Study on Quality Indicator for OT Related to Surgeries in a Tertiary Care Hospital

By

Monika Bazaz

Dissertation submitted in partial fulfillment of the requirements of the degree

MBA Hospital and Health Management

Academic year, 2018-2020

The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: **www.iihmr.edu.in**

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HCG Hospitals
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TO WHOMSOEVER CONCERN

The certificate is awarded to Dr. **MONIKA BAZAZ.**

In recognition of having successfully completed her Internship in department of **Medical administration (clinical administration)**

From 2nd FEB.2020 till 1st MAY 2020 And has successfully completed her project on Study on quality indicators for OT related to surgeries in a tertiary care hospital in HCG Hospital, Bhavnagar.

She comes across as a committed, sincere & diligent person.

We wish her all the best for future endeavors.

Mentor

Center head

Head HR

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled Study on Quality indicator for OT related to Surgeries in a tertiary care hospital and submitted by Dr. Monika Bazaz Enrollment No.0776 under the supervision of ……SUJATA VERMA ……. for award of MBA in Hospital and Health/ Pharmaceutical / Rural Management in Health and Hospitals of the University carried out during the period from 2st FEB 2020 TO 1ST MAY 2020 to embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.

Signature

ABSTRACT

OT or operation theatre a palace in a hospital where there is joy or sorrow at same place. Therefore, the quality of this place is very important and a concern also. Therefore, a study which was planned in the given timeframe which was study on Quality indicator for OT related to surgeries in a tertiary care hospital. As quality indicators are many in OT that are related to nurses/ surgeries /environment etc., so planned to only emphasize on the quality indicators of surgeries. The study was conducted for a period of 3 months with the guidance of Mr. Abhijeet. P. Singh (mentor) and Mr. Rahul Karmaker (Quality) in hospital and Sujata Verma in university. The study was a prospective descriptive study with collection of data by regular updates of data through OT and Quality. During the time frame all the data was composed, and analysis was done on that bases.

OT initially was a non-sterile open place where the surgical procedure where done even without the anesthesia but nowadays converted in sterile closed and with anesthesia. As we can see the development of the OT so the quality should also be maintained as an important part of the hospital. Now even the instruments have been more developed for normal OT to Hybrid OT.

So, the study was conducted with the objective's theses objective:

• To find the quality indicators of OT related to surgeries.

• To find the indicators achieving benchmarks.

• To do the RCA and CAPA of indicators that are not achieving the benchmark.

Total 203 surgeries where done over the time period of 3 months and analysis was done as on bases of Feb. and march data which was 182 in total and April 21 surgeries. During the analysis major changes where in the re-scheduling and re-exploration data which with the time period was reduced as there was wrong mapping and PAC was also improved with the time period. The key results were in initial phase (for the month of February and march) of study the data was collected to find the noncompliance of the indicators. Out of 11 indicators there were on 3 indicators which were noncompiled and rest 8 were complained to the benchmark and NABH the indicators which were not following the compliance were:

•Percentage of re scheduling surgeries in February was 14%, march was 8.1% which reduced to 0% in April.

•Percentage of re- exploration February was 3.1%, march was 2.3% which reduced to 0%

•Percentage of unplanned OT February was 0 %, march was 2.3% which reduced to 0%

These reduction in data was due to the RCA and CAPA done during the period of study. During the study got to learn about different kind of Quality indicators in OT and their compliance. To conclude the study would complete the study in the way that OT indicators should be done in that way which leads to minimum error or gaps, because this is a place where life changing thing happens.

ABSTRACT

OT or operation theatre a palace in a hospital where there is joy or sorrow at same place. Therefore, the quality of this place is very important and a concern also. Therefor a study which was planned in the given timeframe was study *on Quality indicator for OT related to surgeries in a tertiary care* hospital, as quality indicators are many in OT that are related to nurses/ surgeries /environment etc., so planned to only emphasize on the quality indicators of surgeries. So, the study was conducted for a period of 3 months with the guidance of Mr. Abhijeet. P. Singh (mentor) and Mr. Rahul Karmaker (Quality) in hospital and Sujata Verma in university. The study was a descriptive study with collection of data by regular update of data through OT and Quality. During the time frame all the data was composed, and analysis on based of that was done.

During the analysis major changes where in the re-scheduling and re-exploration data which with the time period was reduced as there was wrong mapping and PAC was also improved with the time period.

The key results were in initial phase (for the month of February and march) of study the data was collected to find the noncompliance of the indicators. Out of 11 indicators there were on 3 indicators which were noncompiled and rest 8 were complained to the benchmark and NABH

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During the study got to learn about different kind of Quality indicators in OT and their compliance.

ACKNOWLEDGEMENT

It is a great privilege that as a part of a summer training each student was supposed to make a report on a specific topic. I choose the topic "*Study on Quality indicator for OT related to surgeries in a tertiary care hospital"*

I take this opportunity with pride and enormous gratitude to thank those who have helped as to fruitful accomplishment my internship project.

Initially, I thank the LORD, whose grace has been with as at each step of this project work.

I express my sincere gratitude to our institute which provided us the opportunity for dissertation and to learn how organization works. Also thank my mentor Sujata Verma, Faculty at IIHMR UNIVERSITY for providing guidelines, initiation and encouragement throughout for the successful completion of this work. Also, my mentor in HCG hospital Bhavnagar Mr. Abhijeet P Singh Center Head. Also, would thanks Mr. Rahul Karmaker Quality head for providing constant support.

I also thank the entire faculty and non-teaching staff for their generous help here in hospital as well as in our university. Finally, my personal and networks for their constant sustenance and love for successful completion of my dissertation project work.

DR. MONIKA BAZAZ

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FIGURE 1 Modern OT

List of Symbols and Abbreviations

1. OT - Operation Theatre
2. RCA – Root Cause Analysis
3. CAPA -Corrective and preventive action
4. % - percentage
5. ALOS – Average length of stay
6. NABH – National Accreditation board for hospital.
7. COP – Care of patient

Introduction

Operating theater known by many names some of them are as an “operating room, operating suite, or and many more is a room within a hospital where surgical procedures are carried out in an aseptic and proper environment”. Factually, the term "operating theatre" was to a non-sterile, theater in which students and other viewers could watch surgeons performing surgery. Modern operating theater are devoid of a theatre setting, making the term "operating theater" an incongruity. There are only two old-style operating theaters left, both of which are preserved as part of museums.

By the time the OT has been changed a lot from nonsterile to sterile, from many audiences to only some trained staff. As the time has changed from theater to a hybrid operating room which is a “surgical theatre that is equipped with progressive medical imaging devices for example fixed C-Arms, CT scanners or many other things.” These imaging devices enable minimally invasive surgery. Minimally invasive surgery is “envisioned to be less trauma for the patient and diminish incisions on the patient and perform surgery procedure through one or several small cuts may or may use the laparoscopic equipment”. Initially in OT there was only team of surgeon and some nurses but with the advancement of medical flied there was involvement to anesthetic team in OT as to give painless or less pain during surgery.

