

Summer Training at



**Narayana Hrudayalaya, Jaipur
(April 8 to June 8, 2013)**

- **Understanding Billing Challenges For Improved Accuracy**
 - **Compliance of the Clinical Pathways**

**By
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**Under the guidance of
Monika Choudhary**

**Post Graduate Diploma in Hospital and Health Management
2012-2014**



**Institute of Health Management Research,
Jaipur
2013**

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CERTIFICATE

This is to certify that Dr. Surbhi D Gupta, student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management Research, Jaipur Batch 17th has undergone summer training in Narayana Multispeciality Hospitals Jaipur and has done following projects:

1. Understanding Billing Challenges for Improved Accuracy.
2. Compliance of Clinical Pathways.

The candidate has successfully carried out the mentioned studies assigned to her during summer training from 8th April 2013 to 8th June 2013 and her approach to study has been sincere, scientific and analytical.

I wish her success in all her future endeavors.



Dr. Monika Choudhary,
Associate Professor and Mentor
IHMR, Jaipur



Dr. Ashok Kaushik
Dean, Academics and Student Affair
IHMR, Jaipur

NH/HRD-Off/2013/224

Date: 24th June 2013

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Dr. Surbhi D Gupta** has completed her Summer Internship Successfully in Narayana Hrudayalaya Hospital, Jaipur from 8th April, 2013 to 8th June 2013.

Her Work during the Period was Commendable and appreciable. Her character and conduct was good.

The project was on "Understanding Billing Challenges For Improved Accuracy" & "Compliance of the Clinical Pathways"

We wish her success in future endeavors.

For Narayana Hrudayalaya Hospital, Jaipur



Vishnupriya Sharma
Manager-Human Resources

Acknowledgement

The present study was conducted as a part of my summer training at the Narayana Hrudayalaya, Jaipur, from **8 April – 8 June 2013**. During the study I got immense cooperation from staff and other personnel of the hospital. I wish to mention the names of persons whose help was of utmost importance.

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Dr. Avadhesh Agrawal (Dy. Medical Superintendent, Narayana Hrudayalaya, Jaipur)

Dr. Subhasis Bhattacharya (Sr. Manager Operations, Narayana Hrudayalaya, Jaipur)

Mr. Nitin Agrawal (Sr. Manager Finance, Narayana Hrudayalaya, Jaipur)

Mr. Ajay Kumar Jain (Head Billing, Narayana Hrudayalaya, Jaipur)

Ms. Neeta Singh (Executive Quality, Narayana Hrudayalaya, Jaipur)

I am extremely grateful to my mentor at IIHMR Jaipur, **Dr. Monika Choudhary** without whose support and encouragement this training was not possible.

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Last but not least all the billing as well as the nursing staff who helped me to make me understand and appreciate the organization and processes.

These two months of training have added greatly to my knowledge and skills with an extremely useful practical exposure which will prove to be of great value in my future endeavours, for which I am highly grateful to the organization.

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List of Abbreviations

NH	Narayana Hrudayalaya
RD	Radiology Department
CSSD	Central Sterile Supply Department
MRD	Medical Record Department
HK	House Keeping
JCI	Joint Commission International
OPD	Out Patient Department
IPD	In Patient Department
ADT	Admission Discharge and Transfer
HRD	Human Resource Department
CRRT	<i>Continuous Renal Replacement therapy</i>
OT	<i>Operation Theatre</i>
SOP	<i>Standard Operating Procedure</i>
Pt.	<i>Patient</i>
CABG	<i>Coronary Artery Bypass Graft</i>
TKR	<i>Total Knee Replacement</i>
ITU	<i>Intensive Treatment Unit</i>
CTVS	<i>Cardio Thoracic Vascular System</i>
ANC	<i>Ante Natal Care</i>
FGW	<i>Female General Ward</i>
CBC	<i>Complete Blood Count</i>

About Narayana Hrudayalaya Hospital Group

Narayana Hrudayalaya is the spark that has radically changed the scenario of accessibility, pricing and state of the art healthcare in India. It was started in the year 2000 by Dr. Devi Shetty under the aegis of the Asian Heart Foundation (AHF). The flagship hospitals of the group are located in the cities of Bangalore and Kolkata. They are both multi-specialty hospitals which cater to a wide variety of illnesses and diseases. Originally, Dr Devi Shetty's radical new concept, which started with the Spartan Narayana Hrudayalaya heart hospital Bangalore in the year 2000, is now a truly global healthcare provider. The current facilities allow 4000 beds and they are positively look at being able to equip and service 30000 beds by 2015.

Dr Devi Shetty has over the past three decades re affirmed his commitment to 'An equitable distribution of world class healthcare for the masses at an affordable cost'.

Narayana Hrudayalaya has innovated with the concept of health city which means 'One-point for all Healthcare needs. Its first health city was set up in the outskirts of Bangalore. Narayana Hrudayalaya Health City, Bangalore, is a conglomeration of hospitals in one campus, which involves - World's Largest Heart hospital, World's largest Cancer Hospital, Super Specialty Eye Hospital, and it is an academic institution in the process of becoming a university

Vision & Mission Of Narayana Hrudayalaya Group:

Vision: "Affordable Quality Healthcare for the Masses Worldwide"

Mission: "A dream to making quality healthcare accessible to the masses worldwide

Corporate Social Responsibility (CSR)

UDAYER PATHEY- Doctoring the future: a financial assistance /scholarship programme for school students in west Bengal, through which they encourage young meritorious school students from rural India to take up the medical profession. Also they pay student fees, food and accommodation so that they can pursue medical studies and become a doctor. Students completing 12th standard will also sponsored through this scheme.

YESHASVINI- the Micro Insurance scheme: Was launched in 2002 for farmers belonging to various state cooperatives- all farmers who had been members of a cooperative for at least a year were eligible to participate, regardless of their medical histories. For Rs.5 (US\$0.11) a month, cardholders had access to free treatment at 150 hospitals in 29 districts of the state for any medical procedure costing up to Rs.100000.

RAJIV GANDHI AROGYA YOJANA: An initiative to revamp the healthcare facilities to the population of Chhatrapati Sahuji Maharaj Nagar district. To provide basic healthcare to the common man, Asia Heart Foundation set up a chain of primary healthcare centres in all the blocks offering outpatient services that includes consultation, medicines & telemedicine facilities with specialty care from Narayana Hrudayalaya & Rabindranath Tagore Institute of Cardiac Sciences.

AROGYA RAKSHA YOJANA: Arogya Raksha Yojana stands for Health Protection Plan in the local language. Delivering on its commitment to affordable healthcare, Biocon Foundation has been setting up Arogya Raksha Yojana (ARY) Clinics in areas where large numbers of people are enrolled with the ARY health micro insurance program. These Clinics have been set up to make primary healthcare facilities more accessible and more affordable for surrounding communities. Supporting the ARY micro insurance program, the Clinics will guide member patients to network hospitals and help them avail of the benefits due to them.

Narayana Hrudayalaya Hospital, Jaipur:

Narayana Hrudayalaya Hospital Jaipur stands in a sprawling 4.7 acre campus situated on Hrudayalaya Avenue, off Kumbha Marg in Pratap Nagar, Sanganer. The Commitment as a place of worship is clear to see as one arrives at the campus. It reaffirms hospital's commitment to society, with no distinction in classes, religion or faith. This is a 'Temple of Healing' and that sentiment echoes throughout a patient's experience at the hospital. Initially, Narayana Hrudayalaya Hospital had 200 functional beds including Intensive care, intermediate care to be able to provide Tertiary Care Medical Services. The Narayana Hrudayalaya Jaipur Hospital currently offers centres of excellence that have a unique multidimensional approach to patient care.

The group's firm belief in the mission statement and its core values help reinforce their everlasting commitment to the people of Rajasthan. Narayana Hrudayalaya believes to bring the very same revolutionary concept to the state and its people with the promise of an affordable one- stop health- solution.

