

**Summer Training at
Shri Ram Murti Smarak Institute of Medical Science, Bareilly
(April 3 to June 2, 2017)**

**Study on Quality Management in Operation Theatre (Infrastructure,
Infection Control, Patient Safety, Scheduling)**

**By
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**Under the guidance of
Dr. Alok Kumar Mathur**

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


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

CERTIFICATE

This is to certify that **Diksha Sabharwal** has undergone summer training in **SRMS Hospital , Bareilly** from 3rd April to 2nd June 2017.

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

I wish her success in all her future endeavors.



Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affair)

The IIHMR University, Jaipur



Dr. Alok Mathur

Associate Professor

The IIHMR University, Jaipur



SHRI RAM MURTI SMARAK INSTITUTE OF MEDICAL SCIENCES, BAREILLY

(Established & run by Shri Ram Murti Smarak Trust)

Ref. No. SRMS IMS/HR/2016-2017/463

Date: 03.06.2017

To Whom It May Concern

This is to certify that **Ms. Diksha Sabharwal** D/o Mr. Deepak Sabharwal student of **M.B.A. (Hospital and Health Management) 1st year, Institute of Health Management Research, Jaipur, Rajasthan** has completed her two months internship in this Institute from **03.04.2017 to 02.06.2017**.

Her behavior and performance was good.

I wish her success in life.

(Dr. H. O. Agarwal)
Addl. Medical Superintendent

Dr. H.O. Agarwal
Addl. Medical Superintendent
SRMS Institute of Medical Sciences
BAREILLY

ACKNOWLEDGEMENT

The writing of this report has been one of the most significant academic challenges I have ever had to face. Without the support, patience and guidance of the following people, this study would not have been completed. It is to them I owe my deepest gratitude.

First and foremost, I would like to thank the Almighty for the abundant grace that is being showered and the blessings.

Dr. (Brig.) S.K. Handa, Medical Superintendent, Shri Ram Murti Smarak Hospital, Bareilly for his constant support, monitoring, encouragement and guidance throughout this effort.

Mr. Praveen Bajpai, Manager, Quality Assurance, Shri Ram Murti Smarak Hospital, Bareilly for his expert guidance throughout the project.

Mr. Alok Mathur, IIHMR University, Jaipur who undertook to act as my supervisor despite his many other academic and professional commitments. His wisdom, knowledge and commitment to the highest standards inspired and motivated me.

I would also like to thank my parents, and my elder brother, who have always supported, encouraged and believed in me, in all my endeavors.

Finally, I would like to thank my colleagues and friends for their encouragement, assistance and profound understanding on various occasions.

ABSTRACT

Title of Report: Quality Management in Operation Theatre (Infrastructure, Infection Control, Patient Safety, Scheduling)

Mentor: Dr.(Brig.) S.K. Handa, Medical Superintendent, SRMS Hospital, Bareilly

Name of the Student: Diksha Sabharwal

Patients are an important component of a hospital and their satisfaction determines the sustenance and image of the hospital. A cross-sectional study at SRMS Hospital, Bareilly, a tertiary care hospital, was conducted from 3rd April 2017 to 2nd June 2017 on the Quality Management of O.T. regarding Infrastructure, Infection Control, Patient safety and Case Scheduling.

A sample of 100 patients who were admitted above the age of 12 years in the hospital in urology, neurology, orthopedics and plastic surgery departments were inquired with the help of a structured questionnaire and information was collected. Descriptive statistics was used to describe the satisfaction level. Comments and suggestions from the patients are also captured in the study. The overall satisfaction of the patients from surgery treatment and care was 71 out of the total sample of 100.

The hospital has the scope to improve in providing general amenities like cleanliness of wash rooms, low cost treatment, hot water facilities for drinking, cooperative nurses, avoidance of noise pollution due to overcrowding of patient attendants, quality care as recommended by the patients.

The hospital may plan for full NABH accreditation. Training programmes may be conducted to the nurses, support-staff, separately to inculcate the importance of hospital administration, customer service, communication skills etc. Patient satisfaction surveys can be conducted in surgery unit and O.T. to get the real picture for devising further strategies and also quality improvement techniques such as TQM.

Key words: Patient satisfaction, patient safety, infection control, operated inpatients, Infrastructure of O.T.

TABLE OF CONTENT

Sr.no		Page no.
1	Organizational profile 1.1- Introduction 1.2- Vision 1.3- Mission 1.4- Floor wise Departmental Services	7-11
2	Specific Project- study on Quality Management in Operation Theatre (Infrastructure, Infection Control, Patient Safety, Scheduling) 2.1- Introduction 2.2-Objectives of the study	12-13
3	Literature review 3.1- Summary of literature review.	14
4	Methodology 4.1- Introduction 4.2- Research design 4.3- Ethical considerations 4.4- Sample size 4.5- Sample frame 4.6- Inclusion criteria 4.7- Exclusion criteria 4.8- Sampling procedure 4.9- Reason to choose sample size 4.10- Data analysis	15-16

	4.11- Scope and limitations of the study	
5	Data collection, analysis and interpretation.	17-32
6	Results	35-39
7	Conclusion and recommendations 7.1- Suggestions 7.2- Recommendations 7.3- Conclusion	40-41
8	Annexure-1 (daily checklist)	42
9	Annexure-2 (checklist at the end of the month)	43
10	Annexure-3 (infrastructure checklist)	44-45
11	Annexure-4 (questionnaire)	46-47
12	References	48

ABBREVIATIONS

CQI	Continuous Quality Indicators
HEPA	High Efficiency Particulate Air
Min:	minutes
NABH:	National Accreditation Board for Hospital and Healthcare providers
Neuro:	neurology
Ortho:	orthopedics
O.T.	Operation Theatre
TQM:	Total Quality Management
Uro:	urology

1. OBSERVATIONAL LEARNINGS:

1.1 INTRODUCTION:

Shri Ram Murti Smarak Institute of Medical Sciences has most modern 950 beds, centrally air-conditioned, Multi super Speciality, Tertiary Care and a Trauma Hospital established on 4th July 2002. The institute has well established and full strength pre-clinical, para clinical and clinical departments having experienced and qualified doctors and staff. In addition to these departments of Radiotherapy, Cardiac Sciences, Renal Sciences, Neuro Sciences and Plastic Surgery are fully functional. These departments cater to high number of footfall of around 1200 patients in OPD everyday and have inward occupancy OF 85% TO 90%. Every month more than 200 Cardiac interventional procedures, more than 400 dialysis, more than 50 Radiotherapies and more than 600 major surgeries in various surgical departments are being performed.

1.2 VISION:

- To be partner in building India a world leader in Medical Education and Health Care.
- To establish and develop world class self-reliant institute for imparting Medical and other Health Science education at under-graduate, post-graduate and doctoral levels of the global competence.
- To serve and educate the public, establish guidelines and treatment protocols to be followed by treating hospitals.
- To develop and provide professionally qualified doctors for augmenting the nations human resources through Bio-Medico-Socio-Epidemiological scientific research.
- To provide quality and affordable health care facilities and services to all sections of the society.

1.3 MISSION:

- To be partner in building India a world leader in Medical Education and Health Care.
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- To develop and provide professionally qualified doctors for augmenting the nations human resources through Bio-Medici-Socio-Epidemiological scientific research.
- To provide quality and affordable health care facilities and services to all sections of the society.

1.4 Floor Wise Departmental Services:

OPD:

✓ Ground floor-

- OPD 1 – Eye
- OPD 2 – Eye bank
- OPD 3 - Medicine
- OPD 4 – Gynecology
- OPD 5 – Orthopedics
- OPD 6 – Dental
- OPD 7 – Blood
- OPD 7a – Blood sample collection
- OPD 7b – Physiotherapy

✓ First floor-

- OPD 9 – ICCU
- OPD 10 – ENT
- OPD 10 a - Cath lab
- OPD 10 b – Endoscopy
- ✓ Second floor-
- OPD 11 – General surgery
- OPD 12 – Pediatrics
- OPD 13 – Dermatics.
- ✓ Third floor –
- OPD 14 – Psychiatry
- OPD 15 – Neurology
- OPD 16 – Urology, Nephrology

IPD:

- ✓ Ground floor-
 - Labor room
 - General Recovery Room
 - Casualty
- ✓ First floor-
 - Medical ward
 - Pediatrics ward
 - NICU, PICU
 - Private ward
 - Cardiac ward
 - ICCU
 - Tele medicine department
 - OT

✓ Second floor-

Surgery ward

Gynecology ward

Dermatology ward

Deluxe ward

Private ward

OT

✓ Third Floor-

Orthopedics ward

ENT ward

Pulmonary ward

ICU- (RICU, MICU, SICU, GICU)

✓ Fourth floor –

Psychiatry

Eye

Radiotherapy

R.R Cancer and research institute

✓ Labs-

Radiology- MRI 3T/2T, USG, X RAY, CT SCAN, DEXA SCAN, MAMOGRAPHY

Pathology- Microbiology, central research lab, histopathology, psychology, biochemistry

✓ Other Supportive departments of hospital includes-

- Main Reception
- Laundry and linen
- CSSD
- Cafeteria
- Medical records department
- Corporate department (TPA, ECHS, ESI, NER, etc)
- House keeping
- May I help you
- Engineering
- Electrical
- Maintenance
- Security services
- Pharmacy
- Dietetics
- Server room/ IT department
- Medical Gas
- Admission and discharge department
- Store
- Marketing department
- Mortuary
- Ambulatory service

A study on Quality Management in Operation Theatre (Infrastructure, Infection Control, Patient Safety, Scheduling)

2. INTRODUCTION:

2.1- Introduction

O.T.:

An OT is that specialized facility of the hospital where lifesaving or life improving procedures are carried out on human body by invasive methods under strict aseptic conditions in a controlled environment by specially trained personnel to promote healing and cure with maximum safety, comfort and economy.

An operation theatre complex is the “heart” of any major surgical hospital. An operating theatre, operating room, surgery suite or a surgery center is a room within a hospital within which surgical and other operations are carried out.