Although imaging has long been a standard part of the OR in the form of mobile C-arms, ultrasound and endoscopy, these new minimally invasive procedures require imaging techniques that can visualize smaller body parts of the heart muscle, such as thin vessels, and can be facilitated by intraoperative 3D imaging

OT a place where joy or sorrow is there, a place where life or death occurs. Therefor the quality of this place should be maintained and should be persistent. OT is a place where all the major and minor procedure happen that are life changing and also can lead to the disability or death, if infection occur due to lack of quality can lead to increase ALOS of the patient. According to NABH guideline all the indicators should be followed in OT to have an infection free or best quality of care. It’s a multifaceted section where numerous perilous functions happen, also may groups of staff be tangled. Beside that substructure of OT is also very important.

- Some important points that covers under NABH are:
- OT Facility and equipment
- Pre- operative and post- operative ward/area.
- Intra OT area
- Related to medicine / consumables /supplies

- Process of patient safety.
- Environmental process.

- Quality indicator which would be included in study would be according to NABH:
  - Percentage compliance to WHO surgical safety checklist
  - Percentage of cases where the organization's procedure to prevent adverse events like wrong site, wrong patient and wrong surgery have been adhered to
  - Percentage of cases who received appropriate prophylactic antibiotics within the specified time frame
  - Percentage of cases in which the planned surgery is changed intra-operatively
  - Percentage of unplanned return to OT
  - Percentage of rescheduling of surgeries
  - Percentage of re-exploration of surgical sites
  - Percentage of modification of anaesthesia plan
  - Percentage of unplanned ventilation following anaesthesia
  - Percentage of adverse anaesthesia event
  - Anaesthesia related mortality rate

OT in this hospital are two in number one dedicated to CVTS or cardiac patients and one is general OT, but they are interchangeable if required. All the emergency OTs are taken within no time and all minor OT are in the procedure room in emergency department. The OT is on the 3 floors of the hospital had have separate lift for patient taking to OT. Same floor has Cath lab, CSSD and an ICU dedicated to the CVTS and cardiac patient on same floor. During the observation that thru emergency all the coordination is done within no time and patient care with quality is prime care of hospital. ICN here take swab every month and teaches every important protocol of NABH and hospital policy. Also, every record is minted in the proper manner both manually and in system also. In this hospital they made an OT booklet which all the important document required by the surgeon and anesthetic in one place, so there is no problem of misplace of OT documents.

According to NABH 5th edition the quality indicators are present in Chapter of Care of patient part 12, 13 and 14 having these objective

- COP.12. "Procedural sedation is provided in a consistent and safe manner."

- COP.13. “Anaesthesia services are provided in a consistent and safe manner”

- COP.14. “Surgical services are provided in a consistent and safe manner”

Operational definitions

1. OT is defined as “is a facility within a hospital where surgical operations are carried out in an aseptic environment”.
2. Quality is defined as “Quality of Care is the degree to which health services for individuals and populations in case the likelihood of desired outcomes and are consistent with current professional knowledge”.
3. NABH is an acronym for “National Accreditation Board for Hospitals & Healthcare Providers which is a constituent board of Quality Council of India, set up to establish and operate accreditation programmed for healthcare organizations”.
4. ALOS It’s the average length of stay in a hospital. which is important to monitor in hospital as to maintain the quality and the revenue of hospital. Also, as ALOS increase the risk of infection and other issues in patient who are post op,

Indicators according to NABH

1. Percentage compliance to WHO surgical safety checklist
2. Percentage of cases where the organization's procedure to prevent adverse events like wrong site, wrong patient and wrong surgery have been adhered to
3. Percentage of cases who received appropriate prophylactic antibiotics within the specified time frame
4. Percentage of cases in which the planned surgery is changed intra-operatively
5. Percentage of unplanned return to OT
6. Percentage of rescheduling of surgeries: Within the time frame more than 4 hours.
7. Percentage of re-exploration of surgical sites: within the time frame more than 72 hours after discharge
8. Percentage of modification of anaesthesia plan
9. Percentage of unplanned ventilation following anaesthesia
10. Percentage of adverse anaesthesia event
11. Anaesthesia related mortality rate

Literature Review

1.Operating Theatre quality and prevention of surgical site infections

A.M. SPAGNOLO, G. OTTRIA, D. AMICIZIA, F. PERDELLI, and M.L. CRISTINA:

14%-17% of all medical institution-related infections and 38% of hospital-related infections are caused by surgical site infections (SSI). Owing to the large number of aged surgical patients or those with a ramification of long-lasting and immunocompromised condition and the emergence of antibiotic-resistant microorganisms, SSI remains extensive aim of morbidity and loss of life. Reasons causing surgical site infection are diverse. Numerous researches have diagnosed the principle affected person-related (endogenous danger factors) and process-associated (outside chance elements) factors that have an impact on the danger of SSI. The charge of surgical wound infections is strongly encouraged through running theatre great too. A safe and salubrious operating theatre is an environment in which all resources of pollution and any micro-environmental changes are saved strictly below manage. This could be performed only via cautious planning, renovation and periodic checks, as well as right ongoing training for personnel. Many worldwide scientific societies have produced hints regarding the environmental capabilities of working theatres (high-quality stress, exchanges of filtered air per hour, air-conditioning structures with HEPA filters, and so on.) and issued guidelines on healthcare-associated contamination, which include SSI, concerning surveillance techniques, intervention to actively save you SSI and methods to tracking the implementation of such techniques . Consequently, the prevention of SSI requires a multidisciplinary technique and the obligation of all concerned, inclusive of that of individuals who are accountable for the design, format and functioning of working theatres.