Services & Facilities for patients: -

The hospital is designed to provide highest levels of professional expertise and world class care in all major medical disciplines and support specialties for the common person. This involves-

A. Clinical:-

- 1. CARDIOLOGY AND CARDIAC SURGERY**
- 2. NEURO SCIENCES**
- 3. NEPHROLOGY AND UROLOGY**
- 4. ORTHOPAEDICS AND JOINT REPLACEMENT**
- 5. GASTROENTEROLOGY**
- 6. TRAUMA CARE AND EMERGENCY SERVICES**
- 7. MOTHER AND CHILD CARE**
- 8. PULMONARY MEDICINE**
- 9. BURNS, PLASTIC SURGERY, COSMETIC & RECONSTRUCTIVE SURGERY -**
- 10. INTERNAL MEDICINE**
- 11. DIABETES & ENDOCRINOLOGY**
- 12. PHYSIOTHERAPY & REHABILITATION CENTRE-**

13. RADIO DIAGNOSIS AND IMAGING

14. LABORATORY SERVICES (PATHOLOGY & MICROBIOLOGY)

B. Non - Clinical

1. ADT

2. TPA DEPARTMENT

3. MRD

4. CSSD

5. HOSPITAL SERVICES

6. QUALITY DEPARTMENT

7. FINANCE DEPARTMENT

8. PURCHASE & SUPPLY CHAIN DEPARTMENT

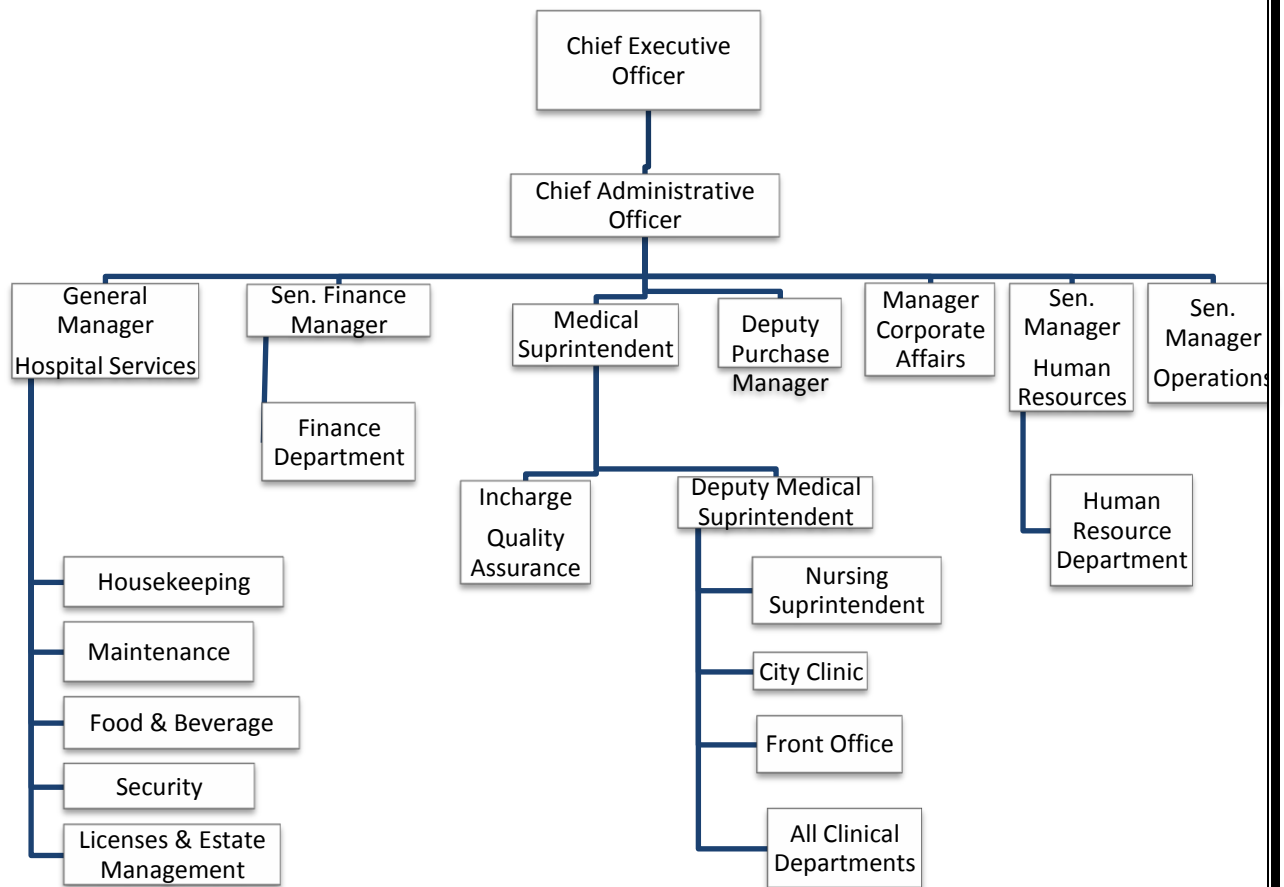
9. HR DEPARTMENT

10. ADMINISTRATION DEPARTMENT

11. PHARMACY (OPD, OT & IPD)

12. IT DEPARTMENT

Organogram



PROJECT 1

Understanding Billing Challenges For Improved Accuracy

Introduction:

The revenue generated by all the departments of a hospital is collected by the billing department. In addition to the clinical team of any hospital the department of billing and finance forms a vital functioning unit of a hospital. We can also refer to it as the “shop window” of the hospital as it mainly deals with the revenue collection and at the same time serve as a window of direct contact with the patients. Although it is the most vital department, but ironically it is blind..... i.e. it has no eyes of its own for its eyes are distributed throughout the hospital in the form of the ward staff, pharmacy staff, store keepers etc. Thus the billing department is not confined to just the billing counter it is distributed in the entire hospital.

This department works in tandem with all other departments of the hospital and not to mention it out loud, it thus needs a sincere support from all the other concerned departments in order to make service delivery more prompt and efficient.

Billing Process at Narayana Hrudayalaya

Billing at Narayana Hrudayalaya is a unique system in its own as the billing is done through a centralised billing system operating from Bangalore, through centralised software “HINAI”. The entire NH group of hospitals follow the same practice.

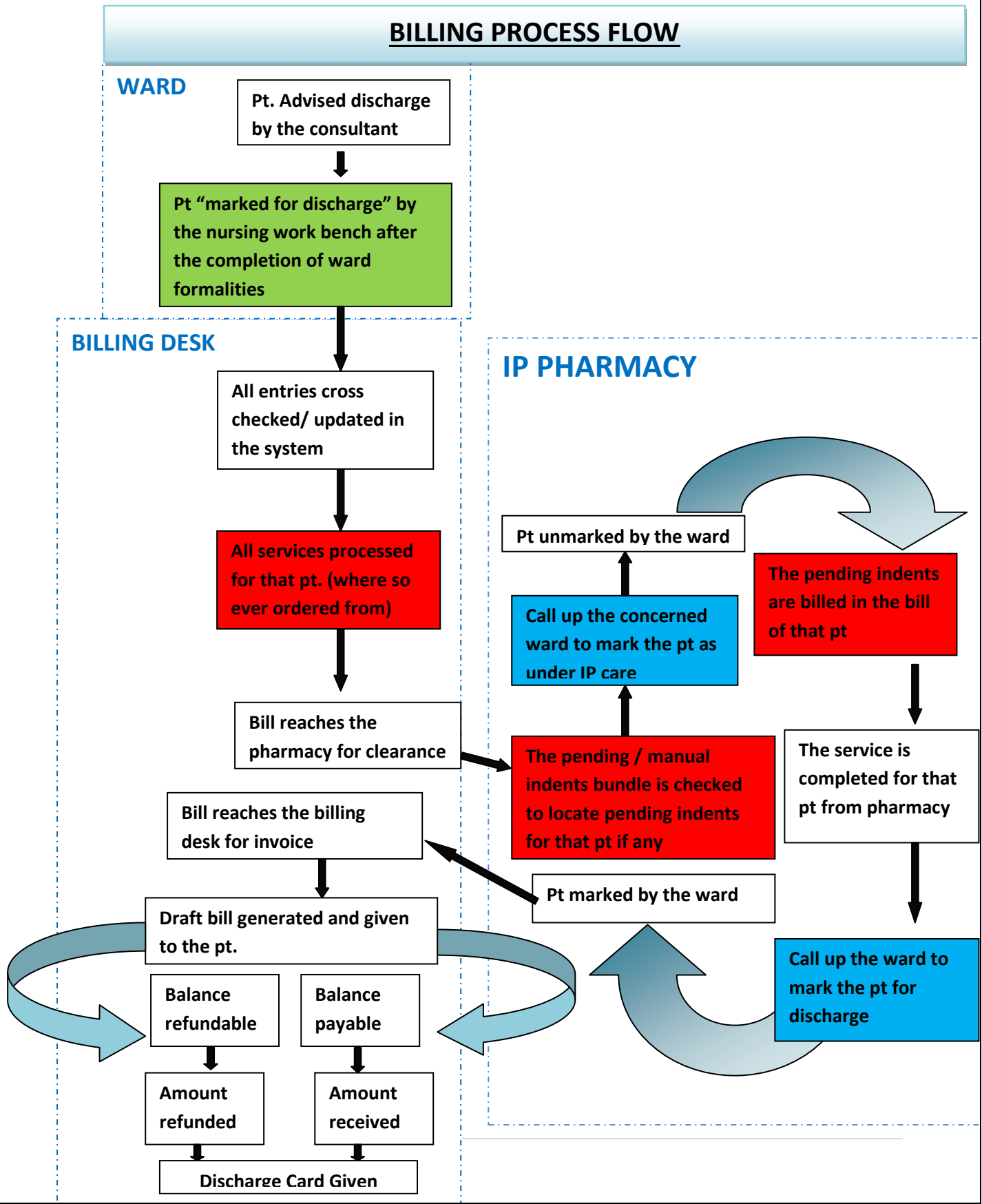
A billing sheet system is followed into which regular entries are made as per utilisation of the inpatient services by the patients. These services are then billed at the time of discharge by sending the billing sheet to the billing desk.