The patient is the Centre point of a functioning OT complex. He / she is in isolation for varying times, away from his near and dear ones and is physically sick. Efforts are directed to maintain vital functions, prevent infections / promote healing with safety, comfort and economy. The establishment and working of the operation theatre (O.T.) needs specialized planning and execution and is not a simple civil engineering work. A “civil-mechanical-electrical- electronic-bio medical” combo effort driven and coordinated by the needs, preferences and safety of the medical/ surgical team forms the basis for starting and maintaining an operation theatre.

Types of O.T.:

1. Superspeciality O.T.- it includes operations of neurosciences, orthopedics, cardiothoracic and transplant surgery (renal, liver, etc.)
2. General O.T.- this includes ophthalmology and all other basic surgery disciplines.

Quality:

Quality refers to the standard of something as measured against other things of a similar kind or the degree of excellence of something.

Infrastructure guidelines of O.T.:

The standard size of an O.T. should be 20' * 20'* 10' and it should have the occupancy of 5-8 persons at any given point of time. Ambient temperature of 21 +/-3 degree Celsius and humidity between 40-60% should be maintained. Air should be supplied through terminal HEPA filters in the ceiling. Positive pressure of 15 Pascal should be maintained between O.T. and adjoining areas to prevent outside air entry into O.T. Window and split A/C should be used as they are pure re-circulating units and have convenient pockets for microbial growth which cannot be sealed. The flooring, walls and ceiling should be non-porous, smooth, seamless without corners and should be easily cleanable repeatedly.

2.2- Objectives:

1. To study the quality parameters of O.T.
2. To study the exiting model of O.T. functioning (with respect to infrastructure, patient safety) SRMS Hospital, Bareilly.
3. To measure the infection control parameters of O.T.
4. To analyse the scheduling of surgeries.
5. To find out the utilization rate of O.T.
6. To develop suggestions to improve the services of the hospital.
7. To identify the benefits, difficulties and lessons learned.

3. LITERATURE REVIEW:

3.1- Summary of Literature Review:

1. TQM and accreditation are important managerial strategies to be initiated, evolved and sustained in complex, matrix and multidisciplinary department of Operation Theatre especially in a tertiary referral health care Centre. - **Brook T. Quality improvement and organizational audit. Hospital Management International 1994. London Int Hos Fed 1993; 105-7.**
2. The sum of the average duration of surgeries and turnover times is indeed a good estimator of the duration of the series of surgical cases- **Alvarez R et al. (2010)**
3. The concepts of “overutilization” and “underutilization”. Underutilization is defined as time during the scheduled hours of operation that is used, and overutilization is defined as the time used by scheduled cases past the end of the scheduled time. With these concepts, we can estimate the economic efficiency of an OR suite. - **Strum et al. (1999)**
4. A complete literature review about operating room planning and scheduling, evaluating the literature on multiple fields. They also summarized the significant trends in research and identified areas of future interest. - **Cardoen et al. (2009).**
5. The healthcare providers should provide the quality care services and should conduct the patient satisfaction survey in each unit of the hospital for the shortcomings and deficit part of the hospital and necessary measures can be taken to improve the services as per community needs of the patient. - **Al Sharif BFT., 2008, Ph.D. thesis, “Patient satisfaction with hospital services at Nablus District hospital, West Bank, Palestine”, pp. 94-97.**

4. METHODOLOGY:

4.1 Introduction-

The study was conducted in the hospital Shri Ram Murti Smarak, Bareilly from 3 April 2017- 2 June 2017. The data on various aspects of the Operation Theatre was collected. The hospital staff and patients both were interviewed for getting the information. Data has been collected through checklist, structured questionnaire and face to face interview. The data collected was analyzed to identify the best practices and recommendations were made using the identified practices.

4.2 Research design:

Type of study: cross-sectional study.

4.3 Ethical consideration

The researcher's supervisor is Dr. (Brig.) S.K. Handa, Medical Superintendent, of Sri Ram Murti Smarak Hospital, Bareilly and with formal request letter, permission was granted to do case study in the hospital and same information was sent to all Staff Nurse and Manager to cooperate for this case study.

Patients were informed about purpose of study and that their comments and suggestions will be kept confidential. They should not be biased and their participation is purely a voluntary one.

4.4 Sample size

A total of 100 patients were interviewed and requested to fill the questionnaires, who were operated as inpatients and admitted in the hospital.

4.5 Sample frame

The respondents were identified through hospital records, who were admitted for the surgery of urology, orthopedics, neurology and plastic and stayed in the hospital during study period with age group more than 12 years.

4.6 Inclusion criteria

Patients who are admitted above the age of 12 years in the hospital in urology, orthopedics,

neurology, plastic surgery departments.

4.7 Exclusion criteria

The patients who were admitted in Eye, General surgery, ENT, Gynaecology, Oncology, Pediatrics, children less than 12 years of age (pediatrics) were excluded. Patients with mental ill health and deaf were unable to interact, and hence were excluded.

4.8 Sampling procedure

Sampling:

- Sample Area: 100 patients who underwent surgery from the department of urology, neurology, plastic and orthopedics department.
- Sample Population: 100 patients from the hospital who underwent surgery.
- Duration: 45 days.
- Sample Type: Systematic random sampling.
- Sample Size: 100 persons.

4.9 Reason to choose sample size

Sample size of 100 was selected by analyzing the total number of surgeries performed in the last month which was 333. On the basis of this, 30% cases of total number of surgeries were taken which was 100.

4.10 Data analysis

Tools of data collection:

- Interviews
- Structured Questionnaire

4.11 Scope and limitations of study

- The study concentrates only on the quality parameters of the O.T. of the hospital.
- The study is limited to S.R.M.S Hospital, Bareilly.

5. Data Collection, Analysis and Interpretation

5.1- DATA COLLECTION:

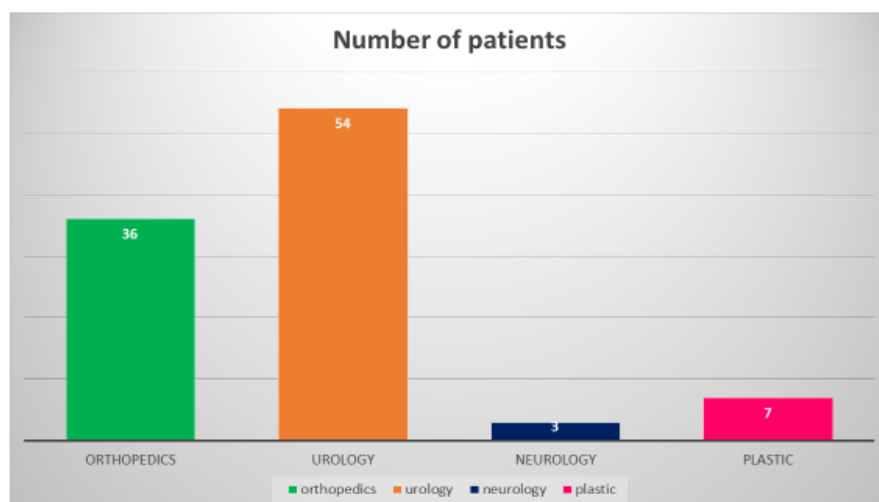
The data was collected by filling up the feedback forms at the time of discharge of the patient. A questionnaire was prepared and the patients were inquired about the questions. A checklist was also prepared.

5.2- DATA ANALYSIS:

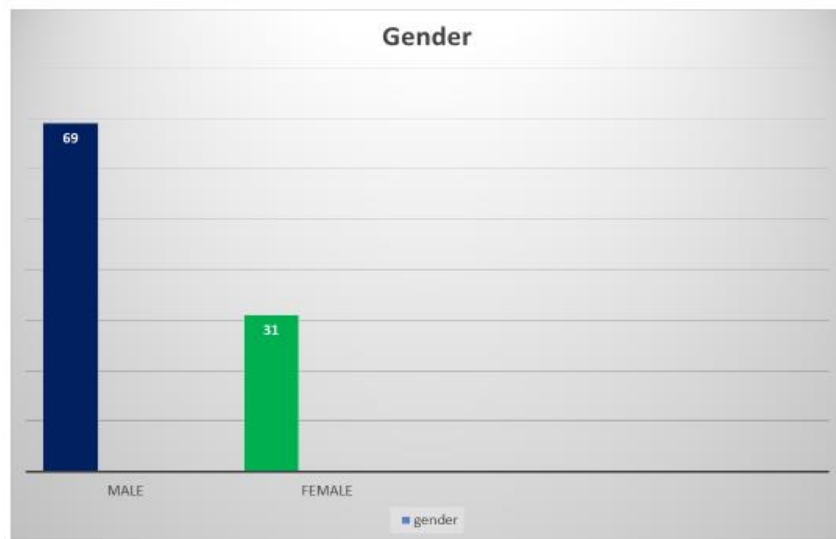
The data from the filled questionnaire was further analysed. Feedback from total 100 patients was taken who came for the surgery for the department orthopedics, urology, neurology, plastic. Also, the checklists prepared were properly analysed.

