of women feel unprepared to some degree to care for a new baby, getting discharged too early can have serious implications. A mom who is unprepared to leave the hospital may have trouble with breastfeeding, caring for the baby, or may be at increased risk of developing postpartum depression.

So this can also be a reason for delayed discharge for some cases.

So to address these issues childbirth education classes in delivery, postnatal care and breastfeeding is necessary to alleviate some of the fear of the parents and definitely better post operative care is required to decrease the length of stay of the patients in the hospital.

For laparoscopy and proceed & Lap cholecystectomy

The independent predictors of prolonged postoperative stay can be the occurrence of any major complication. The physiological and operative severity score for the enumeration of mortality and morbidity and underlying chronic obstructive pulmonary disease are independently associated with major complications.

For Herniotomy

The reason is mainly Wound infection.
So the hospital should take care of post operative infection after this kind of surgery to reduce the prolonged length of stay.

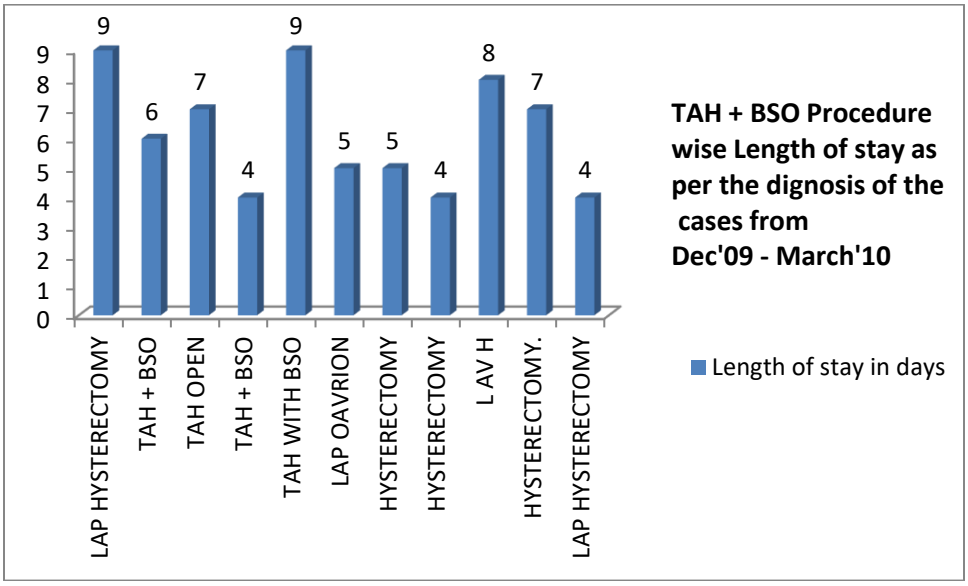


Fig. 3.26

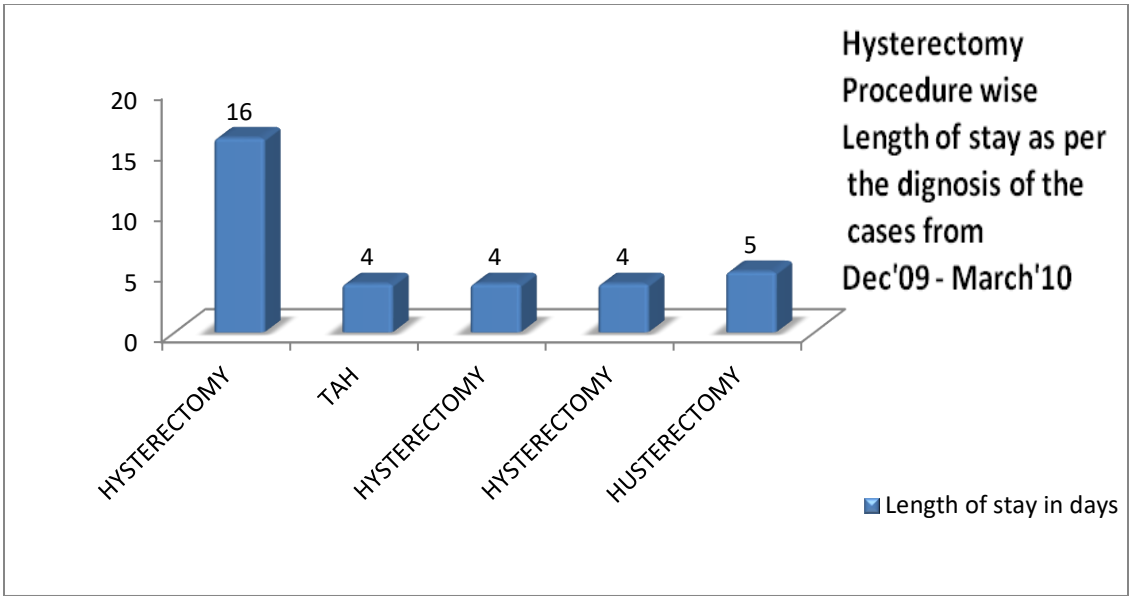


Fig. 3.27

As per the Graphical representations of abdominal hysterectomy, TAH with BSO I can conclude that:-

Reasons:

For Abdominal hysterectomy TAH with BSO:-

Postoperative infection, Urethral injury, Catheter associated infection can be a cause for extended stay for TAH since it's a major open surgery.

For hysterectomy problem causing factors are bleeding complications, injury to abdominal or pelvic structures such as small and large bowel, bladder, urethras, and the rectum.

The early complications include infections, pulmonary complication, febrile morbidity while the late problems are usually due to damage to pelvic support or injury to pelvic nerves resulting in weakness and descent or herniation through urogenital diaphragm.

Younger women with more vascular pelvises, who undergo hysterectomy, especially LAVH for symptomatic fibroids are at most risk of experiencing severe complications.

The incidence of lower urinary tract injuries is more in the open surgery than laparoscopically assisted method although the morbidity is reduced if discovered intra-operatively and repaired.

The incidence of long term complications like vault 51rolapsed is however similar in both situations.

So these kind of complications should be avoided and taken care of the hospital itself.