2. Is unplanned return to the operating room a useful quality indicator in general surgery?

J D Birkmyre, L S Hamby, Christian M Birkmyre, M V Decker, N M Karon, R W Dow

The researcher had a hypothesis of unplanned return to the operating room (OR) is a beneficial quality indicator, they inspected in what way repeatedly plus for what caused the patients to return to the OR in an extensive-based general surgery practice. A study was conducted in a rural tertiary care hospital. Successive series of 3044 patient undertaking general surgery in the OR between 1/9 /1998 and 31,/03/2000. Data about all postop adverse events happening before discharge or within 30 days (whichever was longer) was collected prospectively. Unplanned return to the OR “was defined as any

secondary procedure required for a complication resulting directly or indirectly from the index operation". Unplanned return to the OR, deaths, and hospital charges. Results were "general, 107 (3.5%) had an unplanned return to the OR. A relatively small number of inpatient procedures accounted for an inconsistent share of unplanned reoperations, including colon resection (18% of total reoperations), renal transplant (9%), gastric bypass (6%), and pancreatic resection (6%). As predictable, hospital charges were evidently higher for patients with unplanned returns to the OR. Reoperation was also allied with higher mortality rates; statistically significant increases were noted in pancreatic resection (33% vs 3.7%; P =.04), esophagogastrostomy (100% vs 4.2%; P =.002), and laparoscopic Nissen fundoplication (50% vs 0%; P =.01). Overall, 91 reoperations (85%) were for complications occurring at the original surgical site, including those related to an anastomosis (n = 16), surgical wound (n = 21), infection (n = 16), bleeding (n = 12), and other (n = 26)". Unplanned returns to the OR occur across a broad spectrum of general surgical procedures and carry significant implications. Since they regularly reflect issues identified with the technique itself, reoperation rates might be valuable for checking quality across emergency clinics and for recognizing open doors for quality improvement locally.

3. Compliance and Effectiveness of WHO Surgical Safety Check list: A JPMC Audit

Mariyah Anwer, Shahneela Manzoor, Nadeem Muneer, Shamim Qureshi

Study on World Health Organization (WHO) Surgical Safety Checklist (SSC), consistence and the feasibility in decreasing intricacies and ultimate result of patients.

Records generally was an "upcoming report completed in Department of General Surgery (Ward 02), Jinnah Postgraduate Medical Center (JPMC), Karachi. Investigation comprised total 3638 patients underwent experienced planned surgery in performance center in time frame of 4 yrs from November 2011 to October 2015 since the SSC was incorporated by way of component of patient history taking in ward. Records were checked to affirm the consistence with respect to filling the three-phase agenda appropriately and entanglements were noted".

In first year, results were as follows "out of 840 surgeries, SSC was appropriately set apart in 172 (20.4%) cases. In second year, out of 857 surgeries 303 (35.3%) cases were stamped which expanded in third year out of 935 surgeries 757 (80.9%) cases and in fourth year out of 932 surgeries 838 (89.9%) cases were checked. No critical change in site and side (left or right) intricacies were noted in each of the four

years. Careful Site Infection (SSI) was noted in 59 (7.50%), 52 (6.47%), 44 (4.70%) and 20 (2.12%) cases in first, second, third and fourth year individually. SSI in laparoscopic cholecystectomies was 41 (20.8 %), 45 (13%), 20 (5.68%) and 4 (1.12%) in first, second, third and fourth year separately". No noteworthy change in chest complexities were noted in each of the four years. Death rate likewise stayed same in every one of the four years. At the end or to conclude this study WHO SSC is a successful apparatus in this way delivering a good result in decreasing in-medical clinic entanglements. Acknowledgement of its appropriateness would improve consistency.

4.Surgical safety checklists: a review

Reuben Tang, * Geetha Ranmuthugala and Frances Cunningham

Surgical checklists are well-thought-out to improve patient consequences after surgery. While such checklists have been extensively executed in whole world, small number of studies observed that surgical checklists within an Australian setting. For this purpose, had been performed a literature review using data from OECD member nations to see the effectiveness of surgical checklists in betterment of the patient's outcome and factors that helps to usefulness to their successful execution.

The databases, PubMed, Medline, EMBASE, Cochrane and CINAHL were searched using the keywords ('surgical' AND 'checklist') and ((surgical) AND checklist) AND ((implementation) OR (utilization) OR (usage)). Studies were limited to those written in the English language, peer-reviewed, published between January 2000 and December 2012, and including an abstract. The search generated 2242 papers, of which 72 papers were recognized as being of particular significance and selected for full text review. Of these, nine papers met the criteria for inclusion, and were examined in detail. There is limited evidence supporting the use of surgical checklists in countries which already have a large number of protocols in place. Adequate checklist implementation plays a central role in checklist effectiveness, which in turn is dependent on multiple factors.

In spite of the fact that proof from OECD part nations is non-indisputable, it proposes that careful agendas, when successfully actualized, can possibly be viable at lessening complexity and death rates following medical procedure. Inside an Australian setting, more examinations are expected to completely build up the likely viability of careful agendas and to screen agenda use consistence so as to guarantee more prominent patient security

5.Surgical checklists: a systematic review of impacts and implementation

Surgical complications signify cause of morbidity and mortality with the rate of major complications after inpatient surgery estimated at 3–17% in developed countries. The reason of the review was to have a concrete experience with the surgical checklist used with the effects of improving patient's safety.

The search was from four databases (MEDLINE, CINAHL, EMBASE and the Cochrane Database of Controlled Trials) which was done from 1 /01/2000 to 26 /10/2012 nearly one year and 11 months. Articles showed actual usage of the WHO surgical checklist, the Surgical Patient Safety System (SURPASS) checklist, a wrong-site surgery checklist or an anaesthesia equipment checklist were in inclusion (this manuscript summarizes all but the anaesthesia equipment checklists, which are described in the Agency for Healthcare Research and Quality publication).

The researcher included total of 33 studies which were conducted. Then a report of different outcomes together with avoidance of adversative events, enablers and barricades to application. Checklists were accepted at a wide range in different settings and gave a promising strategy to improve the patient safety and all the Pre -Operative care in all different settings. Surgical checklists were linked with increased detection of potential safety hazards, decreased surgical complications and improved communication among operating staff. Strategies for successful checklist implementation included enlisting institutional leaders as local champions, incorporating staff feedback for checklist adaptation and avoiding redundancies with existing systems for collecting information.

Surgical checklists represent a relatively simple and promising strategy for addressing surgical patient safety worldwide. Further studies are needed to evaluate to what degree checklists improve clinical outcomes and whether improvements may be more pronounced in particular settings.

Aim To sensitize quality indicators of OT related to surgeries as per the benchmark.

Objective

To find the quality indicators of OT related to surgeries.

To find the indicators achieving benchmarks.

To do the RCA and CAPA of indicators that are not achieving the benchmark.

Problem statement

To find the quality indicator followed in OT regarding the surgeries and if any gaps.

Research question

- Is quality indicator in OT related to surgeries achieving benchmark?

Methodology

Study setting: The study would be conducted in HCG Hospital Bhavnagar unit. This unit is the part of HCG hospital which has its head office in Bangalore and AO office in Ahmedabad. This hospital was started as a cancer specialty but now expanding to the multispecialty plus the infertility clinic also. Bhavnagar unit is the 70 bedded multispecialty hospital.

Study duration: The duration of study would be 3 months from 2ND Feb 2020 to 1ST MAY 2020.

Study design: Prospective observational study was done for three months to time duration which done on bases of observation.

Study methodology: Convenient sampling selection of the sample was done from the population. Here population is the patient had undergone surgeries in hospital for the given time frame.