A. ANALYSIS OF QUESTIONNAIRE:

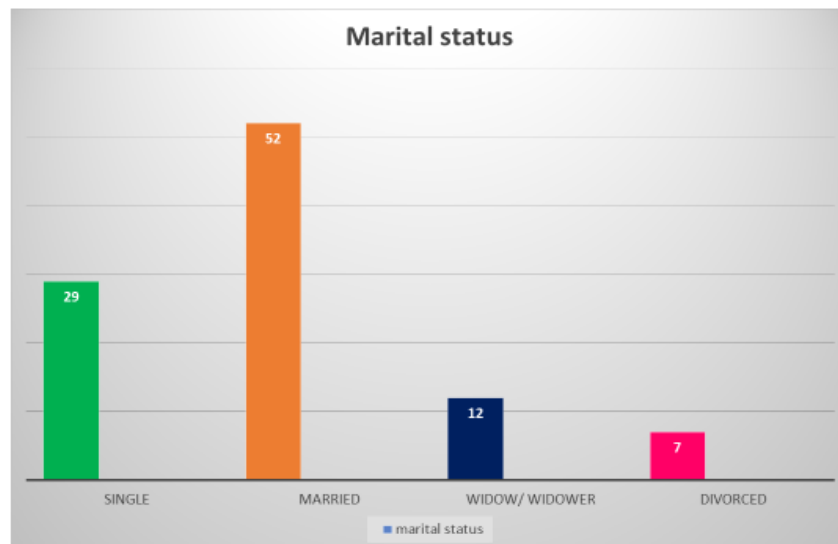
A) BACKGROUND INFORMATION:



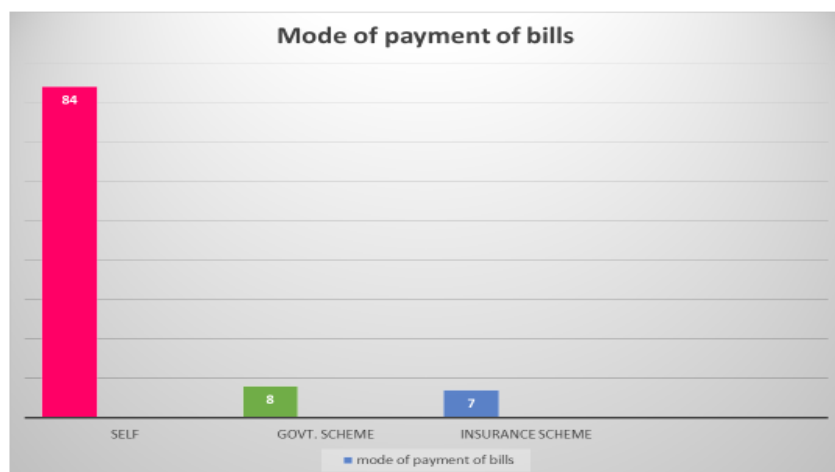
5.2 1) -The graph represents that the total number of patients who underwent the surgery in orthopedics were 36, in urology 54, in neurology 3 and in plastic 7.



5.2 2) - Out of 100 patients 69 were male and 31 were female.

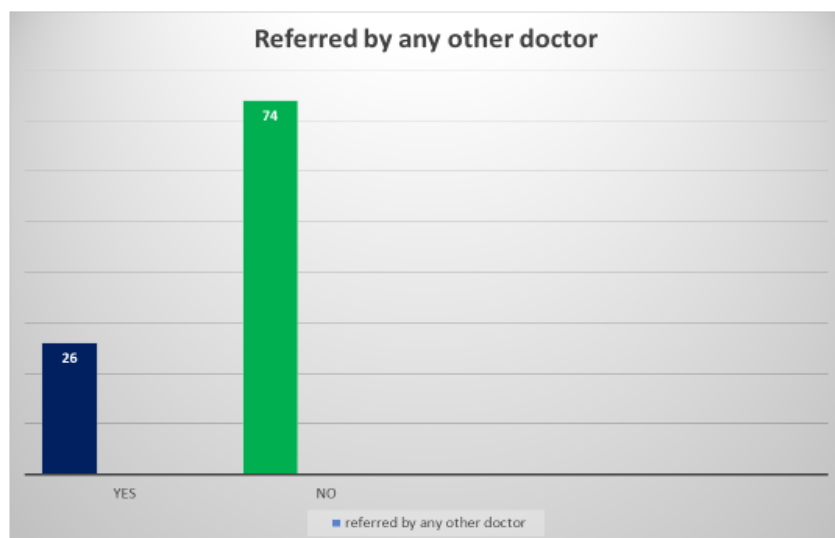


5.2 3)- The graph above shows the marital status of the patient which indicates that 29 patients were single, 52 patients were married, 12 patients were widow/widower and 7 patients were divorced.

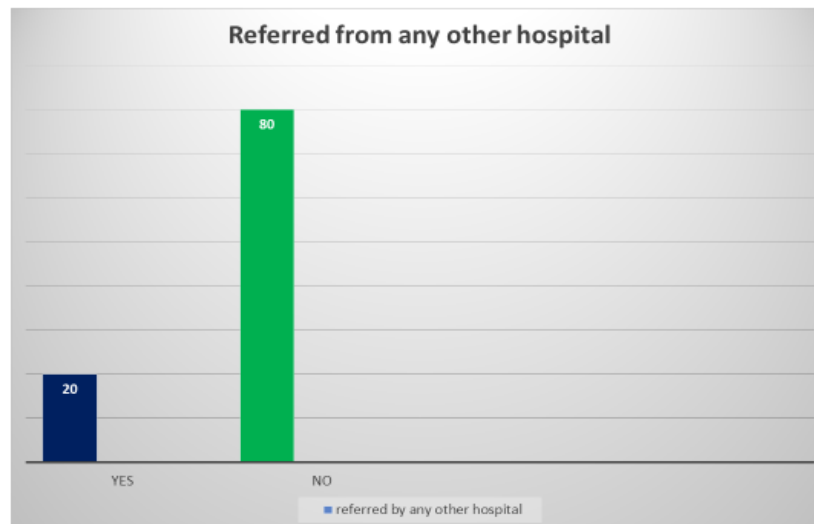


5.2 4)- The graph indicated the mode of payment of bills by the patients which is 84 patients made the self-payment, 8 by the government scheme whereas 7 patients paid the money by their insurance scheme.

B. ADMISSION PROCEDURE:

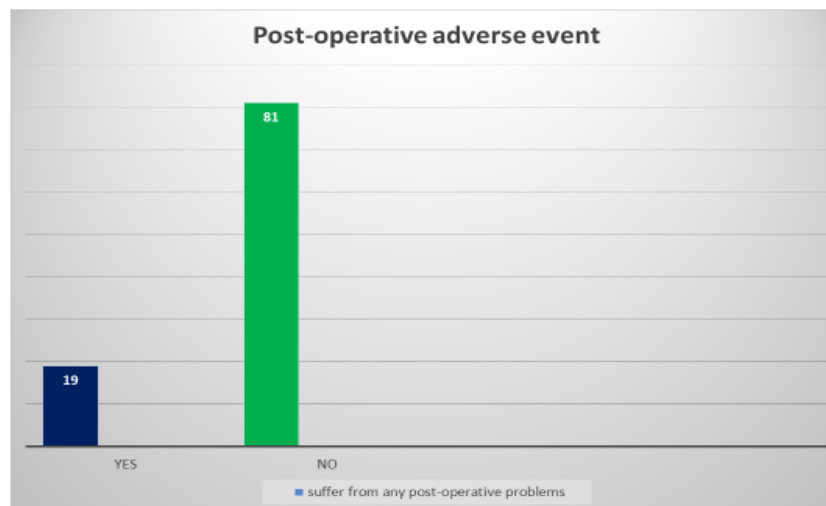


5.2 5)- Out of 100 patients interviewed 26 were referred by another doctor to the hospital whereas 74 patients came themselves without any reference.

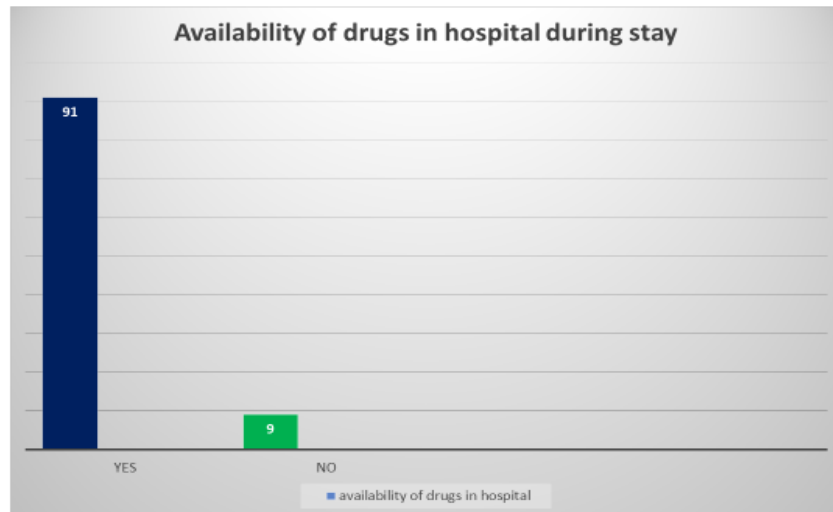


5.2 6)- 20 patients were referred from another hospital to this hospital whereas the rest 80 patients came to the hospital without any reference directly.