A regular update of the outstanding amount for every patient is done and informed regularly in order to carry out a transparent billing process and further ensure timely payment by the patients.

The billing sheet entries are checked and updated by the night billing staff in order to locate any errors as well as update the bills in order to facilitate quick billing and discharge for the patients.

The standard operating procedures are formulated to serve as a guideline for the staff to follow. These SOPs have guidelines for the billing, nursing and the OT staff where in their roles and responsibilities are clearly explained as far as billing is concerned.

A flowchart showing the process flow of billing is as follows –



The flow chart is colour coded to show the areas of action in terms of importance and urgency.

 – Very import & very urgent

 – Important & urgent

 – Less important & less urgent

Methodology:

Study Design: Descriptive Cross - sectional Study

Study area: Narayana Hrudayalaya, Jaipur

Study Population: All Patients billed in the observational period.

This assignment required a thorough understanding of the billing process in order to understand the challenges faced by the inpatient billing. Thus to gain an insight into the process of billing and consequently develop an understanding of the day to day challenges faced by the service provider, the user and the system as a whole, a considerable time was spent on the billing front desk observing the various steps of the process. An observation checklist was maintained and a review of processes and packages was carried out. A detailed study of the standard operating procedures as observed by the department was also undertaken and the gaps observed & analysed.

Sample: All discharges in the observational period of 20 days, i.e. 100% sample.

A population survey for those days was carried out and all the discharges between 9 am to 5:30 pm were sampled.

Sampling Unit: Individual Discharge cases.

Observations were recorded and correlated with the planned discharge list as made available to the billing department every previous evening. Observations regarding the time required for bill preparation and final clearance.

Apart from the billing department some other related departments like IP Pharmacy & various wards were also observed in the course of the study. These departments are

closely related to the billing process and constitute the major aspect of the billing process. All the observational findings were then collated together to derive the results.

Data analysis & observations

The data analysis & observations can broadly be classified into following groups:

- 1) At the billing desk
- 2) At IP Pharmacy store
- 3) In the wards

These categories are further sub classified as:

- a) Regarding the human resources of the department
- b) Regarding the system in the department
- c) Regarding the process in the department

Apart from this, inputs from the external customers regarding their experience and satisfaction levels.

At the billing desk:

Process:

The activities taking place at the billing desk can be broadly grouped into following 9 steps, and the time taken for all activities are as follows -

- 1) Billing sheets received
- 2) Getting patient “marked for discharge” from the wards – 10 – 15 min.
- 3) Entries in the software co – related with those in the billing sheet – 5 min.
- 4) Confirmation from the wards / blood bank if any ambiguity is observed – 2 min.
- 5) Services processed for that patient – 15 min.
- 6) Waiting time for getting the bill cleared from the pharmacy – 40 min.
- 7) Draft bill generation and given to the patient – 1 min.
- 8) Bill verification by the patient – 15 min.
- 9) Final bill generation and discharge card given – 1 min.

Thus the total time required to prepare a bill is 95 min.

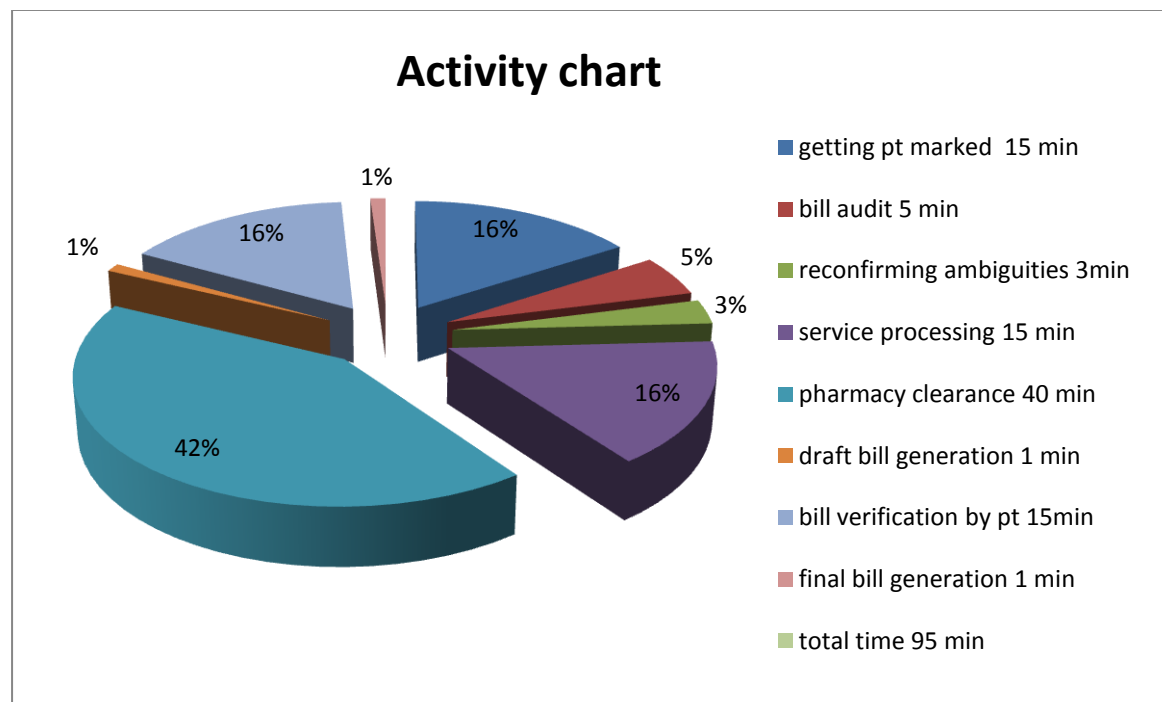


Fig 1: The activity chart with the proportion of time taken by each activity.

After the patient is advised for discharge and the ward formalities are completed, the billing sheet is received at the billing desk and the billing process begins.

Looking to the bills prepared in the entire day, the effective billing period boils down from 9 am to 5 pm. The observation suggested that this period can be broadly divided into 2 periods –

- a) Peak hours – 10 am to 12 noon.
- b) Lean hours – time other than these hours.