Study population: Patient who had surgeries in hospital in given period of time of the study.

Sample size: Total sample size was taken 203 as a whole for 3 months. The data was divided into 96 cases in February, 86 cases in March and 21 cases in April month. Theses were all OT cases in done in tertiary care hospital in given time period.

The February and March cases were analyzed, and RCA was done on these cases and in April 21 cases all the CAPA was done.

Data collection:

Two ways data was collected

- OT master register which was placed in OT and the whole data was collected in that month wise then it was placed in MS Excel. Then for sheet was send to the quality.
- Quality department would match the data regarding the benchmark plus the RCA and CAPA details were done.

According to both OT and Quality the data was merged then analyzed with the help of MS excel.

Data analysis

The data analysis technique was using MS excel. All the graphs and tables were made in excel sheet. With the help of these graphs the interpretation was done which helped me to do the RCA and CAPA.

Interpretation:

- According to study the gaps were found only three data where below or above benchmark which was not acceptable according to NABH.

•Percentage of re scheduling surgeries in February was 14%, march was 8.1%

•Percentage of re- exploration February was 3.1%, march was 2.3%

•Percentage of unplanned OT February was 0 %, march was 2.3%

- RCA and CAPA
    - RCA was that data was not mapped properly, change in policy and quality indicators due to newly NABH accreditation.
    - CAPA was to have training of staff, making reduction in time frame of rescheduling from nearly 8 to 10 hours to less than for 4 hours. Rescheduling was mainly due to not avail of financial issues and approval not present. So, on admission it was done that the expenses were explained. All the counselling was done before and during the admission all the updating was given daily. The policy was explained during on job given. NABH updating was done and implement as soon as the new policy came.

Inclusive cases: All cases of OT done in the given frame of time period.

Exclusive cases: ICU, ward & ER patients admitted in the given time period

Nature of data: Quantitative data collection through monthly data prepared by OT staff and verified by quality department plus the head clinical services.

Type of Data:

1.Collection through files of patients those who had surgeries (as and when required).

2.Interacting with doctors, nurses and surgeons.

3.Collection through direct observation.

4.Information through other sources for the topic related things.

5. Going to OT for seeing the data whether correctly mapped or not

6. Discussion and collection of the data and RCA, CAPA with quality person.

Study Technique and tools: According to NABH guideline the master sheet was prepared by OT team verified by nursing head and head clinical services at last the Quality head put all the data together and see the deviation in the benchmark.

Data collection: According to NABH guideline the master sheet which was prepared by OT team collected with the help of Nursing head plus the quality and the head clinical service. All this was done in MS EXCEL.

Ethical considerations: None were found.

Results:

When the study was conducted for three months many quality indicators were followed according to NABH guideline and the hospital benchmark both, but few were slightly deviating through the benchmark.

Total sample size was taken 203 as a whole for 3 months data, 96 cases in February, 86 cases in March and 21 cases in April month.

The February and March cases were taken together and then the RCA and CAPA was done on these cases and in April 21 cases all the corrective actions were taken thus reduction on non-compliant data was seen

In initial phase (for the month of February and march) of study the data was collected to find the noncompliance of the indicators. Out of 11 indicators there were only 3 indicators which were noncompiled and rest 8 were complained to the benchmark and NABH guideline.

The indicators which were complained to the benchmark or above the benchmark were:

a. Percentage of modified anesthesia which was 0% in all the three months which should be this only as it shows the accuracy of anesthesiologist.
b. Percentage of unplanned ventilation following anesthesia plan which is 0% in all three months which should be same showed that the anesthesia was given in appropriate methods and time.
c. Percentage of adverse anesthesia event which was 0% in all three months showed a benchmark. That showed anesthesia given appropriate time.
d. Anesthesia related mortality was 0% in all three months showed in that anesthesia was given in right dose and right method in OT.
e. Percentage of unplanned OT return was 0% in all three months showed that means that no unplanned OT was done showed that all OT were planned and no surgeries where done without plan.
f. Percentage of compliance to WHO surgical safety checklist was 100% in all three months which means all patients underwent the WHO SSC.
g. Percentage of cases who received the prophylactic antibiotic within specific time frame was 100% in all three months showed that all the patients received the antibiotics in required time
h. Percentage of cases to where the organization's procedures to prevent adverse event 100 % in all three months showed that all the staff were well trained in this indicator.

The indicators which were not following the compliance were:

- Percentage of re scheduling surgeries in February was 14%, march was 8.1% which reduced to 0% in April.
- Percentage of re- exploration February was 3.1%, march was 2.3% which reduced to 0% in month of April
- Percentage of unplanned OT February was 0 %, march was 2.3% which reduced to 0% in month of April

These reduction in data was due to the RCA and CAPA done during the period of study. As the February and March data was analyzed. The root cause analysis was done which is discussed further and CAPA was done on that bases.

Discussion

As would like to discuss there were 11 indicators which was used for the study .The results showed that there were 3 indicators were the gaps were found in first two months then the reduction were done with the help of RCA and CAPA was done with the help of Quality department in the study.

The indicators which where in the benchmark or near it.

I. Percentage of modified anesthesia which was 0% in all the three months which should be this only as it shows the accuracy of anesthesiologist.

II. Percentage of unplanned ventilation following anesthesia plan which is 0% in all three months which should be same showed that the anesthesia was given in appropriate methods and time.

III. Percentage of adverse anesthesia event which was 0% in all three months showed a benchmark. That showed anesthesia given appropriate time.

IV. Anesthesia related mortality was 0% in all three months showed in that anesthesia was given in right dose and right method in OT.

V. Percentage of unplanned OT return was 0% in all three months showed that means that no unplanned OT was done Showed that all OT were planned and no surgeries where done without plan.

VI. Percentage of re scheduling surgeries in February was 14%, march was 8.1% which reduced to 0% in April.

VII. Percentage of re- exploration February was 3.1%, march was 2.3% which reduced to 0% in month of April

VIII. Percentage of unplanned OT February was 0 %, march was 2.3% which reduced to 0% in month of April

IX. Percentage of compliance to WHO surgical safety checklist was 100% in all three months which means all patients underwent the WHO SSC.

X. Percentage of cases who received the prophylactic antibiotic within specific time frame was 100% in all three months showed that all the patients received the antibiotics in required time

XI. Percentage of cases to where the organization's procedures to prevent adverse event 100 % in all three months showed that all the staff were well trained in this indicator.

The RCA & CAPA was that there were

- New OT staff which doing the mapping the data, and which was not well-trained. The corrective action was that the training was done, and preventive action was regular training with audits where done to ensure that no changes happens.
- There was well defined time period of rescheduling in NABH guideline, which was not known to staff, so informed to them.