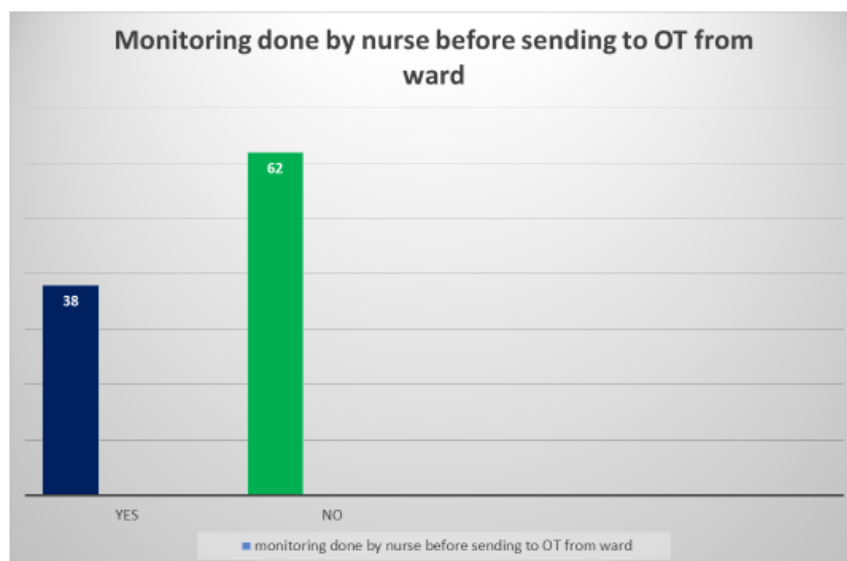
C. PATIENT SAFETY ASPECT INFORMATION:



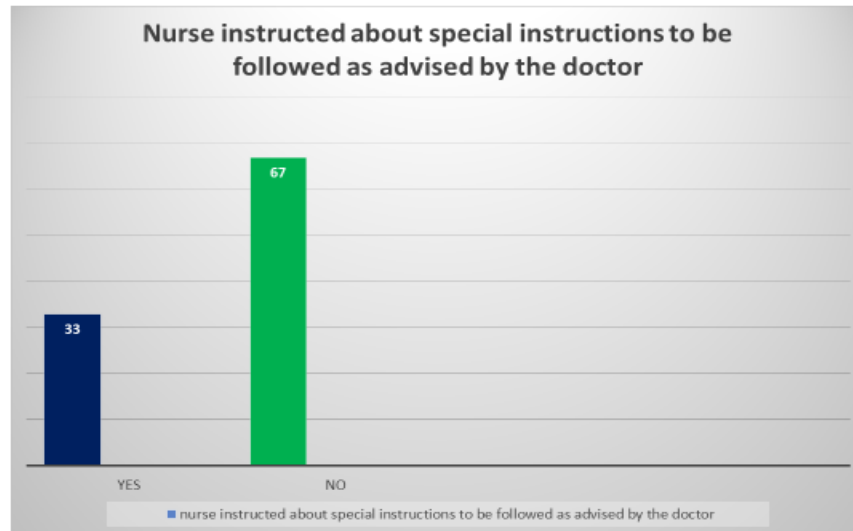
5.2 7)- 19 patients suffered from post-operative adverse events while 81 patients had uneventful recovery.



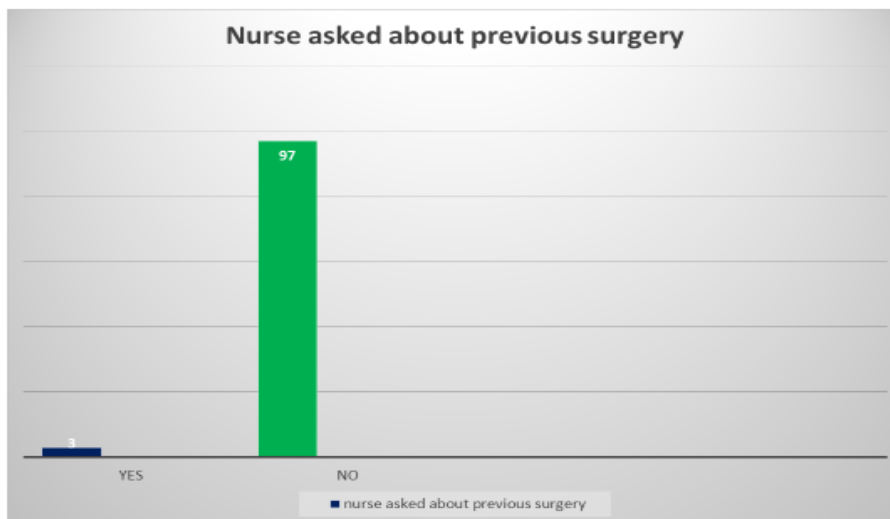
5.2 8)- When asked about the availability of the medicines, 91 patients reported that drugs were available inside the hospital during their stay whereas 9 patients told that few drugs were not available to them.



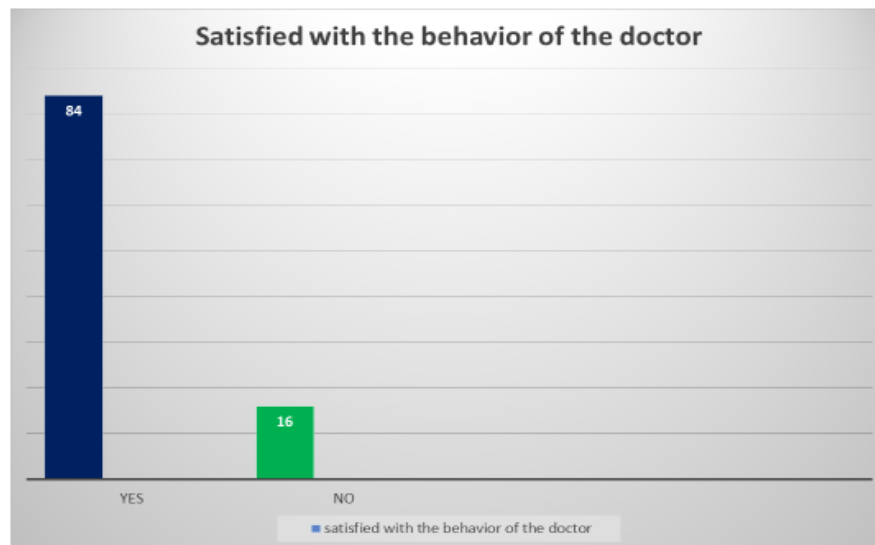
5.2 9)- The graph above shows that 38 patients were monitored by the nurse prior to sending to OT from ward and 62 patients were not monitored by the nurse before sending to OT from ward.



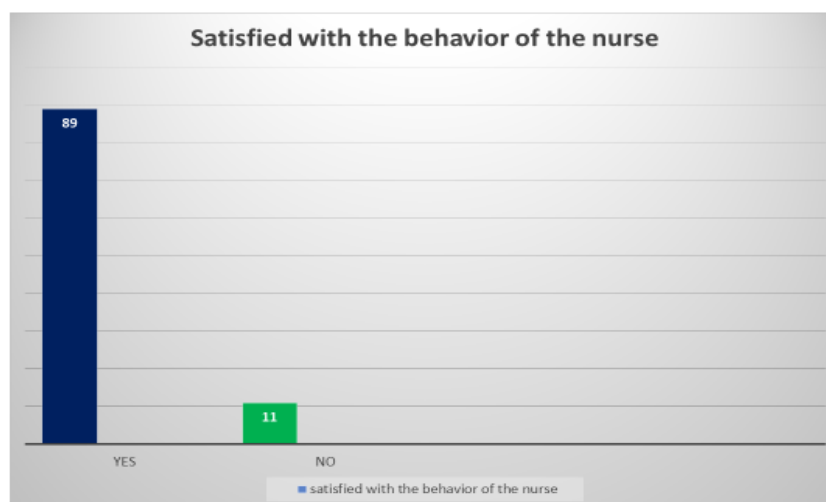
5.2 10)- The data indicates that 33 patients were instructed by the nurse about the special instructions to be followed as advised by the doctor whereas 67 patients were not provided with any instructions by the nurse.



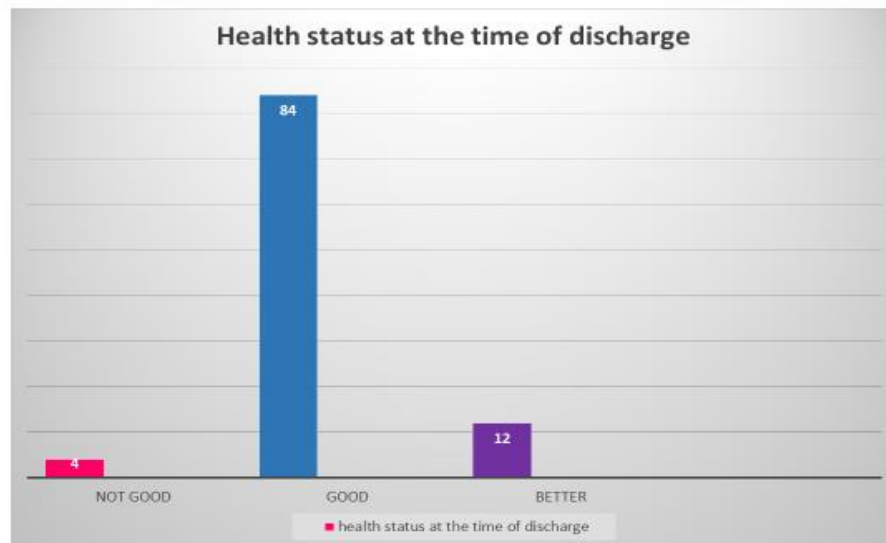
5.2 11)- The data shows that only 3 patients were asked by nurse about their previous surgery whereas 97 patients were not at all asked about their previous surgery if any.



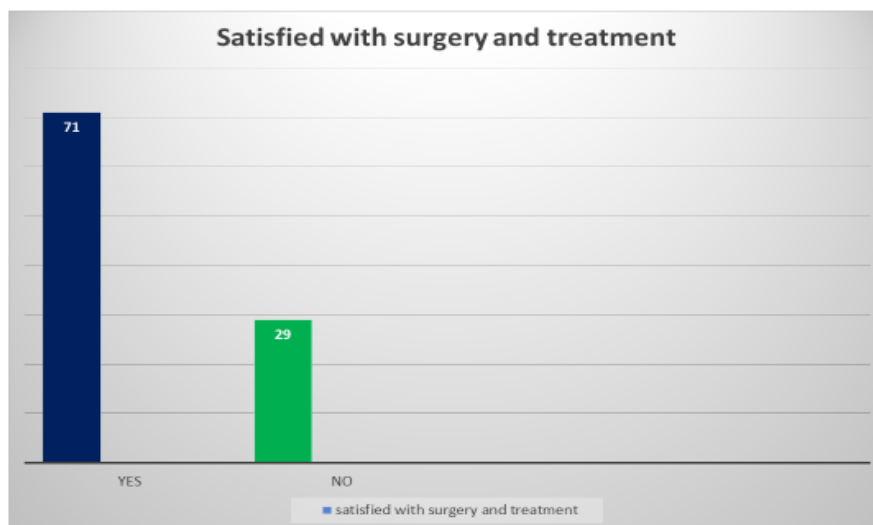
5.2 12)- 84 patients told that they were satisfied with the behavior of the doctor whereas 16 patients were not satisfied with the behavior of the doctor as according to them senior doctor didn't come for the rounds and junior doctors didn't listen to their problems.