The timings of receipt of the billing sheets for billing for planned and unplanned discharges showed a trend according to which the maximum billing sheets were received during 10 am to 12 noon. The graphical representation of these trends is as follows –

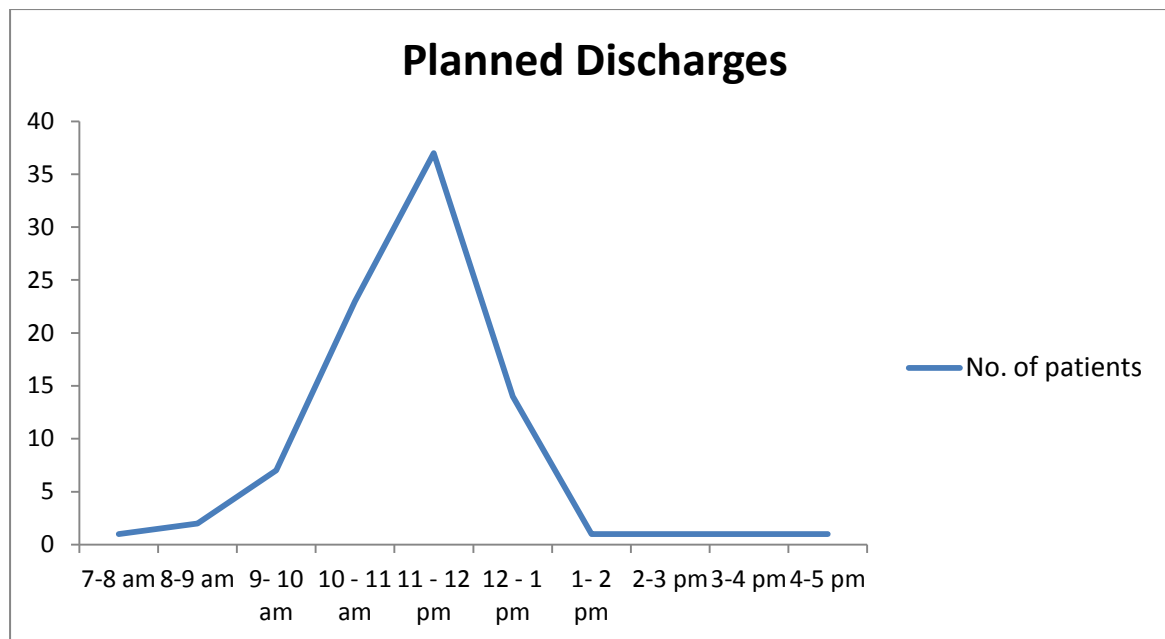


Fig 2: Time of receipt of billing sheets for planned discharges

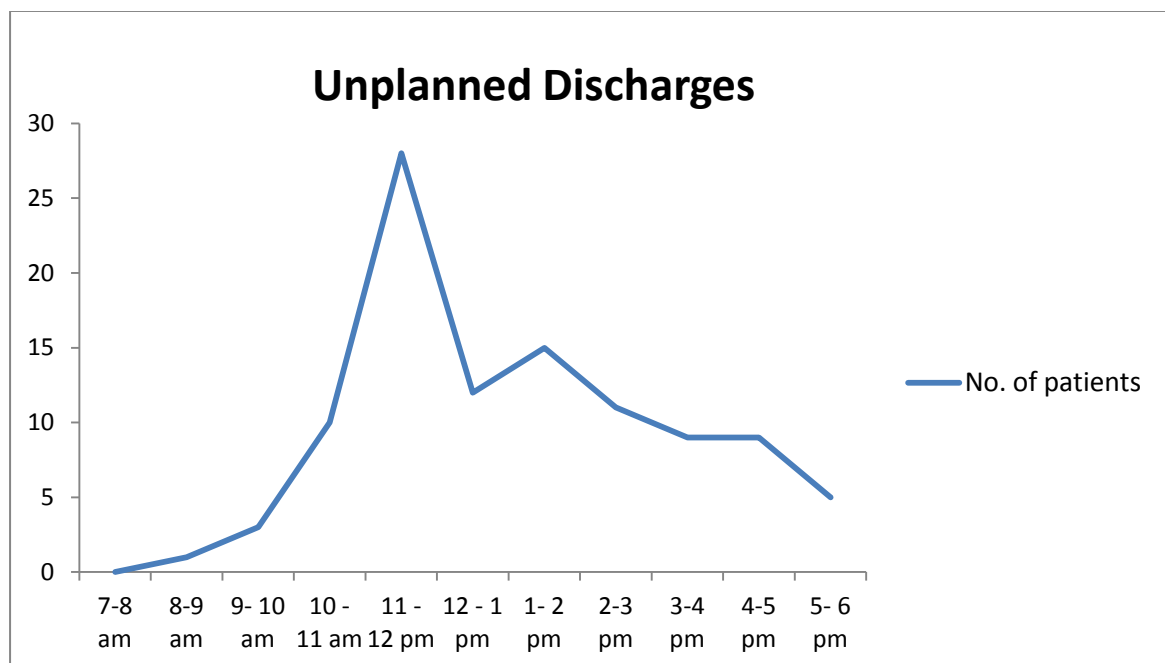


Fig 3: Time of receipt of billing sheets for unplanned discharges.

As evident from the above illustrations, the planned discharges are also delayed leading to an increased pressure on the staff as well as system, and finally to customer dissatisfaction

Very often the billing sheets were sent to the billing desk without marking the patient for discharge and a lot of time was wasted in getting the patient marked from the wards. Further as soon as the billing sheet was received by the counter, the attendants were also sent down to confirm their billing status. This increases pressure on the billing staff and often creates situations of arguments.

The service processing for the discharge patients has to be carried out at the billing desk no matter what is the point of service ordering. This is a long, tedious and time consuming exercise in which a lot of useful time is lost. The problem becomes more confounded when the software is slow.

After this exercise is completed the bill reaches the pharmacy for clearance. This part is most time consuming and takes repeated calls to get the bill cleared.

The credit bills cannot be prepared in the software directly but are to be prepared manually in prescribed formats with the rate lists as agreed upon in the MOU signed by the hospital, correlating with their discharge summaries. This rate list may be CGHS rate list or as made available by the concerned TPA/Corporate. An average cash bill preparation takes about 5 – 7 min. in contrast to the credit bills which take about 25 – 30 min. to prepare. Last but not least it has to be verified by the incharge, signed and then sent to the TPA cell for further processing. Thus the entire credit bill preparation time comes out to be about 45 min. per bill. This can be illustrated as follows –

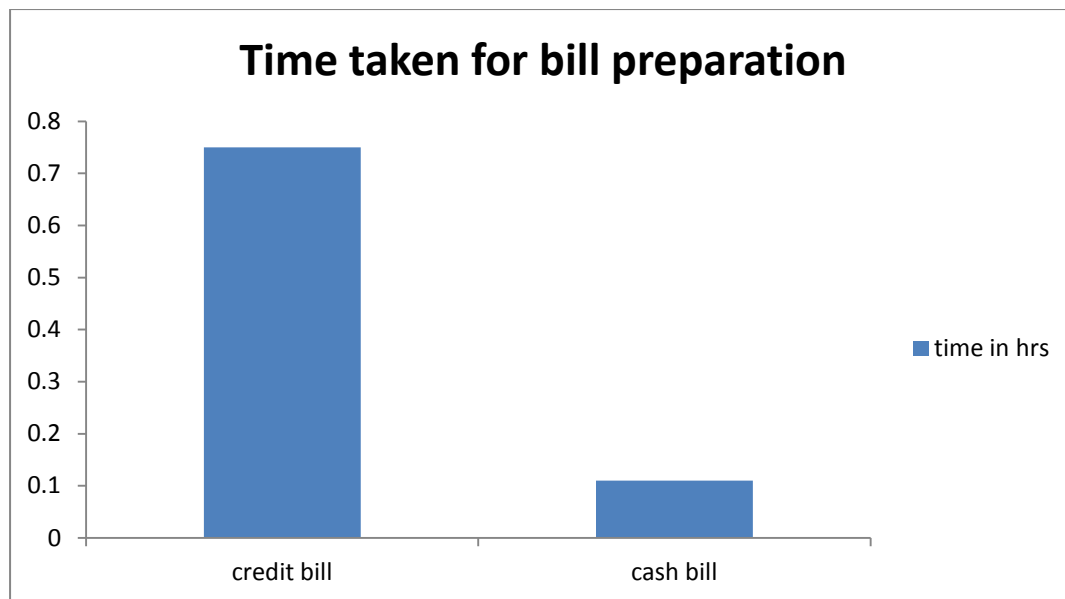


Fig 4: Time taken for bills to prepare (Credit & Cash)

Based on the observation of 20 days, 530 patients were catered out of which 406 were cash patients and 124 were credit patients. The spread of patients over 20 days is represented by the following graph.