- The re -exploration was done due to the patients were in high risk surgery so it reduced which was able to by better post-operative care in those patients.

S.NO	INDICATOR	FORMULA	FEB.		MARCH		APRIL	
1	Percentage of modification in anesthesia plan	Number of patients in whom the anaesthesia plan was modified	0	0.00%	0	0.00%	0	0.00%
		Number of patients who underwent anaesthesia	96		86		9	
2	Percentage of unplanned ventilation following anesthesia plan	Number of patients requiring unplanned ventilation following anaesthesia	0	0.00%	0	0.00%	0	0.00%
		Number of patients who underwent anaesthesia	96		86		9	
3	Percentage of adverse anesthesia events	Number of patients who developed adverse anaesthesia event	0	0.00%	0	0	0	0.00%
		Number of patients who underwent anaesthesia	96		86		9	
4	Anesthesia related mortality rate	Number of Death Due to Anaesthesia	0	0.00%	0	0.00%	0	0.00%
		Number of patients who underwent anaesthesia	96		86		9	
5	Percentage of unplanned return to ot	Number of unplanned return to OT	0	0.00%	2	2.33%	0	0.00%
		Number of patients operated	96		86		21	
6	Percentage of rescheduling surgeries	Number of cases re-scheduled	14.00	14.58333	11	12.79%	1	4.76%
		Number of surgeries planned	96		86		21	
7	Percentage of cases where the organization's procedure to prevent adverse events like wrong site, wrong patient and wrong surgery have	Number of cases where the procedure was followed	96	100.00%	86	100.00%	21	100.00%
		Number of surgeries performed	96		86		21	
8	Percentage of cases who received appropriate prophylactic antibiotics within the specified time frame	Number of patients who did receive prophylactic antibiotic(s)	96	100.00%	86	100.00%	21	100.00%
		Number of surgeries performed	96		86		21	
9	Percentage of cases in which the planned surgery is changed intra-operatively	Number of cases in which the planned surgery is changed intra-operatively	0	0.00%	0	0.00%	0	0.00%
		Total Number of surgeries peformed	96		86		21	
10	Re-exploration rate	Number of re-explorations done suring same admission	3	3%	2	2.33%	1	4.76%
		Total Number of surgeries peformed	96		86		21	
11	Percentage compliance to WHO surgical safety checklist	Number of patients in whom the WHO surgical safety checklist was followed	96	100.00%	86	100.00%	21	100%
		Total number of surgeries performed.	96		86		21	

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WHOLE SHEET TABLE: showing the raw data

Table 1 AND GRAPH 1

Percentage of Unplanned Return to OT			
	Feb-20	Mar-20	Apr-20
Number of unplanned return to OT	0	2	0
Number of Patients operated	96	86	21
Sample Size	96	86	21
	100%	100%	100%
Percentage of unplanned return to OT	**0.0%**	**2.3%**	**0.0%**
Benchmark	0.52%	0.52%	0.52%

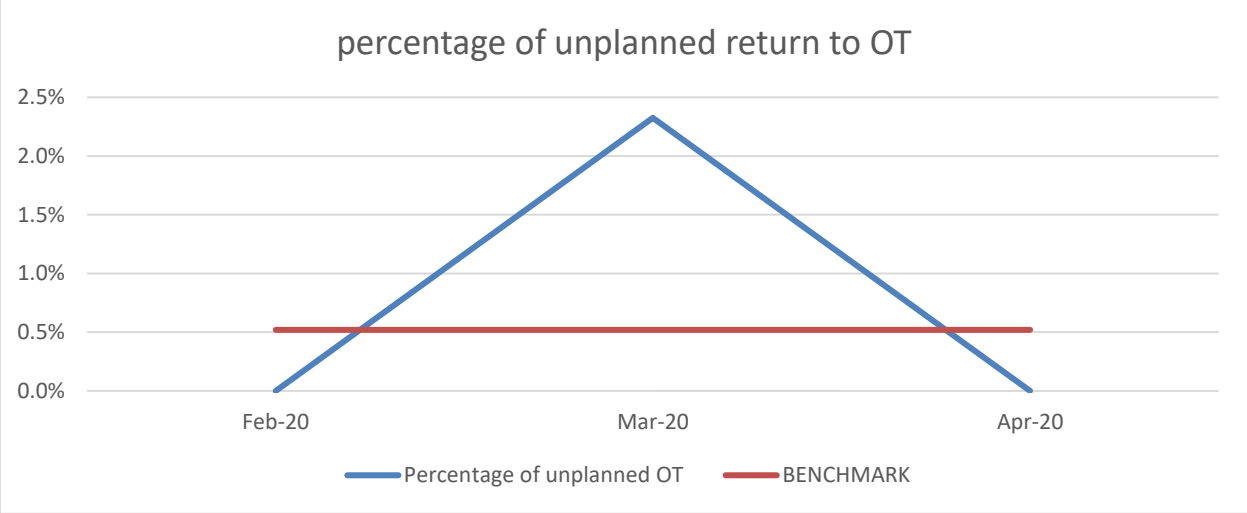


TABLE 2 AND GRAPH 2

Percentage of re-scheduling of Surgeries			
	Feb-20	Mar-20	Apr-20
Number of Cases Re-scheduled	14	7	0
Number of Suregeries Performed	96	86	21
Sample Size	96	86	21
	100%	100%	100%
Percentage of rescheduling surgeries	**14.6%**	**8.1%**	**0.0%**
Benchmark	3.67%	3.67%	3.67%