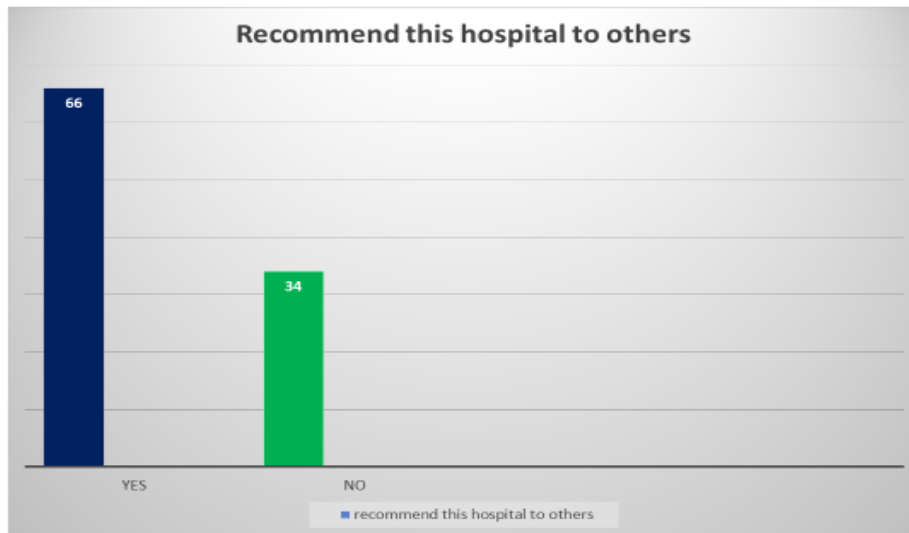
5.2 13)- 89 patients told that they were satisfied with the behavior of the nurse and 11 patients were not satisfied with the behavior of the nurse as some of the nurses were interns and they didn't used to listen them.



5.2 14)- 4 patients told that their health status at the time of discharge was not good, 84 said it was good whereas 12 patients said it was better



5.2 15)- Out of 100, 71 patients were satisfied with the surgery and treatment provided to them by the hospital whereas 29 patients were not satisfied with the treatment.

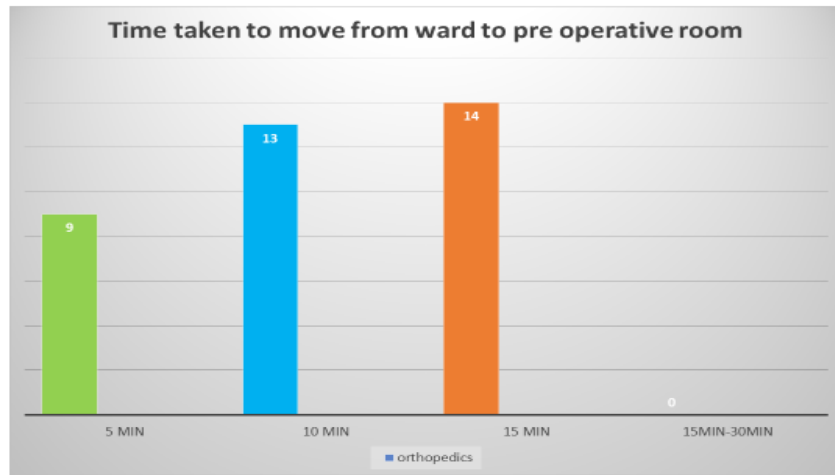


5.2 16)- The graph indicates that 66 patients will recommend this hospital to others whereas 34 patients will not recommend this hospital to others.

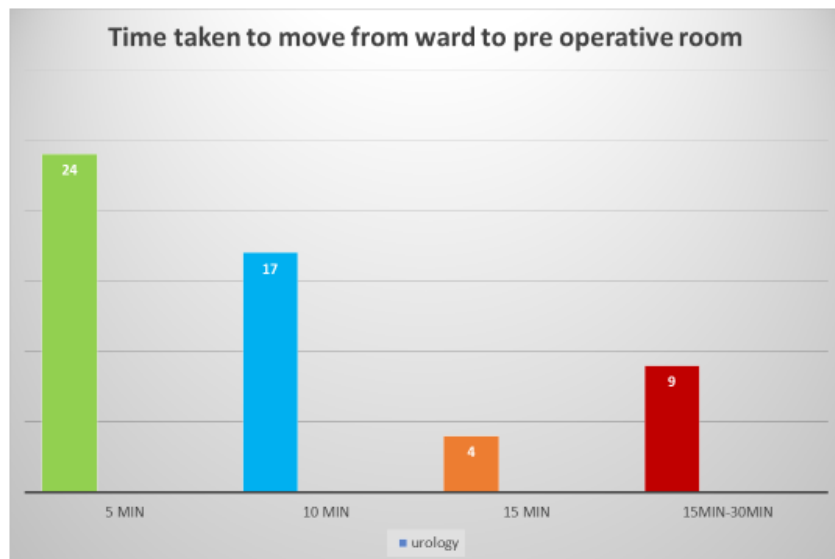


5.2 17)- Overall satisfaction feedback was graded as poor by 23 patients, good by 73 patients and very good by 4 patients.

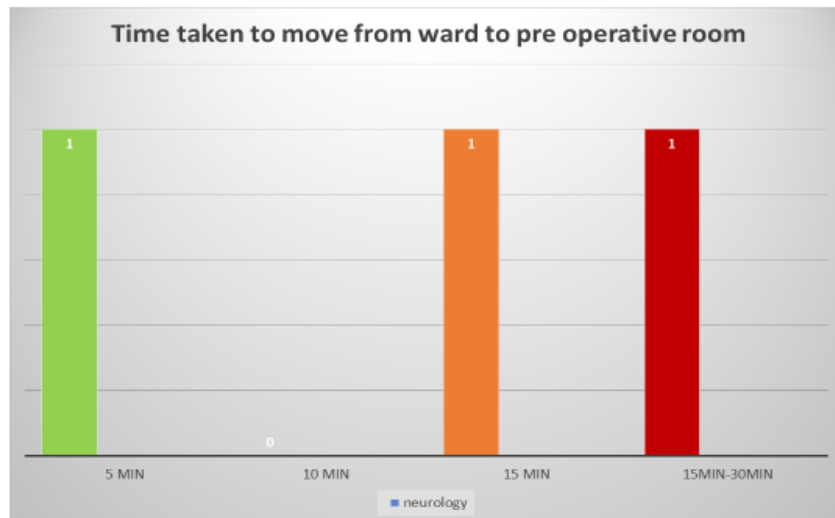
D. SCHEDULING:



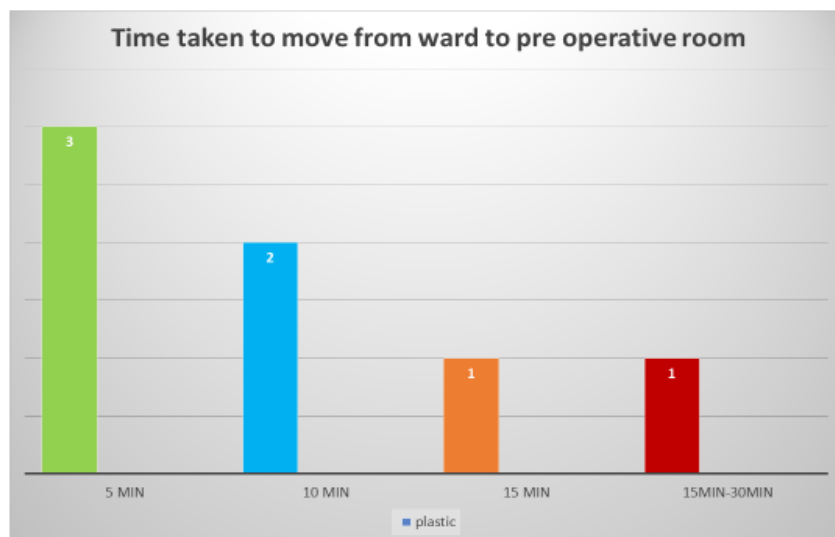
5.2 18)- Time taken to move from ward to pre-operative room for orthopedics ward was 5 minutes for 9 patients, 10 minutes for 13 patients and 15 minutes for 14 patients.



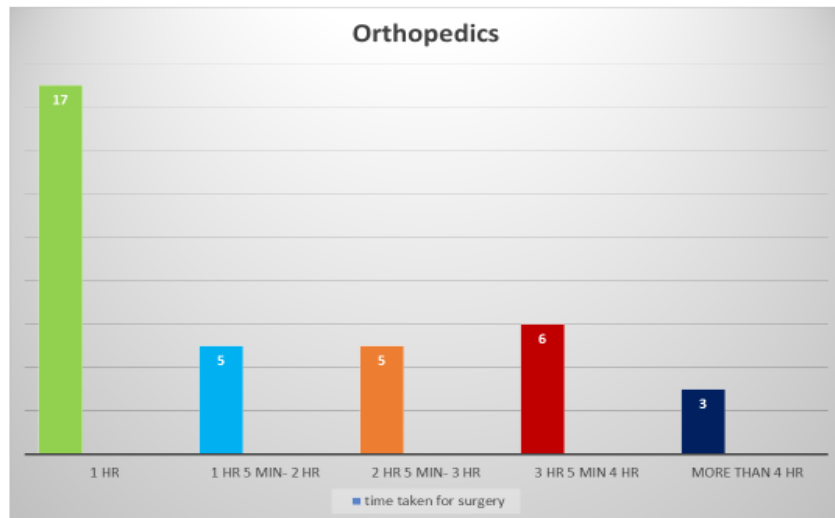
5.2 19)- Time taken to move from ward to pre-operative room for urology patients was 5 minutes for 24 patients, 10 minutes for 17 patients, 15 minutes for 4 patients and 15 minutes-30 minutes for 9 patients.