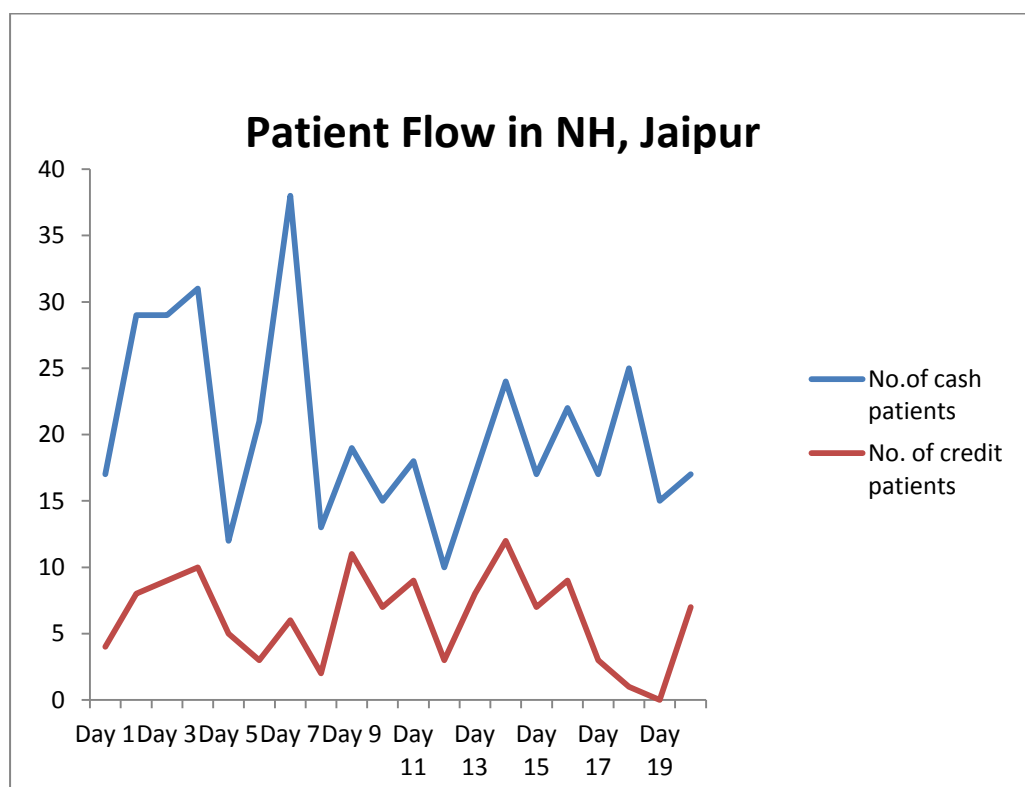


Fig 5: Flow of cash & credit patients in NH, Jaipur

Thus, on an average NH caters about 23% credit patients every day.

Looking to the effective billing hours, i.e. about 8 hrs and the time taken by the credit bill preparation as 45 min, the proportion of time spent on bill preparation of each type is shown in the following figure.

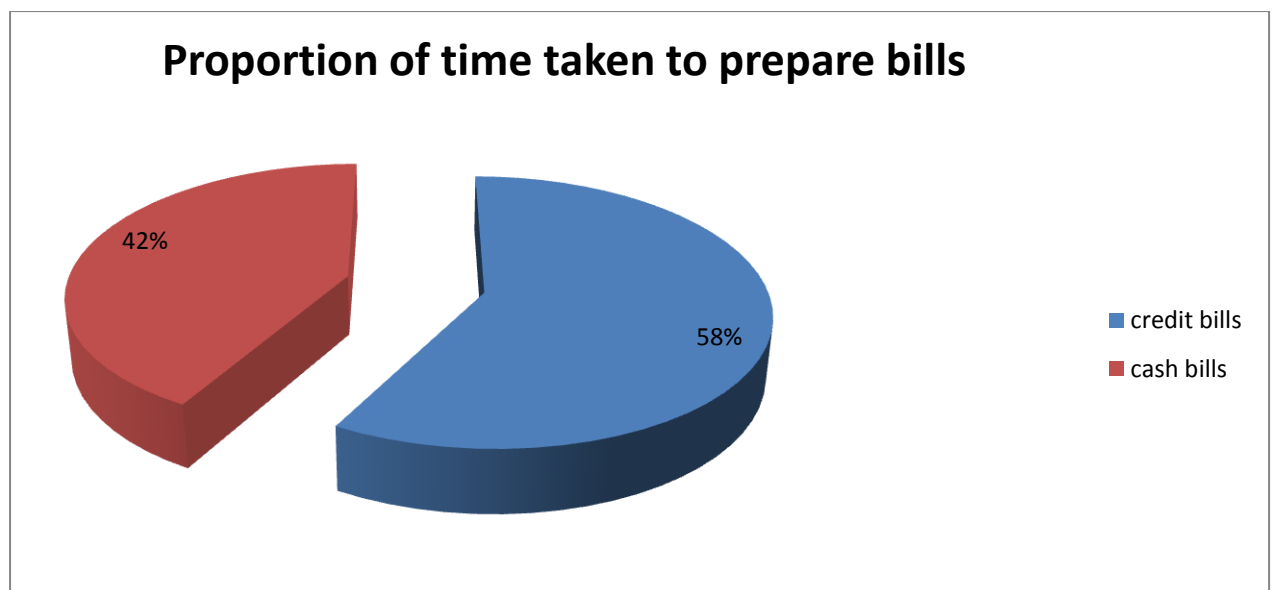


Fig 6: Proportion of time taken for bill preparation for cash & credit patients.

As evident by the above illustration, time devoted for 23% credit bills is about 60% of the entire billing hours and the time devoted for rest 77% cash patients, is only 40%. It can thus be made out well that in order to serve 23% patients, a large proportion of the patients are not given much time. Ironically, even after investing so much time for them they remain among the not very satisfied lot.

Very often a time lag between the receipt of the billing sheet and file of the credit patient was observed. This caused an undue delay as all credit bills are to be linked and correlated with their discharge summaries. In few the observed gap was up to 3- 4 hrs.

Some errors in the bills were also observed during the study of bill processing system. The error was on account of verification and interdepartmental information lag like store, ward and the billing desk. Cases of under as well as overbilling were present.

Under billing was attributed to factors like staff negligence in billing certain items and improper management of stores including the reject/manually dispensed items list. Overbilling is on account of the factors like gap in making the entries of the items at various levels of system e.g. the item issued by the store but not used by the ward is not properly returned to the store and remains issued in the record of the stores and therefore billed. As the items are not reaching the assigned place it adds to the possibility of pilferages.

System:

Too much interdepartmental dependence & lack of co – ordination among them hampers proper functioning and results in too much time wastage.

Human resource:

The night billing updates seemed to be a constant challenge as the update was seldom complete.

The handover and takeover practices were not very organised and most of the times the consecutive duty staff has difficulty in relating to the pending bill and its recipient.

At any point 3 front desk staff is present and one of them is the cashier for the day so the bill preparation is to be distributed among the remaining two staff members. Taking average 30 discharges per day, as calculated for 3 persons, the no. of bills per staff member is 7.3 which suggest one bill per hour in the entire day. Thus the job which is being handled by 3 persons can easily be handled by 2 persons if the support system is strengthened. This will not only reduce the total time taken in the finalisation of the bill but also avoid counter overcrowding by the attendants of the patients. Moreover the extra staff could be easily utilised for bill updations which could not be done during night, in the lean hours and can be utilised at the counter at peak hours.

Also as observed not all staff was well equipped to prepare the credit bills and a lot of time was wasted in confirming and reconfirming the process and thus cause undue delay.

At IP Pharmacy store:

Process :

The pharmacy did not have the rights of marking and unmarking the patient in the software and relied upon the ward staff to do so for them. A lot of time was wasted as the ward staff is busy rendering patient care and to get the patient marked is a lengthy task.

It was also observed that the reject items list was bulky as well as ill kept. It was a herculean task to locate the patient's pending indents due to which many a time the items remained unbilled leading to financial implications.

A lack of periodic review and stock update lead to increase in the reject items list which in turn adds to the confusion at the time of discharge clearance.

The implant bills were requested from the vendor on the day of discharge and the patient's billing was delayed as it took a lot of time for the vendor inventory interactions as well as store's inevitable internal formalities. In few cases the delay amounted to 7 hrs. This not only caused reduced customer satisfaction but also an altered bed turnover ratio.

System:

Dependence on the ward staff to get the patient "marked" in the software.

A planned discharge list did not reach the store staff so as to update those bills beforehand to reduce delays due to pharmacy processing.

Stock not updated regularly due to which the rejection list became quite elaborate and later caused a lot of confusion while locating pending indents for the patients.