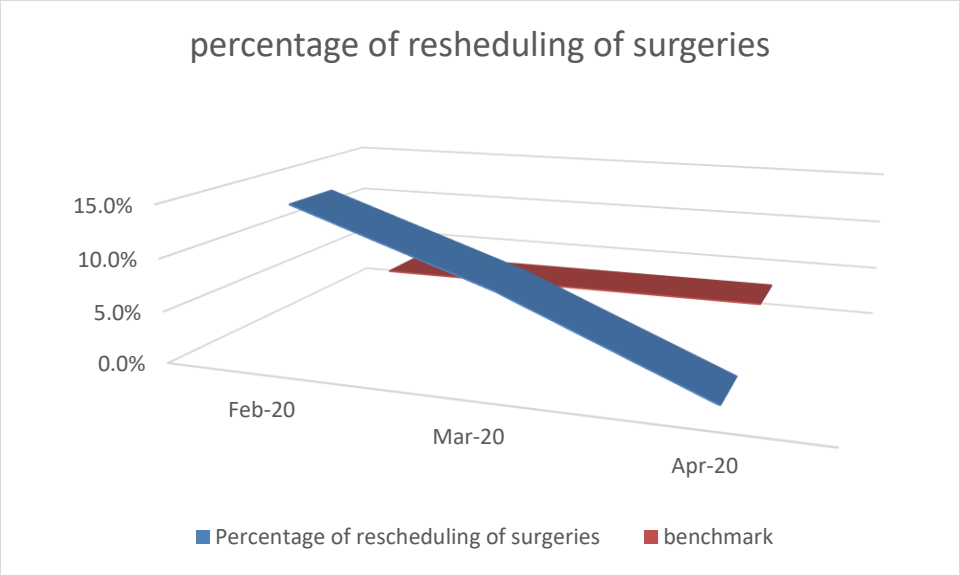


TABLE 3 AND GRAPH 3

Percentage of cases where the organization procedure to prevent adverse events like worng site, worng paitents and worng surgery have been adhered to							
	Feb-20	**Mar-20**	**Apr-20**				
Number of cases where the procedure was followed	**96**	86	21				
Number of Surgeries Performed	**96**	86	21				
Sample Size	**96**	86	21				
	100%	100%	100%				
Percentage of cases where the organization's procedure to prevent adverse events have been adhered to	**100.0%**	**100.0%**	**100.0%**				
Benchmark	99.97%	99.97%	99.97%				

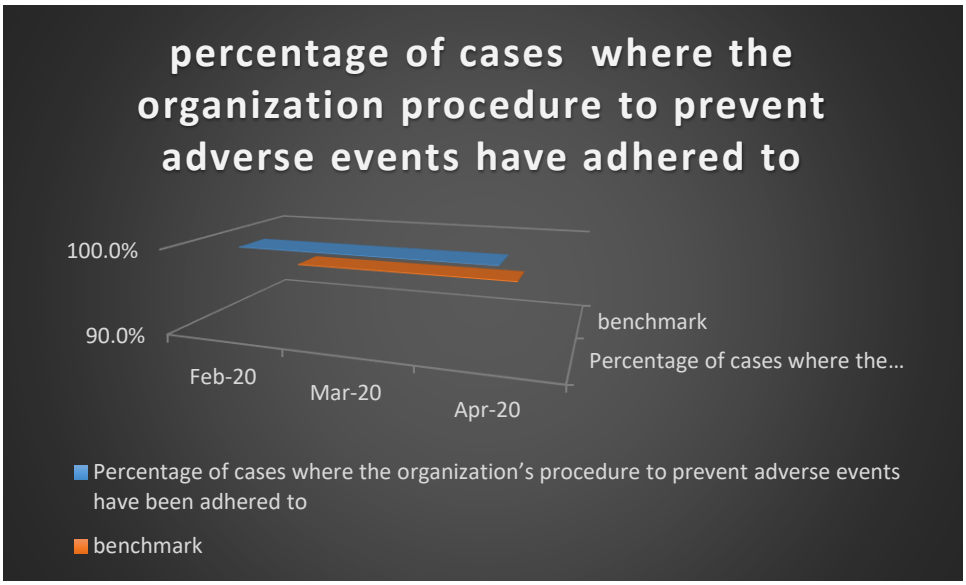


TABLE 4 AND GRAPH 4

Percentage of cases who received appropriate prophylactic antibiotics within the specified time frame			
	Feb-20	**Mar-20**	**Apr-20**
Number of patients who did receive prophylactic antibiotic(s)	**96**	**86**	**21**
Number of Surgeries Performed	**96**	**86**	**21**
Sample Size	**96**	**86**	**21**
Percentage of cases who received appropriate prophylactic antibiotics within the specified time frame	**100.0%**	**100.0%**	**100.0%**
benchmark	95.31%	95.31%	95.31%

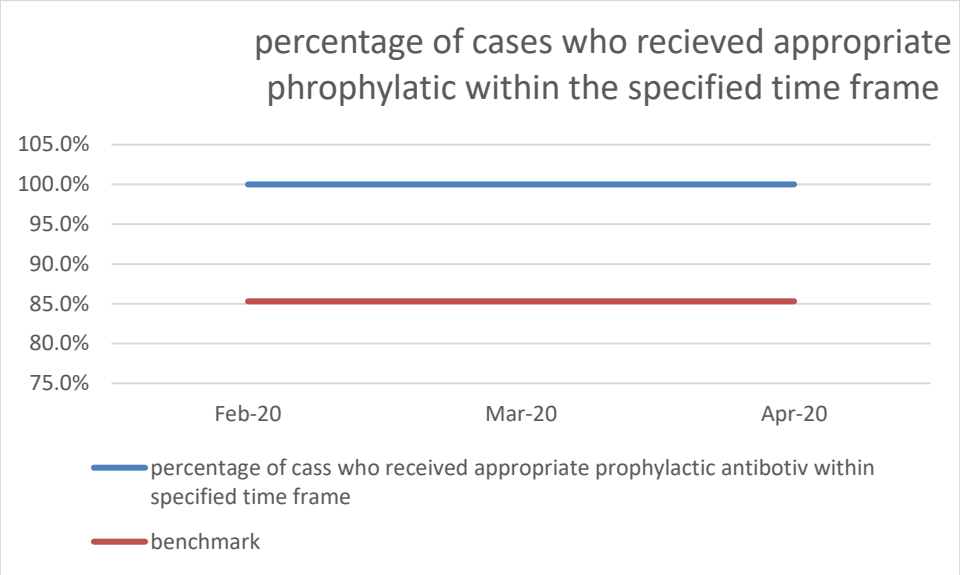


TABLE AND GRAPH 5

Percentage of cases in which the planned surgery is changed intraoperatively			
	Feb-20	Mar-20	Apr-20
No. of cases in which the planned surgery is changed intraoperatively	**0**	**0**	**0**
Number of Surgeries Performed	**96**	**86**	**21**
Sample Size	**96**	**86**	**21**
	0%	0%	0%
Percentage of cases in which the planned surgery is changed intraoperatively	**0.0%**	**0.0%**	**0.0%**
Benchmark	0.58%	0.58%	0.58%