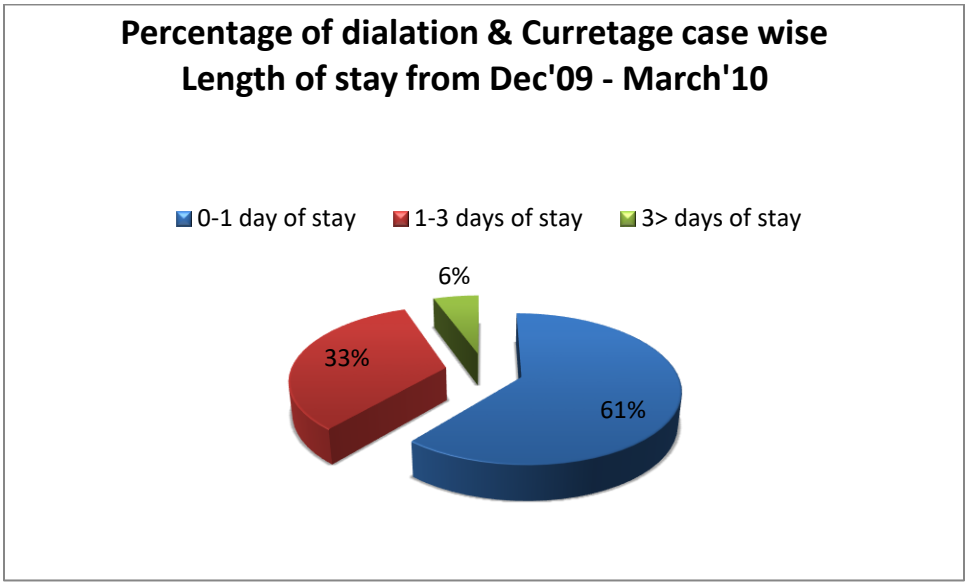


Fig. 3.28

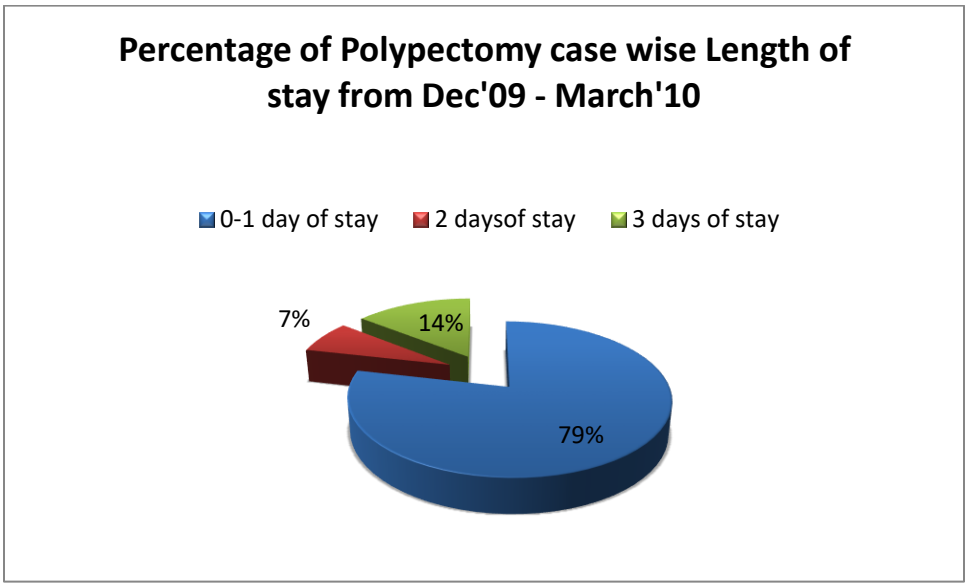


Fig. 3.29

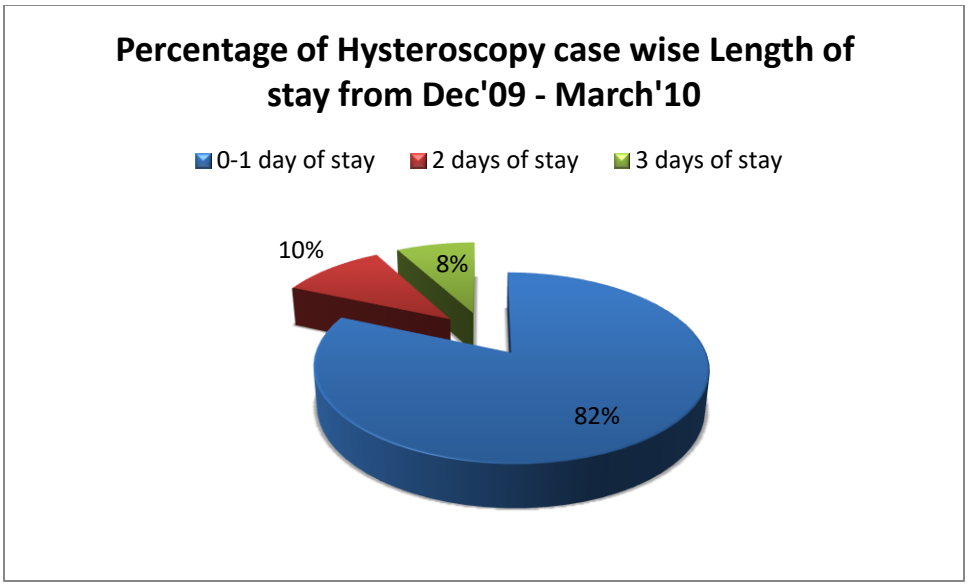


Fig. 3.30

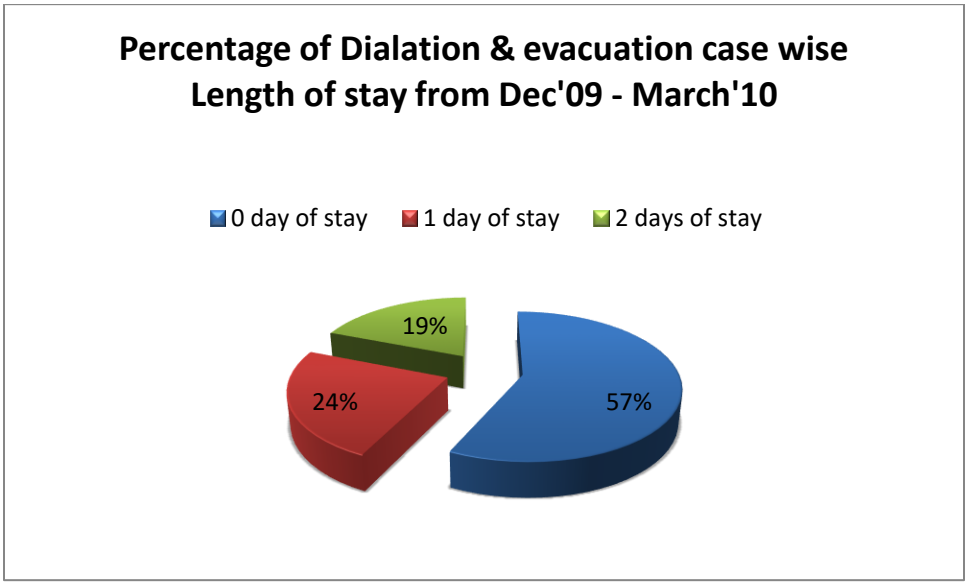


Fig. 3.31

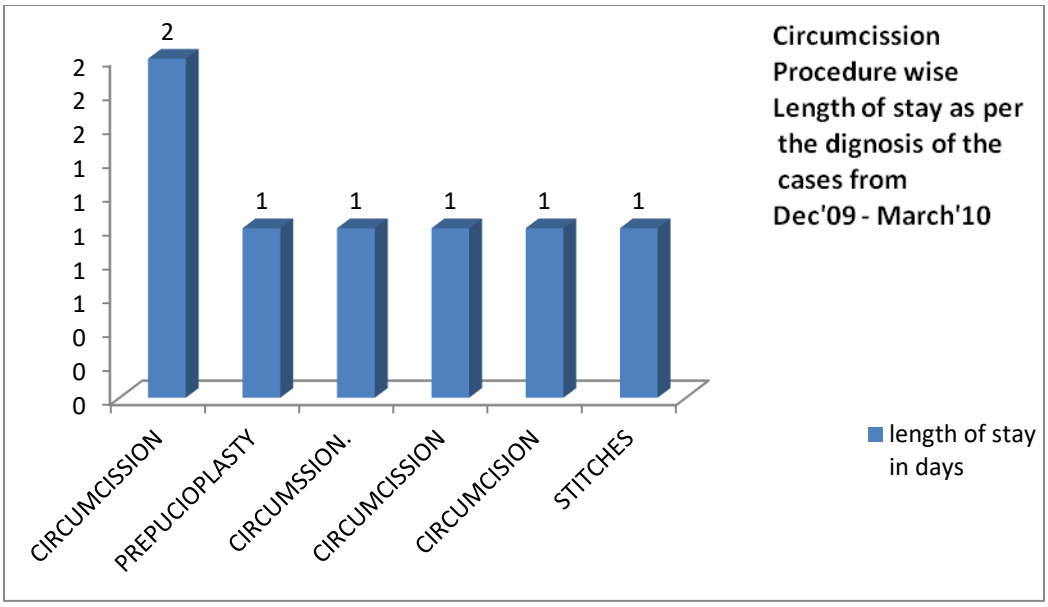


Fig. 3.32

From the graphical representations stated above I can conclude that:-

For D&C, D &E, Polypectomy, Hysteroscopy and Circumcision the reasons are:-

Reason

For TAH with BSO nausea, bleeding and cramping which may occur for two weeks following the procedure. Although rare, the following are additional risks related to dilation and evacuation damage to uterine lining or cervix, perforation of the uterus, infection, and blood clots are quite normal postoperative complication in this procedure.

For Hysteroscopy the primary risk is infection. Prolonged bleeding may follow a surgical hysteroscopy to remove a growth. Another complication is perforation of the uterus, bowel, or bladder, caused by over-forceful advancement of the hysteroscopy.