The medicine dispensing and dispatching is considered much more important as compared to clearing discharge bills.

Human resource:

No. of personnel is limited and most of the staff gets deployed in medicine dispensing and dispatching due to which the discharge clearances took a back seat.

The pharmacy staff lacked initiative to check the bills received in the software for pharmacy clearance. They respond only when they are called up to inform them of the pending bills.

In the wards:

Process:

The nursing staff was torn between rendering patient care and software entries of the utilised services. So definitely the billing entries take a back seat as in no condition the patient care is compromised at any point of time.

The service processing for the bedside IP services utilised by the patient during his stay in the wards was not done.

The discharge summaries were prepared on the day of discharge and then sent to the consultants for their approval and signature. This took a lot of time as for the credit patients the bills cannot be finalised until the entries in the bill are not co related with the discharge summaries.

The medicines were indented in the morning mainly from 10 am to 1 pm which caused an increased workload on the pharmacy staff as well as the software during this period.

In certain cases, although the return items for the discharge patients were requested through the system but were not physically returned to the pharmacy and lead to overbilling.

System:

The discharge time was 24 hrs from the time of admission of the patient as a result of which the pace of entire components of the process slows down.

The billing sheets whether of planned or unplanned discharge patients, were sent after the morning rounds, and in some cases even later if any additional investigation were prescribed by the consultant as a result of which effective lean time utilisation cannot be achieved.

Only a few consultants write the discharge instructions and medication during the evening rounds for the next day planned discharges. This caused a delayed discharge summary preparation which delays the whole process specially for the credit patients.

Human resource related observations:

The staff lacked skills for handling the software which lead to errors in service entries. They either relied upon the senior staff members or the pharmacist for this which caused either missed entries or entries more than the actual utilisation.

The roles and responsibilities regarding billing were not clear as a result of which the software entries were not up to the mark.

As observed the staff had a tendency of passing the buck onto other departments and required better communication and co-ordination skills so that they could satisfy the patients as well as subtly explain them the time which would inevitably be taken for the completion of the procedure.

Inputs from the customers:

About 20 patients' attendants were interviewed regarding their experience about the billing process of the hospital. These people were interviewed in different time slots i.e. 9 – 11, 12 – 1, 1 – 3 & 3 – 5.

The observations are as follows:

9 – 11 AM:

The attendants were happy with the billing process as well as service delivery. As this was the lean time, the billing was quicker with almost negligible waiting time & a better customer service delivery.

11 – 1 PM:

The attendants were somehow pacified, but had a lot of issues as most of them were planned discharges and the delay was unacceptable to them. By this time even the credit patients wanted their bills to be ready so that they could be forwarded for approval but in these cases the problem seemed to be more confounded as many of the credit billing sheets were received but their files were not.

1 – 3 PM:

The situation grew grimmer as long waiting period made the attendants apprehensive and argumentative. Very often the higher authorities had to intervene to handle the situation and provide a helping hand. The credit patients were highly confused as they were dissatisfied by the information system and were tired of going to and coming back from the TPA department.

3 – 5 PM:

The interviewed patients were mostly of the credit category, waiting for the discharge card after their TPA approval. The cash discharges faced a less waiting time as most of the day's backlog was complete by about 4 pm. so the customer satisfaction was high, leaving one or two patients whose billing was not complete due to absence of implant details in them.

Based on the above observations a fish bone diagrammatic analysis of various factors was done as follows –

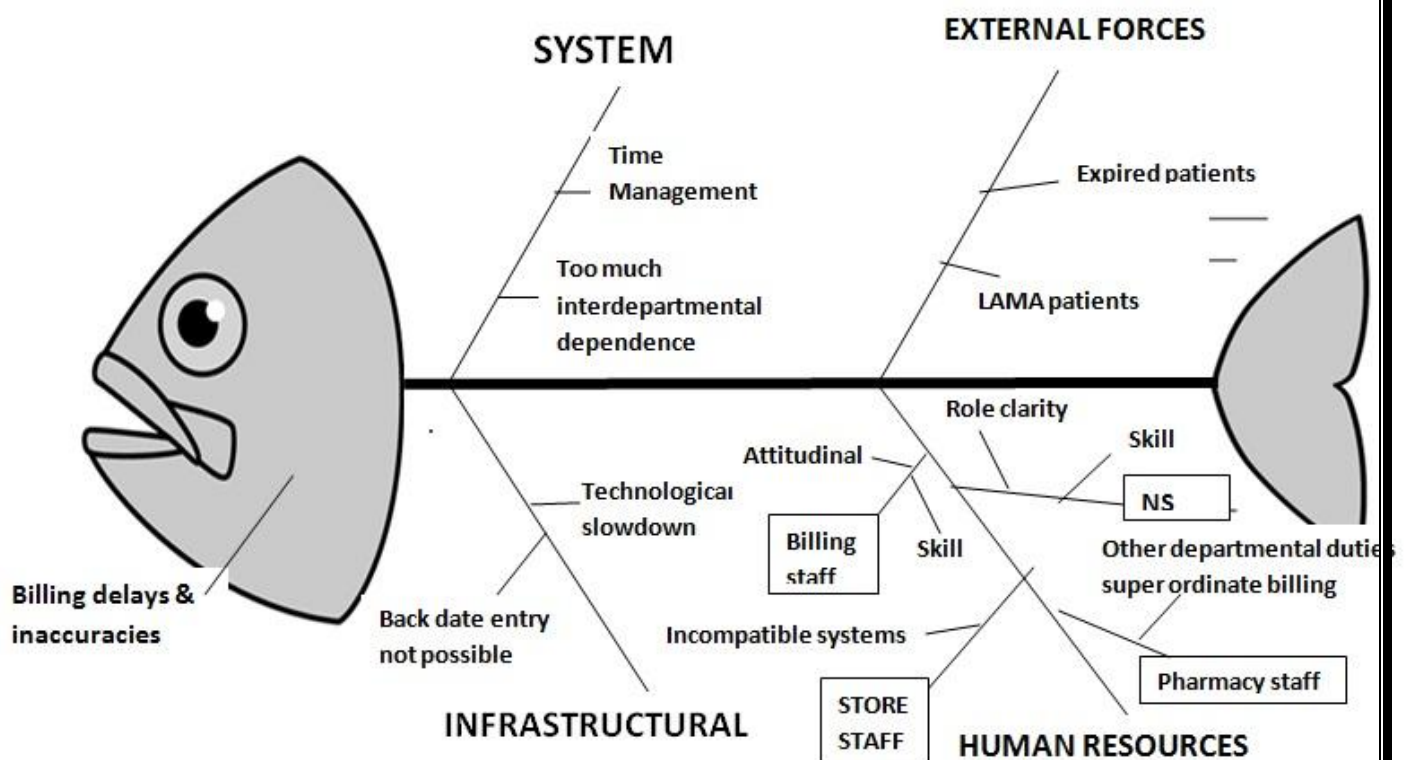


Fig 7: Fishbone diagram based on above observations

Results and Conclusion:

Collating all the above information and observations, it can thus be concluded that the busiest time in all the concerned departments is from 10 am to 1 pm during which there is a maximum load on the technology as well as the human resources. As a result of this the entire process pulls a full throttle and prepares to race towards achieving the ultimate aim of quick and hassle free discharge.

Since all the processes are interdependent as well as interlinked, interdepartmental co-ordination and communication plays a vital role and if all the departments work in tandem accurate billings can be achieved with an effective discharge practice.

Suggestions

After undertaking a detailed study and observations, the recommendations can be grouped into following heads:

- 1) Suggestions for the human resource which includes the following –
 - a) Billing staff
 - b) Pharmacy staff
 - c) Store staff
 - d) Nursing staff
- 2) Suggestions for the system
- 3) Suggestions for the process
- 4) Miscellaneous suggestions

1) Suggestions for the human resources

A general suggestion for all staff is to frequent capacity building exercises.

a) Billing staff:

- Ensuring a proper night updation of the bills by the night billing staff by maintaining a document of updation in soft copy for the departmental use in which daily bill updates are recorded. This document can also be used as a monitoring tool to verify daily updates by the staff.
- It will also serve as a backup when the organisation will proceed to a totally paperless billing as is its future plan. The format has already been suggested to the departmental authorities in an excel sheet form. (annexure 2)
- Training needs regarding the credit bill preparation so as to quicken and smoothen the credit bill preparation process.

b) Pharmacy staff:

- To consider the discharge clearances as important as medicine dispensing and thus give priority to them.
- Maintenance of an organised and systematic list of the rejected/manually delivered medicines so that it is easier and less time

consuming to locate the unbilled items at time of the discharge of the patient.