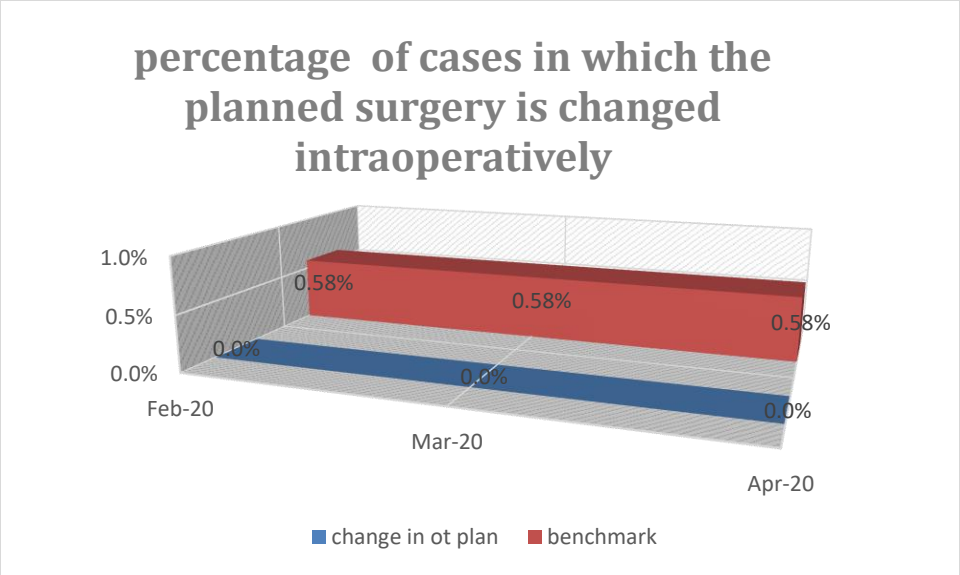
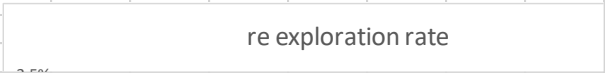


TABLE AND GRAPH 6

Re-exploration rate			
	Feb-20	Mar-20	Apr-20
No. of re-explorations done during same admission	**3**	**2**	**0**
Total number of surgeries	**96**	**86**	**21**
Sample Size	96	86	21
	100%	100%	100%
Re-exploration rate	**3.1%**	**2.3%**	**0.0%**
Benchmark	0.76%	0.76%	0.76%



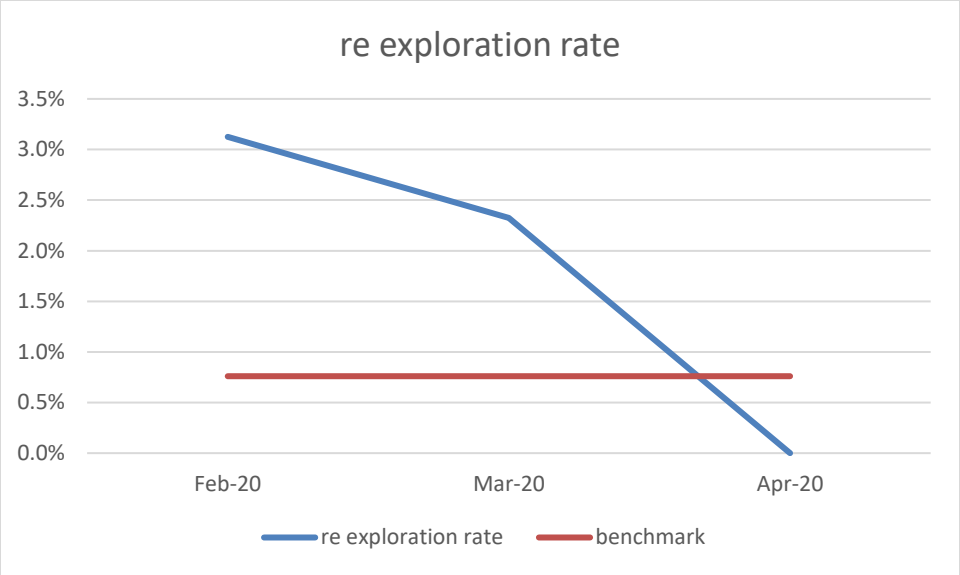


TABLE AND GRAPH 7

Percentage of modification in anesthesia plan			
	Feb-20	Mar-20	Apr-20
Number of patients in whom the anaesthesia plan was			
Number of patients who underwent anaesthesia	**96**	**86**	**21**
Sample Size	96	86	21
	100%	100%	100%
Percentage of modification in anesthesia plan	**0.0%**	**0.0%**	**0.0%**
Benchmark	76.00%	76.00%	76.00%

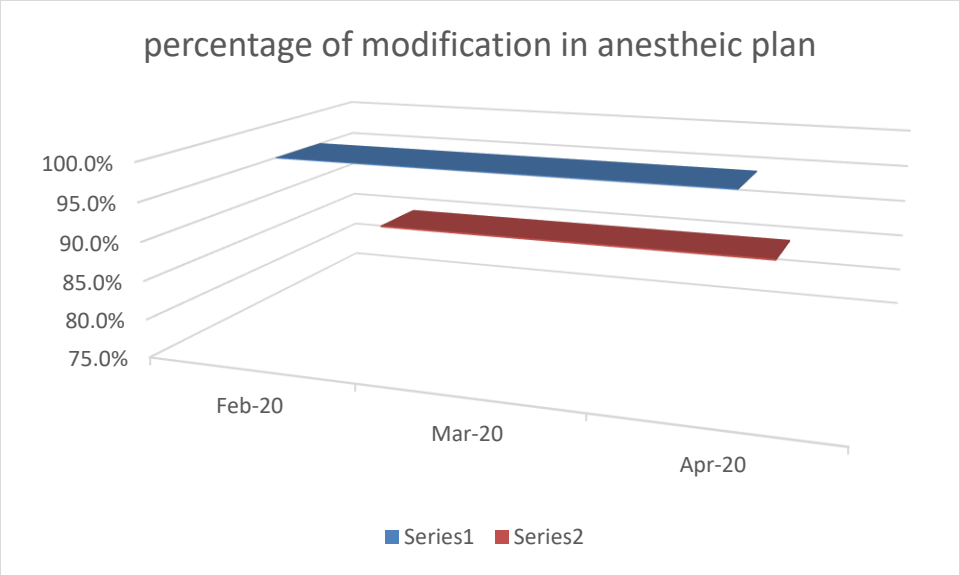


TABLE AND GRAPH 8

	Percentage of unplanned ventilation following anesthesia plan		
	Feb-20	**Mar-20**	**Apr-20**
Number of patients requiring unplanned ventilation following anaesthesia	0	0	0
Number of patients who underwent anaesthesia	96	86	21
Sample Size	96	86	21
	100%	100%	100%
Percentage of unplanned ventilation following anesthesia plan	**0.0%**	**0.0%**	**0.0%**
	0.00%	0.00%	0.00%