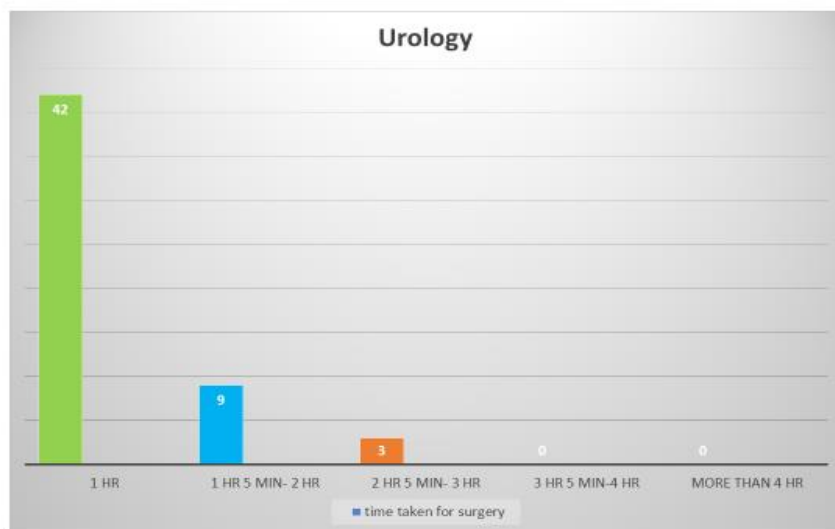
5.2 20)- Time taken to move from ward to pre-operative room for neurology patients was 5 minutes for 1 patient, 10 minutes for 0 patient, 15 minutes for 1 patient and 15 minutes-30 minutes for 1 patient.



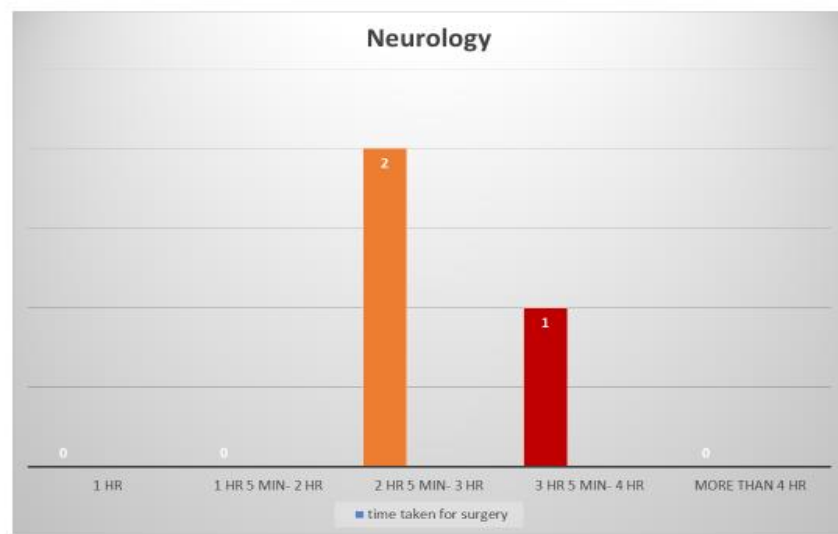
5.2 21)- Time taken to move from ward to pre-operative room for plastic surgery patients was 5 minutes for 3 patients, 10 minutes for 2 patients, 15 minutes for 1 patient and 15 minutes-30 minutes for 1 patient.



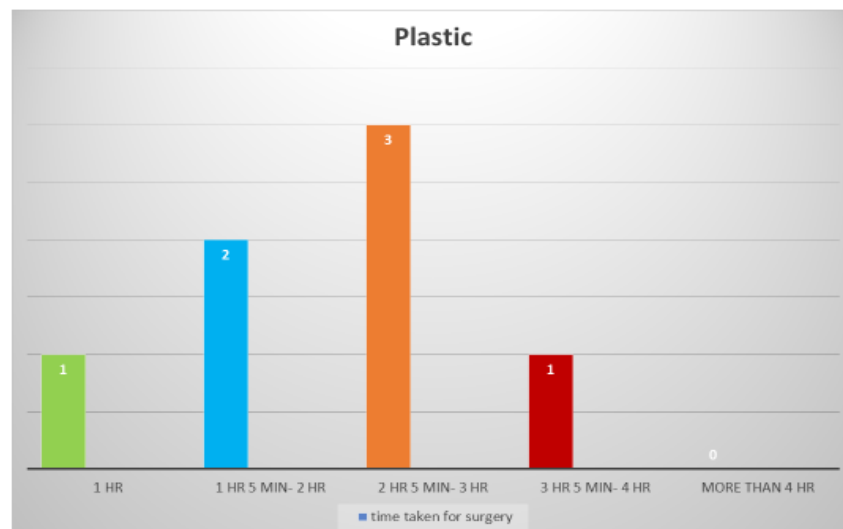
5.2 22)- Time taken for surgery for orthopedics patient was 1 hour for 17 patients, 1 hour 5 min. to 2 hours for 5 patients, 2 hour 5 minutes to 3 hours for 5 patients, 3 hours 5 minutes to 4 hours for 6 patients and more than 4 hour for 3 patients.



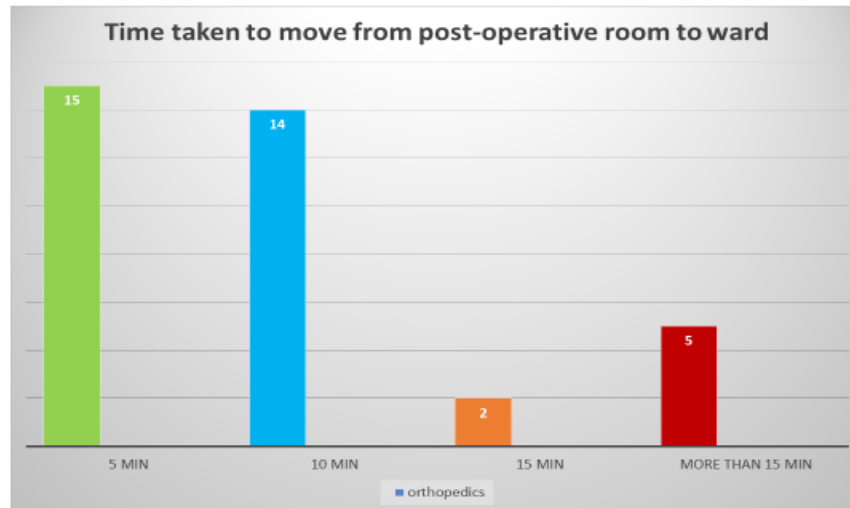
5.2 23)- Time taken for surgery for urology patient was 1 hour for 42 patients, 1 hour 5 min. to 2 hours for 9 patients and 2 hour 5 minutes to 3 hours for 3 patients.



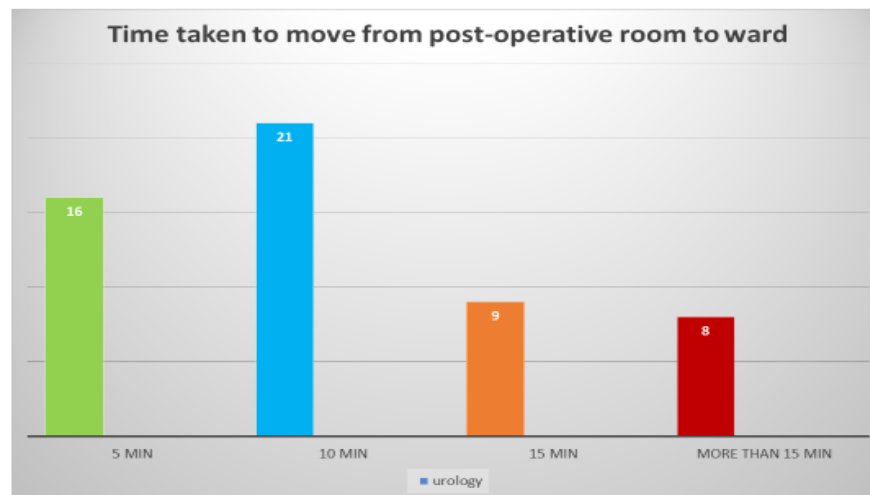
5.2 24)- Time taken for surgery for neurology patients was 2 hour 5 minutes to 3 hours for 2 patients and 3 hours 5 minutes to 4 hours for 1 patient



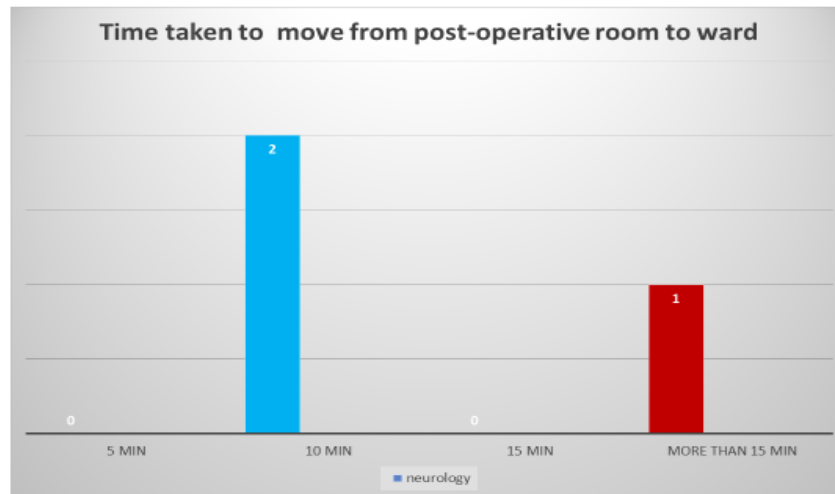
5.2 25)- Time taken for surgery for plastic patient was 1 hour for 1 patient, 1 hour 5 min. to 2 hours for 2 patients, 2 hour 5 minutes to 3 hours for 3 patients and 3 hours 5 minutes to 4 hours for 1 patient.