- An increase in the helping hands in the IP Pharmacy may also be a good move to start with.

c) Store staff:

- Ensure prompt and systematic updation of the stock so as to reduce the no. of rejected indents and thus reduce the hassle of end moment bill updates. It will also reduce the under billing errors which result mainly due to missed rejected item billing.
- For the implant patients the implant bills to be procured within 1-2 days after the surgery rather waiting for their discharge date. This will not only give more time for the vendor- inventory interactions but also quicken the pace of the billing process.

d) Nursing staff:

- Defining the roles and responsibilities (from billing point of view) so that, besides rendering efficient patient care, they can also perform other tasks in a systematic manner, and providing training sessions for the same.
- Training needs to improve their skills regarding system operations.

1) Suggestions for the system:

- The discharge or the check out time should be fixed as 12:00 PM rather than as 24hrs of admission. This will gear up all the stake holders of the discharge and billing process and quicken the pace of the process as well.
- A planned discharge list to be sent to the IP pharmacy as well in the evening so that at least these patients' bills are updated and kept ready for the next day.
- Achieving a balance between busy time and lean time by managing the overlapping activities in way so as to reduce wastage of valuable time.
- The interactions between the nursing staff and the billing staff should be encouraged so that minor technical problems as encountered by both the sides can be solved by mutual facilitation.

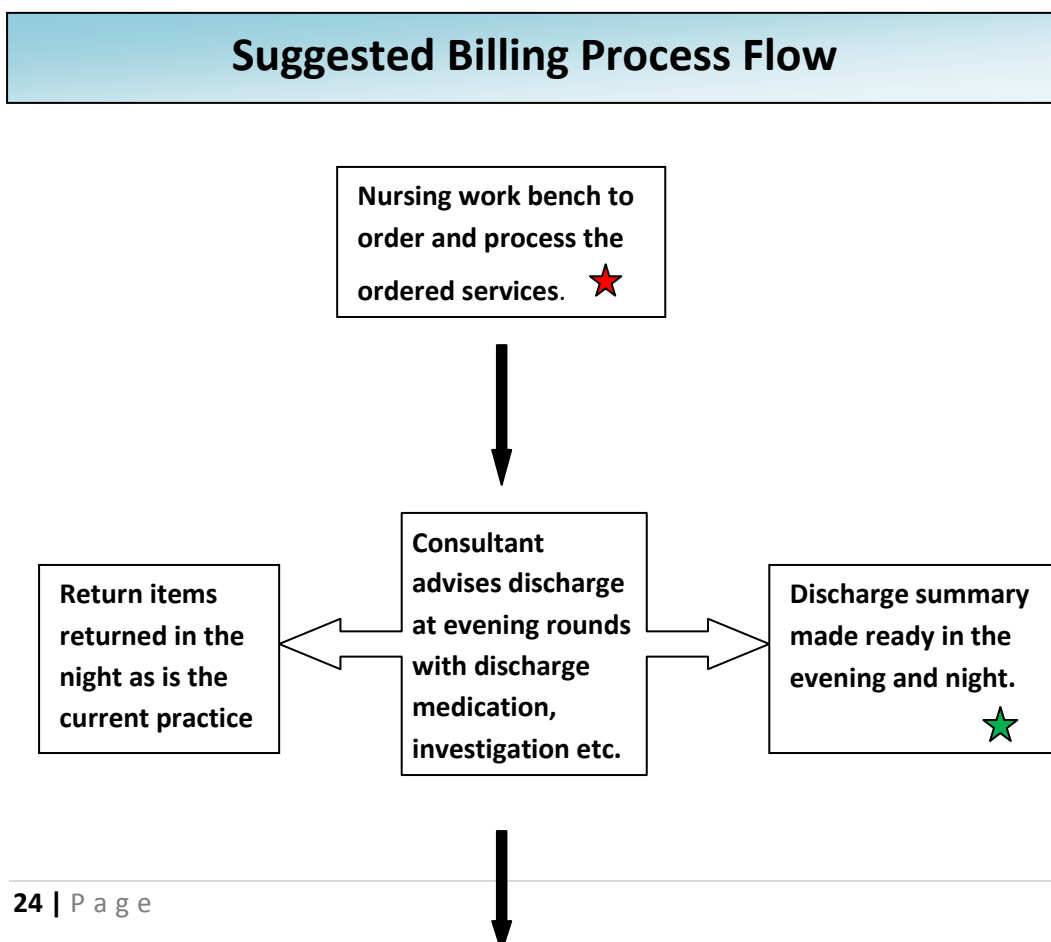
- Having in place a strong follow up system and efficient monitoring of the process at all the steps.
- Using ward pharmacist as potential candidates for software entries after the medicine indents are done with. They may also serve as on the job trainers for the nursing staff and help them with their day to day technological problems.

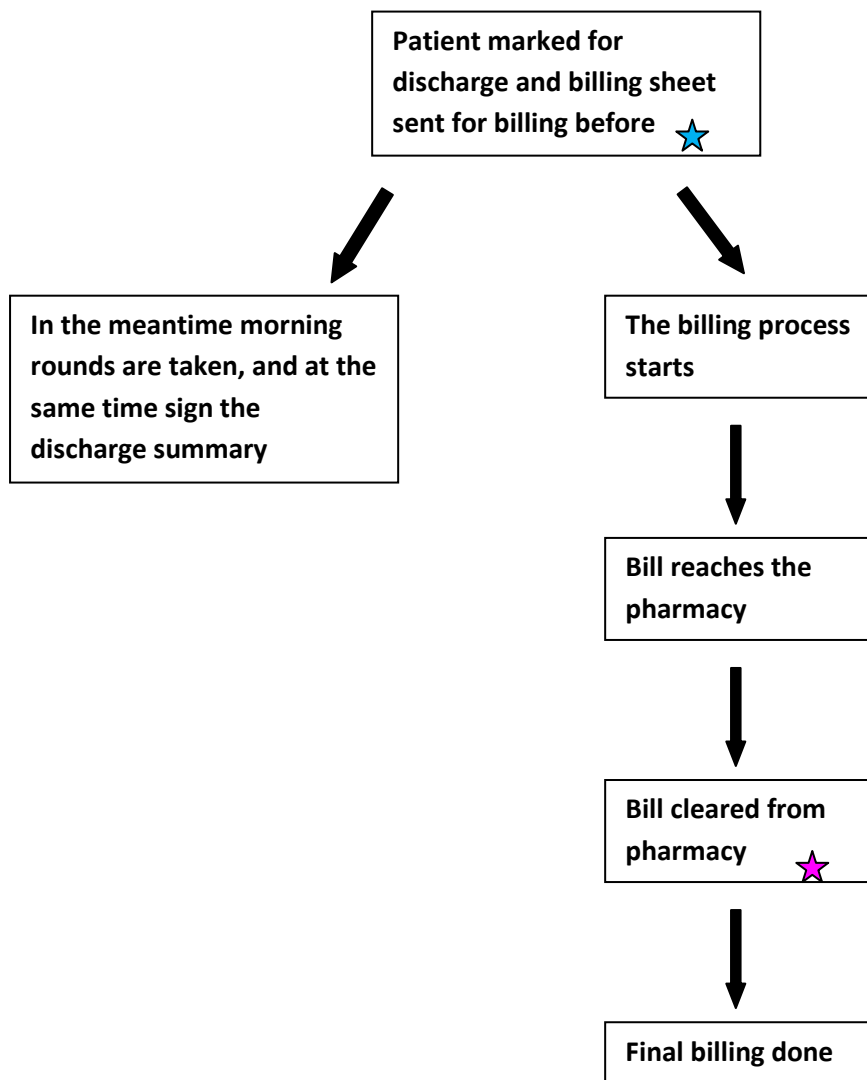
2) Suggestions for the process:

The basic structure and procedure of billing cannot be altered but there are certain measures which can be taken behind the stage to improve the actual performance on the D - day. It conforms quite well to the saying that “The more we sweat in peace, less we bleed in the war”.

Thus to improve the process some alterations can be suggested in support services. The main focus is on rationalising the lean time with the busy time. This process is mainly applicable for the planned discharges as even if we can manage them we can easily deal with the unplanned ones proficiently.