An infrequent but dangerous complication is increased fluid absorption from the uterus into the bloodstream. Keeping track of the amount of fluid used during the procedure can minimize this complication. Surgery under general anesthesia poses the additional risks typically associated with this type of anesthesia.

In case of circumcision the complication can be that if the foreskin is subjected to open air. Adequate personal hygiene is required to prevent this kind of complications.

CONCLUSION AND RECOMMENDATION

RECOMMENDATION

This whole study of clinical quality analysis is definitely includes a close look into all the clinical departments of the hospital. So this exploratory study actually helped me to understand the basic processes involved in providing care and thus to find out the loopholes incurred into the service.

Although while discussing the parameters chosen for the study I have suggested the recommendations for the particular issues but still I am making a brief suggestion for the study here.

Recommendation on the analysis of the Parameters chosen:

2. **Total number of deaths in the hospital**
3. **Transfer of patients (including babies) to high dependency units**
4. **Total number of NICU cases and specifications of those cases being referred to NICU**

The causes of deaths, transfer to high dependency units, NICU admission pattern are discussed in details already, so based on those I can conclude that proper handling of cases and more awareness & education for mothers should be the prime concern of the doctors as well as the hospital authority.

They should analyze the pattern of these issues on a regular basis and should develop certain programmes based on awareness of these issues for general public. This attempt will not only increase the likelihood of mothers to opt for this hospital but also by sharing this corporate social responsibility they will be able to market their hospital easily.