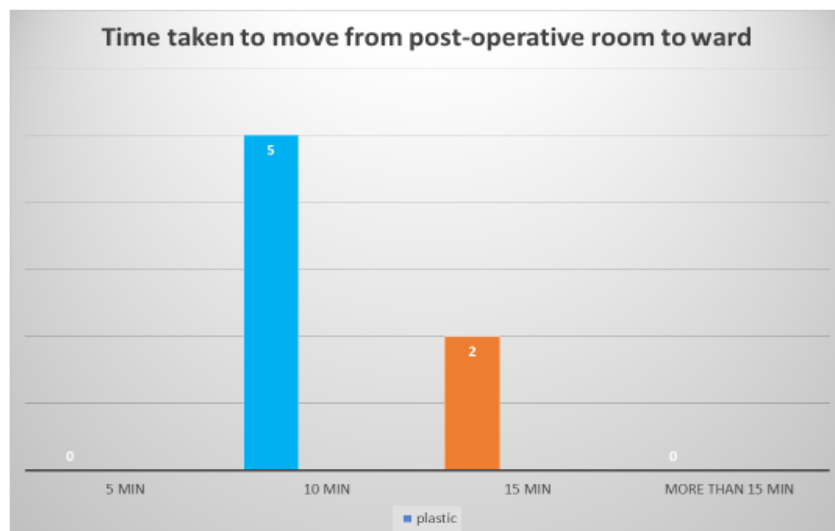
5.2 26)- The above graph indicates the total time taken to move from post-operative room to ward for orthopedics patient that is 5 min by 15 patients, 10 min by 14 patients, 15 min by 2 patients and more than 15 min by 5 patients.



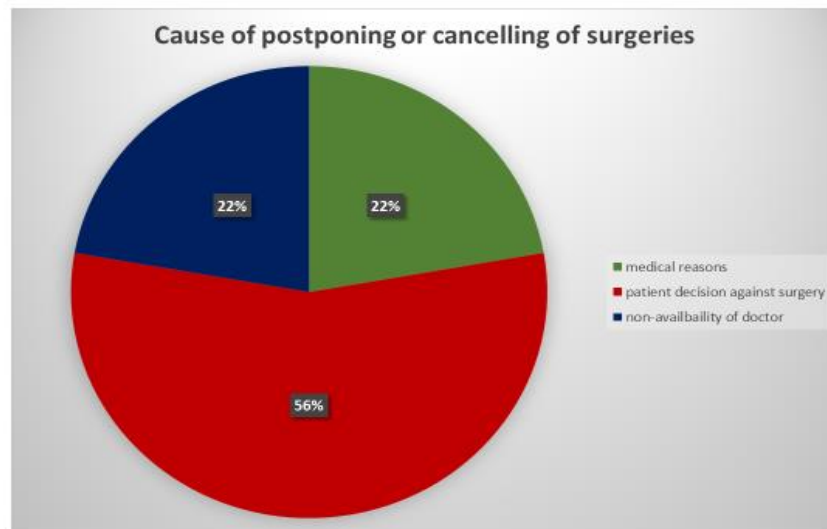
5.2 27)- The above graph indicates the total time taken to move from post-operative room to ward for urology patients that is 5 min by 16 patients, 10 min by 21 patients, 15 min by 9 patients and more than 15 min by 8 patients.



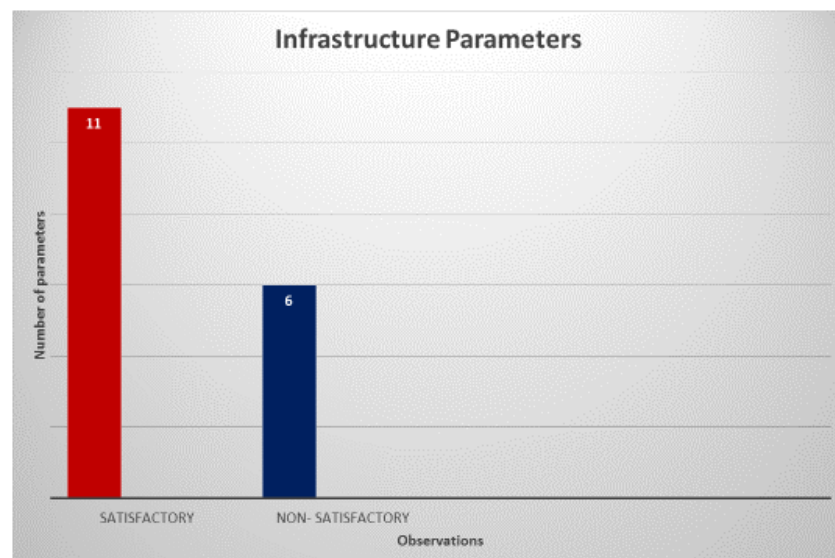
5.2 28)- The above graph indicates the total time taken to move from post-operative room to ward for neurology patients that is 10 min by 2 patients and more than 15 min by 1 patient.



5.2 29)- The above graph indicates the total time taken to move from post-operative room to ward for plastic surgery patients that is 10 min by 5 patients and 15 min by 2 patients.



5.2 30)- the figure indicates the causes of postponing or cancelling of surgeries. Total 9 cases were postponed out of which 2 were due to medical reasons, 2 due to non-availability of doctors and 5 due to patient's decision against surgery.



5.2 31)- the graph indicates the data for the infrastructure parameters, out of total 17 parameters 11 were satisfactory whereas 6 were non-satisfactory.

5.3 Data Interpretation:

After the detailed analysis of the parameters with descriptive analysis the following observations were made-

1. The study reveals that 69 patients were males and 31 patients were female. The study also reveals that 29 patients were single, 52 were married, 12 patients were widow/widower and 7 were divorced. Among them 26 patients were referred to the hospital by any other doctor and 20 patients were referred from another hospital. About 36 patients were admitted for orthopedics surgery, 54 for urology, 3 for neurology and 7 for plastic surgery. Out of total 100 patients, 84 patients have borne the expenses on their own.
2. 91 patients told that all the needed drugs were made available to them within the hospital.
3. 38 patients said that their monitoring was done by nurse before sending them to O.T. for surgery. Only 3 patients told that they were asked about their previous surgery by the nurse. About 84 patients were satisfied with the behaviour of the doctor whereas 89 patients told that they were also satisfied with the behaviour of the nurse.
4. 81 patients told that they did not suffer from any problem post-operatively and only 33 patients were instructed about the special instructions to be followed as advised by the doctor.
5. 84 patients told that their health status was good at the time of discharge and 71 patients were satisfied with their surgery and treatment.
6. Overall satisfaction feedback was graded good by 73 patients and 66 patients said that they will recommend this hospital to others.
7. In case orthopedics patient, time taken to move from ward to pre-operative room for 14 patients was 15 minutes, time taken for surgery was more than 4 hours for 3 patients whereas for 33 patients it was less than 4 hours, and it took more than 15 minutes for 5 to move patient from post-operative room to ward.
8. In case of urology patients, time taken to move from ward to pre-operative room for 9 patients was more than 15 minutes, time taken for surgery was 3 hours for 3 patients whereas for 51 patients it was less than 3 hours, and it took more than 15 minutes for 8 patients to move from post-operative room to ward.

9. In case of neurology patients, time taken to move from ward to pre-operative room for 1 patient was more than 15 minutes, time taken for surgery was 4 hours for 1 patient whereas for 2 patients it was less than 3 hours, and it took more than 15 minutes for 1 patient to move from post-operative room to ward.
10. In case of plastic surgery patients, time taken to move from ward to pre-operative room for 1 patient was more than 15 minutes, time taken for surgery was 4 hours for 1 patient whereas for 6 patients it was less than 3 hours, and it took 15 minutes for 2 patients to move from post-operative room to ward.

6. Results and Discussions

6.1- Results:

A. O.T. Infrastructure

NABH Guidelines	Hospital observations
Occupancy of 5-8 persons at any given point of time inside the O.T.	Not more than 6 persons
Temperature- 21+/- 3 degree Celsius	Yes
Humidity- between 40-60%	Yes
Minimum total 20 air changes per hour	Yes
Positive pressure between O.T. and adjoining areas to prevent outside air entry into O.T.	Yes
Laminar flow boxes installed	Yes
2.5 pascal positive pressure.	Yes
Outdoor air intakes- AHU not located near potential contaminated sources.	No
HEPA filters efficiency- 99.97% down to 0.3 microns or higher efficiency.	Yes

Air handling unit not linked to air conditioning of any other area.	No
No window and split AC.	No
Antibacterial, antifungal paint	No
OT door- automatic/hermitically sealed/touch free.	No
NABH Guidelines	Hospital Observations
Clean room lights.	Yes
Separate power circuit for equipment like laser.	Yes
Anti-static flooring.	Yes
Walls and ceilings- non-porous, smooth, seamless without corners.	No

Maintenance of the system:

Temperature check.	Daily
Humidity check.	Daily
Air change rate circulation.	Yes
Validation of HEPA filters.	After every 6 months
Cleaning of pre-filters	In every 15 days.
Maintenance of AHU	As per manufacturer recommendations.

B. **OT QUALITY INDICATORS:**

► Incidence of medication errors =

Total no. of medication errors / No. of surgeries $\times 100$

Total cases: $0/596 \times 100 = 0\%$

There are 0% cases of medication errors by the employees of O.T. to the patients.

► % of unplanned return to O.T =

No. of unplanned return to O.T / No. of patients operated $\times 100$

Total cases: $0/596 \times 100 = 0\%$

There are 0% cases of unplanned return to O.T.

► % of cases in which planned surgery is changed intra operatively =

No. of cases in which planned surgery is changed intra operatively / Total no. of surgeries performed $\times 100$

Total cases: $2/596 \times 100 = 0.33\%$

In 0.33% cases planned surgery is changed intra-operatively.