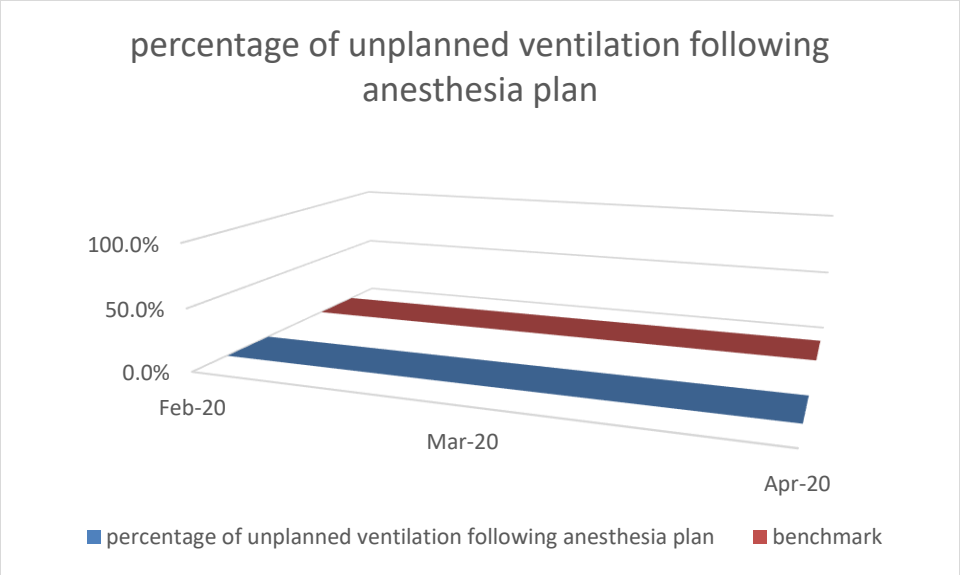


TABLE AND GRAPH 9

Anesthesia related mortality rate			
	Feb-20	**Mar-20**	**Apr-20**
Number of Death Due to Anaesthesia	0	0	0
Number of patients who underwent anaesthesia	96	86	21
Sample Size	96	86	21
	100%	100%	100%
anesthesia related mortality	**0.0%**	**0.0%**	**0.0%**
benchmark	0.00%	0.00%	0.00%

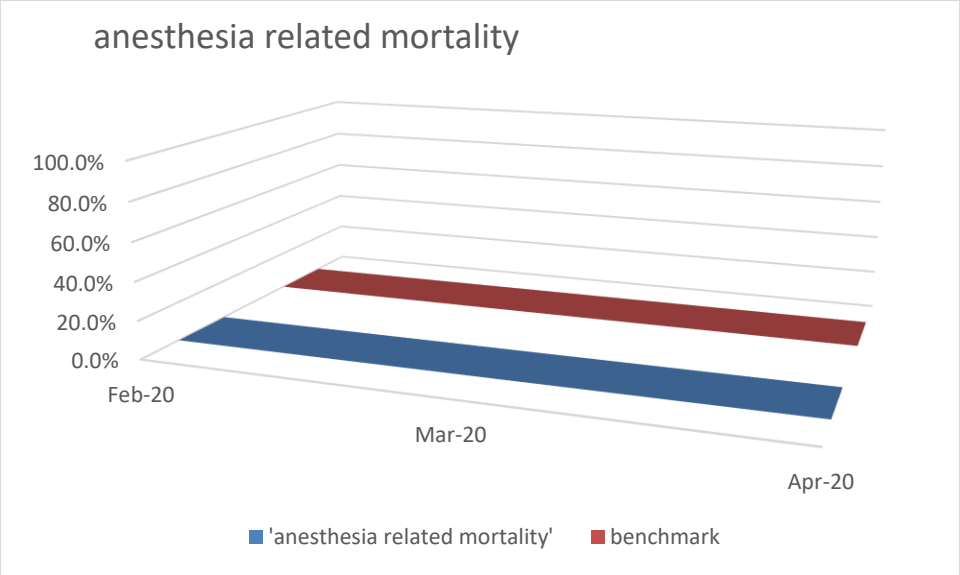


Table and graph 10

Percentage compliance to WHO surgical safety checklist			
	Feb-20	**Mar-20**	**Apr-20**
Number of patients in whom the WHO surgical safety checklist was followed	96	86	21
Total number of surgeries performed.	96	86	21
Sample Size	96	86	21
	100%	100%	100%
Percentage compliance to WHO surgical safety checklist	100%	100%	100%

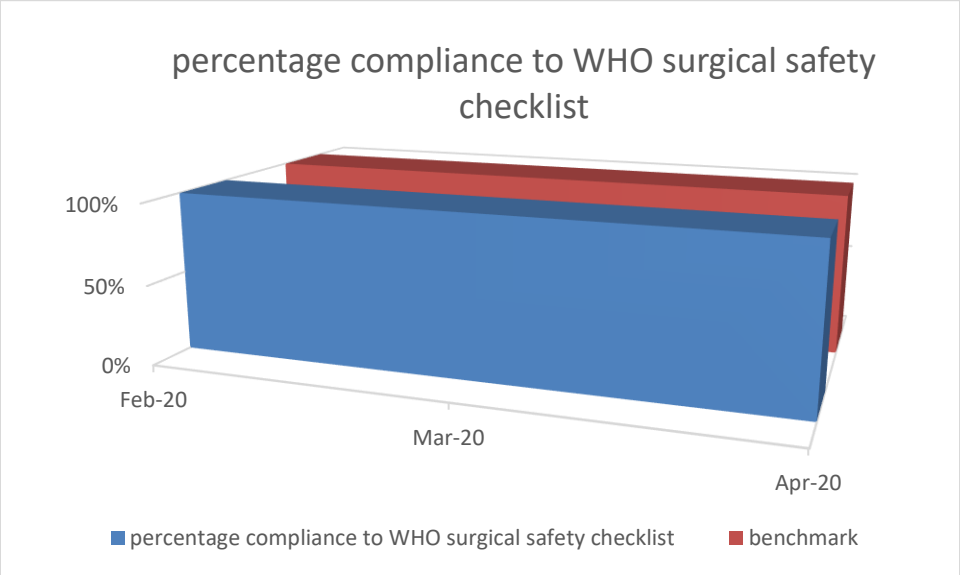


Table and graph 11

Percentage of adverse anesthesia events			
	Feb-20	**Mar-20**	**Apr-20**
Number of patients who developed adverse anaesthesia event	0	0	0
Number of patients who underwent anaesthesia	96	86	21
Sample Size	**96**	**86**	**21**
Percentage of adverse anesthesia events	**0.0%**	**0.0%**	**0.0%**
Benchmark	0.05%	0.05%	0.05%

Conclusion

To conclude the study which was done over the period of my internship that there were 11 quality indicators taken according to NABH 5th edition. These indicators where taken to study if they are near to the benchmark or not. Only 3 indicators were out of the benchmark range. Overall the data suggested that all data should be under benchmark. As the OT is a sterile place and a place where maximum life altering thing happens therefore should be under all the supervision also all the benchmark should be accomplished. Studies have shown that if the OT is not sterile that can lead to SSI leading to the increase ALOS of the patient.

Limitation

- Limited sample size due to COVID19 as reduction in the number of surgeries happened in last 2 months
- Limited visit to OT.
- Limited time to conduct the study.

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