5. **Delay in operation schedule**
6. **Cancellation of operation schedule**
7. **No. of surgery category wise (OT mix)**

Here I would like to suggest that OT department does not have any data regarding the reason of delay/cancellation which is definitely a very big problem to understand what are the shortcomings and who share the responsibility of these issues in performing the procedures of the OT.

The OT department should immediately work on these parameters to provide clarity to the services rendered and also to assist in proper auditing of services by the staff and surgeons. 51

8. **Trend analysis of lab investigations & radiology**

A suggestion can be made here to increase flying cases for services like Pathology, Cytopathology, BMD, Mammography from outside referrals, a need for more aggressive marketing initiative.

May be more attention to OPD clinics like breast cancer clinics, oncology clinics, orthopaedic clinics can fuel more cases for better utilization of these services.

9. HAI rate of hospital

Although the infection control mechanism is quite effective in this hospital but they should take little more active to keep the percentage below 1% so that will ensure a good quality of clinical service.

On a general basis

While being in the hospital I have interacted with various department so based on my observations I have made certain recommendations like:

- Front office –

  In the front office the immediate problem is with the manpower, there is an acute shortage of manpower which is leading to overburden of duties to the existing staff and causing problem for the whole department. Actually due to the existing system the whole bed management process is done from front office itself which is a major cause of miscommunication in between the floors and wards especially during the time of bed crisis. So the management should think of changing the existing structure and to keep coordinators to handle this bed management task.

  Apart from this the insurance department should be separate with an individual desk because insurance handling is not a hassle free task. Many a times there occurs a hot conversation between the patient relatives and insurance company for the settlement of claim which might have a negative impact on the patients coming for admission or advance booking.

  So there should be a definite SOP for the admission and advance booking to be done by the reception desk always (unless there is a huge load on the reception staff or after 12 noon when the discharge process is almost over) to avoid this kind of circumstances.

- OPD-

  The OPD department also runs with very limited staff and in case of any emergency there is no back up staff in the department in that case they need to hire staff from other departments which is not at all acceptable for a hospital OPD.

  So HR should be very concern about these two very interactive departments of the hospital for having a proper management of staff.

- Floors/Wards-

  All the floors are well coordinated but there is a need for improvement during the period of bed crisis because it becomes really difficult without their help to allot a bed to the patients in time. So proper communication and taking action in time is the major responsibility of the sisters.

  Apart from this the patient files should be checked properly before sending it for the discharge or for audit by the sister in charge of the floor.

- Dietary Department –

  This department is supervised almost well but there are few issues like: regarding the food quality for the staff at night, no/delayed response to phone calls (which I have also faced during my training), and improper communication with the front office staff regarding discharge of patients should be taken care of.

  So these are the points or areas where I felt there is a need for improvement and better management.

  In summary this hospital requires revised policies for hiring, training & motivating manpower and an improved system of communication throughout every department of the hospital

Conclusion of dissertation

Bhagirathi Neotia Women and child Care Centre has its niche market in the health care industry of kolkata.

This maternity and child care hospital has made a landmark in the industry with their services in every way.

So to brief the whole analysis I can conclude that-

In the clinical care service this hospital is working well and apart from few areas most of the aspects of the parameters chosen are indicating a good sign of service and continuous improvement.

Those few areas where the hospital require to fill up the gaps which I have already already mentioned after every analysis and have briefed those in the recommendation section as well.

So in summary I can conclude that this hospital is rendering a good range of clinical services to its patients and consumers which are also very evident from the trend of admissions and bed occupancy rate of this hospital. But if they improve on the concerned areas then that would definitely help them to provide better service to the patients and their families.

CONCLUSION

The training at **Bhagirathi Neotia Women and Child Care Centre**, kolkata had been a great success for me.

During this period of time I have learned a great deal. I have acquired the knowledge of the practical field and an in-depth view of the corporate culture.

LEARNING POINTS

This training has enabled me to know how ---

- ✓ To tackle difficult situations and upheavals occurring in the hospital
- ✓ To address the definite requirements of the patients in time & to keep them satisfied
- ✓ To solve the problems occurring in various departments
- ✓ To behave with the patient families and counsel them as well as the patients in specific situations.
- ✓ To educate the patients about their rights and Health & Hygiene.
- ✓ To co-ordinate with other support services and to assist them to provide the best possible care for the patients.
- ✓ To behave with colleagues or senior staff and at the same time to share responsibility with them.