► Re- exploration rate =

No of re-explorations done during same admission / Total no. of surgeries $\times 100$

Total cases: $0/100 \times 100 = 0\%$

There are 0% cases for the re-exploration of surgeries.

► % of rescheduling of surgeries =

No. of cases rescheduled / No. of surgeries performed $\times 100$

Total cases: $27/596 \times 100 = 4.53\%$

Out of total, 4.53% cases of surgeries were rescheduled due to some reasons.

- % of cases where the organization procedure to prevent adverse events like wrong site, wrong patient and wrong surgery have been adhered to =

No. of cases where the procedure was followed / No. of surgeries performed $\times 100$

Total cases: $596/596 \times 100 = 100\%$

In 100% cases the organization performed the procedures to prevent adverse events like wrong site, wrong patient and wrong surgery.

- O.T Utilization rate=

O.T Utilization time in hours / Resource hours $\times 100$

Resource Hours	Total O.T. Hours
Day	$24 \times 8 = 192$
Emergency	$(25 \times 16) + (6 \times 24) = 258$

O.T. utilisation rate in case of day surgery was 191 and in case of emergency surgeries it was 258.

C. INFECTION CONTROL INDICATOR RECORD:

1. Incidence of needlestick injuries =

Total number of needlestick injuries / inpatient days in a month $\times 100$

Sr.no.	Name of the person	Age	Site of injury	Type of injury	Incidence	Care after injury
1	ABC	30	Middle finger	Deep cutaneous	Needle prick	Wash hand and rub by sterilizer

2. Incidence of blood and body fluid exposure =

Number of blood and body fluid exposure / number of inpatient days * 100

The record for incidence of body fluid exposure throughout the month was checked and it was found out that:

Sr.no.	Name of the person	Age	Site of exposure	Type of exposure	Incidence	Care after injury
1	XYZ	26	Palm and finger	Superficial	Exposure to body fluid	Hand washed with tap water and soap, pored with spirit

3. Compliance through hand hygiene practice=

Total no. of hand hygiene missed opportunities / total no. of hand hygiene opportunities * 100

= 2458 / 3010 * 100

= 81.6%

The data indicates that in 81.6% cases hand hygiene practice is taking place properly by the employees by following the correct procedure.

4. Fumigation record:

As observed and checked fumigation in O.T. is done once a week.

5. Percentage of adherence to safety precautions taken by OT employees:

Percentage of adherence to safety precautions by OT employees was checked by observing the PPE (Personal Protective Equipment) of the employees of the OT. The PPE includes- a) gloves b) mask c) gown d) cap d) gum boots

Adherence to safety precautions taken by O.T. employees was checked and it was found that % of the employees of O.T. used personal protective equipment such as- a) gloves b) mask c) gown d) cap e) gum boots

7. Conclusion and Observations:

7.1- Suggestions given by patients-

- Hot water facilities for drinking should be provided.
- Bed sheets were not clean.
- Wash rooms should be cleaned and maintained regularly.
- Night shift nurses should be cooperative.
- Noise pollution due to overcrowding of patient attendants should be avoided.

7.2 Recommendations:

1. Installation of the biometric device in the operation theatre to have surveillance over the punctuality of the staff.
2. Use of loading standards by the surgeons to prepare the OR List to minimize the unexpected delay for a particular case.
3. Counselling of the patient and his relatives to be done mandatory and documented:
 - On the previous day before surgery by the consultant along with anesthetist.
 - Immediate post operation by the surgeon in the OR
 - At the time of discharge by the surgeon.
4. Number of working staff should be increased so that the time taken to move the patient to the O.T. and to the ward reduces.
5. The use of appropriate measures need to be taken by the employees to avoid the infections.
6. Regular fumigation inside the O.T. should take place.
7. Employees should be made aware about the infections which can occur due to negligence and avoidance.
8. The hospital can take steps to inform the patients and their attendants about the services during the time of admission process by appointing coordinators.
9. The hospital can plan for counseling department to make aware of diagnosis, mode of treatment, number of days of stay in the hospital, cost of treatment, health insurance, availability of rooms and their charges, payment modes etc. during the process of admission and may be followed up until discharge of patients from hospital for the proper education of patients and their attendants.

10. The amenities provided by the hospital are not up to the patient expectations. This can be improved by providing better courtesy of medical staff, attending queries etc. Training programmes may be conducted to the nurses and support-staff separately, to inculcate the importance of hospital administration, customer service, communication skills etc. The hospital should not forget the basic needs, this can be enhanced by providing drinking water facilities on all the floors of the hospitals, modern seating arrangements and parking facilities with hygienic quality care.
11. The noise controlling is very important aspect at OPD, Operation theatres and ICU departments. The proper instructions about silent zones and display board for cell phone users should be put in all the mentioned areas.
12. As the hospital services required to have 100% quality services, there is a scope to improve overall post-operative recovery and treatment procedures, about the medication and follow-up. The hospital can plan for SMS services for the appointment and follow-up reminders.
13. Hospital administrator can guide and motivate the night shift staff nurses to serve with care and courtesy at night time. The support staff and nursing staff pay should be reconsidered so that they will be motivated to work without expectation of tips from patient's attendants.

7.3- Conclusion and future scope of work-

To achieve overall quality in the services, the hospital sectors can implement quality management system such as total quality management. The anxiety of emergency patients and attendant should carefully be ensured during pre-operative and post-operative period with quality care, reassurance and with humanity. Patient safety and infection control parameters should always be kept in mind. Separate committee for O.T. should be formed. Continuous analysis of O.T. should be done and necessary action should be taken for better working and outcome.

ANNEXURE 1:

DAILY CHECKLIST PER CASE

Time scheduling planned v/s actual:

Shift from wards to pre-operative room:

Time at which patient is received in Operation Theatre (OT):

Surgery start time:

Surgery end time:

Patient reversal time (exceptional case):

Time at which patient leaves post-operating room:

Time of receiving of patient in ward:

Delay for surgery more than 4 hours: a) Yes b) No

If yes, reason?

Incidence of medication errors: a) Yes b) No

Unplanned return to OT: a) Yes b) No

Planned surgery is changed intra operatively: a) Yes b) No

Re-exploration: a) Yes b) No

Anesthesia score card followed? a) Yes b) No

WHO safety checklist followed? a) Yes b) No

Pre-operative check list followed? a) Yes b) No

Vital monitoring done by nurse in post-operative room before transfer to ward?

a) Yes b) No

ANNEXURE 2

CHECKLIST AT THE END OF THE MONTH:

OT utilization rate:

OT fumigation status

% of rescheduling of surgeries:

Cancellation/ postponement from list: (reason)

Annexure 3:**O.T. Infrastructure checklist**

NABH Guidelines	Hospital observations
Occupancy of 5-8 persons at any given point of time inside the O.T.	
Temperature- 21+/- 3 degree Celsius	
Humidity- between 40-60%	
Minimum total 20 air changes per hour	
The fresh air component of the air changes- minimum 4 air changes out of total minimum 20 air changes.	
Air velocity- 25-35 feet per minute (FPM) from on-aspirating unidirectional laminar flow diffuser.	
Positive pressure between O.T. and adjoining areas to prevent outside air entry into O.T.	
Laminar flow boxes installed	
Majority return air should be picked up 75-150 mm above floor level.	
2.5 pascal positive pressure.	
Outdoor air intakes- AHU not located near potential contaminated sources.	
HEPA filters efficiency- 99.97% down to 0.3 microns or higher efficiency.	

Air handling unit not linked to air conditioning of any other area.	
No window and split AC.	
Antibacterial, antifungal paint	
OT door- automatic/hermitically sealed/touch free.	
Clean room lights.	
Separate power circuit for equipment like laser.	
Anti-static flooring.	
Walls and ceilings- non-porous, smooth, seamless without corners.	

Maintenance of the system:

Temperature check.	
Humidity check.	
Air change rate circulation.	
Validation of HEPA filters.	
Cleaning of pre-filters	
Maintenance of AHU	

QUESTIONNAIRE

Patient satisfaction on the services provided at the hospital

This questionnaire is for assessing patient satisfaction towards services provided by Hospital in respect to surgery ward. I request you to kindly spare your valuable time to fill-up the given questionnaire. Your name and information provided as a part of the questionnaire will be kept confidential. The information will help to improve and upgrade the services of the hospital. Your cooperation is solicited.

Name: _____ Room No. / Bed No.: _____

DOA: _____ DOD: _____ Admission type: Emergency / OPD

Department: a) Urology b) Orthopedics c) Neurosurgery d) Plastic surgery

A. Background Information:

1. Length of stay in the hospital: _____ days
2. Age: _____ years
3. Gender: a) Male b) Female
4. Marital status:
a) Single b) Married c) Widow/Widower d) Divorced
5. Mode of payment of bills:
a) Self b) Government scheme
c) Insurance scheme d) Others please specify

B. Admission Information:

6. Did any doctor refer you to this hospital?
a) Yes b) No
7. Were you transferred from any other hospital?
a) Yes b) No

C. Patient safety aspect information:

8. Availability and use of safety devices such as:
 - i) Safety belt a) Yes b) No
 - ii) Hand rails / Bed rails a) Yes b) No
 - iii) Grab bar a) Yes b) No
9. Did you suffer from any problem post operatively?

a) Yes b) No

10. Were all the needed drugs available to you in the hospital during your complete stay?

a) Yes b) No

11. Was monitoring done by nurse before sending to OT from ward?

a) Yes b) No

12. Were you instructed by nurse about the special instructions to be followed as advised by the doctor?

a) Yes b) No

13. Did the nurse ask you about your previous surgery?

a) Yes b) No

14. Are you satisfied with the behavior of the doctor?

a) Yes b) No

15. Are you satisfied with the behavior of the nurse?

a) Yes b) No

16. Are you satisfied with your surgery and treatment?

a) Yes b) No

17. Health status at the time of discharge?

a) Not good b) Good c) Better

18. Will you recommend this hospital to your friends?

a) Yes b) No

19. Overall satisfaction feedback graded:

a) Poor b) Good c) Very good

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