The suggested process flow is as follows –





★ The IP services are first provided to the patients and then entered into the software by the nursing staff. Since these services are already utilized by the patient simultaneously the services can be processed also. If this is made a routine very few services will need to be processed at the time of discharge and billing would be easier and quicker.

★ The main responsibility of preparing the discharge summary is that of the medical officers of the concerned ward. After the evening rounds as many as possible discharges to be made by the typists but after their duty gets over at 6 pm, the night MOs should take

up the responsibility of preparing the discharge summaries rather than postponing it for the next morning.

The MOs re located as – 1 on the 1st floor for FGW, CTVS and Private Ward.

1 on LG floor for MGW I & II

The critical wards have their separate individual MOs

Each ward does not have an average of planned discharges more than 5. If the work is distributed between the typist and MOs, the workload is not much. Moreover, the need for patient care and monitoring are to their minimum as the critical patients are already in the critical wards. Thus this time could be utilised in preparing the discharge summaries so that a lot of time is saved for these patients the next day.

 Here we require the consultants' co-operation where in they advise the patient for discharge in the previous evening round along with the diagnosis, discharge medication, instructions and any final investigations if required. The next day the patient marked for discharge and sent for billing after telephonically confirming from the consultant of the discharge. This can only be practiced if the consultants co-operate and agree to this idea.

 Bills if reach early before indent timings can be cleared by the pharmacy without taking much time. Also an organised and systematic list of the rejected items should be maintained so as to easily locate any pending indents and bill them. This will not only quicken the pace of the process, it will also save financial losses due to under billing.

Thus a revised Activity chart will be as following:

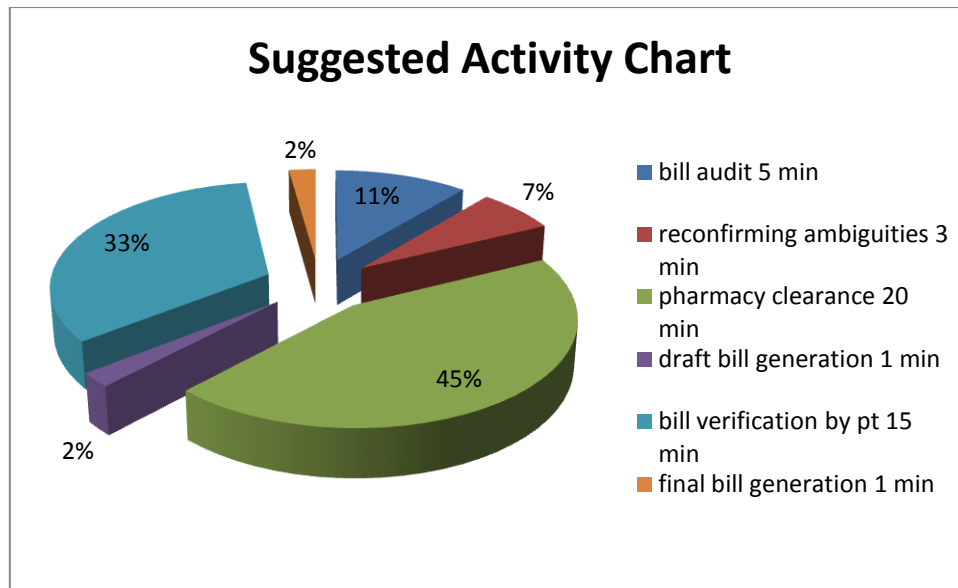


Fig 8: Suggested Activity chart of the Billing department.

As evident from the suggested process chart and the activity chart, the time taken would be only 45 min in contrast to 95 min as seen in the previous activity chart. **Thus we can save 50 min per bill and taking the average discharges to be around 30, 3 man hours can be saved per day. Where, 1 man hour = 8 hours. If monetised, these hours will result into conservation of financial resources of the organisation as well.**

Miscellaneous suggestions:

All the processes carried out in the hospital are like a chain reaction and a single faulty step may lead to complete derangement of the entire chain of events. These are a few suggestions based on the observations.

- In order to improve the billing so that an effective discharge practice may be achieved, the consultants' co-operation is a must.
- To improve customer satisfaction the practice of passing the buck onto other departments and shrugging off responsibilities should be changed to receiving the buck and satisfying their queries as a prepared and well satisfied mind is less irritable which will lead to less arguments on all fronts.
- Also some pre-emptive measures can be undertaken where in they can be promised more than the actual time required for the process and then can be surprised by taking lesser time adding to their delight.

- Measures should be undertaken to reduce the cases of under as well as overbilling by increasing staff promptness as well as developing a strong feeling of centrality so that they work more passionately which will lead to less errors and more employee and customer satisfaction.

Limitation of the study:

- The sample could be derived from the discharges between 9 am to 5:30 pm only, and not beyond that duration.
- As it requires a reasonably long time for such observations, so these observations of 20 days are only a representative study.

PROJECT 2

Compliance of the Clinical Pathways

Introduction:

Narayana Hrudayalaya is an institution which is 2.5 yrs old. It has earned a great name in the health sector, owing to its continuous work up towards achieving its goal of quality and affordable healthcare to all. The vision and mission of NH group of hospitals are realised every moment when each and every unit of the hospital strives to achieve excellence in whatever they do. The recently earned JCI accreditation is a new feather in its cap.

This somewhere rebukes the old saying “old is gold”, and emphasises the fact that even a new born can prove its platinum by managing and maintaining quality standards and providing excellent service and care in the field of health.

The NH group has various measures to ensure quality of healthcare delivered by it and has standardised the operating procedures for even the most miniscule task.

A part of this standardisation is the clinical pathway checklist which was prepared after a detailed discussion and guidance of the concerned consultants for the systematic and organised care of the patients of that particular branch of treatment.

These pathways are a tool for quality check exercises which ensure that the bed side procedures and care conforms to these guidelines as if diligently followed, these pathways ensure quality healthcare keeping in mind the patient welfare as well as the effective treatment modalities.

Methodology:

In this study 3 clinical pathways were traced and their compliance was studied retrospectively for the months of March & April as well as for the patients admitted during the span of 17 days, starting from 19th May to 6th June, hereinafter referred to as CONCURRENT PATIENTS.

The pathways studied are as follows:-

- 1) CABG “A” Pathway
- 2) TKR Pathway
- 3) Hysterectomy Pathway

Study Design: Descriptive Cross Sectional Study

Study Area: NARAYANA HRUDAYALAYA, Jaipur

Study Sample: 100% sample of the concerned pathway for the study period.

A checklist was developed for all the pathways in excel sheet format and observations were recorded in these sheets.

This list consisted of different study parameters as applicable for different specialities. These parameters ranged from preoperative profile to OT day profile and the post operative care and discharge. Activities relating to all these phases of patient stay were taken into account for all the above mentioned specialities of healthcare and were taken as study variables.

A retrospective study was carried out in the medical records department for the patients of the pathways under study for the months of March and April. The data were collected from their inpatient records and entered into the excel sheet format.

Scoring: The scoring criterion was whether that particular activity was carried out according to the pathway checklist guideline or not.

A score of 1 was given to the activities performed on the assigned day and a score of 0 was given if the activities were not performed on the assigned day.

For the retrospective study, medical records were studied in detail to note down the activities with their days of deliverance and scores were given accordingly.

For the concurrent patient study, observations were made from 19th May to 6th June. The admissions for these specialities were tracked and data was collected by daily follow up of the activities as performed in the concerned wards.

The wards visited in the course of the study were:

- 1) Private & Semi – private wards – mainly for TKR patients
- 2) ITU, male CTVS, FGW wards for CABG “A” patients
- 3) ANC & FGW wards for Hysterectomy patients

A daily follow up course was observed to collect data regarding the pathway checklist and the scores were given.

Observations:

The observations of this study are in the form of scores as provided for various pathways parameters. The detailed statistical tables are available in the annexure.

Data analysis:

The percentage compliance and non – compliance can be calculated for all the three pathways using the above data by the following formula –

% compliance = no. of compliant parameters / total no. of observations * 100

Where total no. of observations = total no. of parameters * total no. of observed cases.

Using the above formula the % compliance for the study period was calculated.

Compliance for CABG “A” pathway:

- 1) **For the month of March 2013**

- a) The total compliance for the month of March is 100% as calculated from the above observational data.

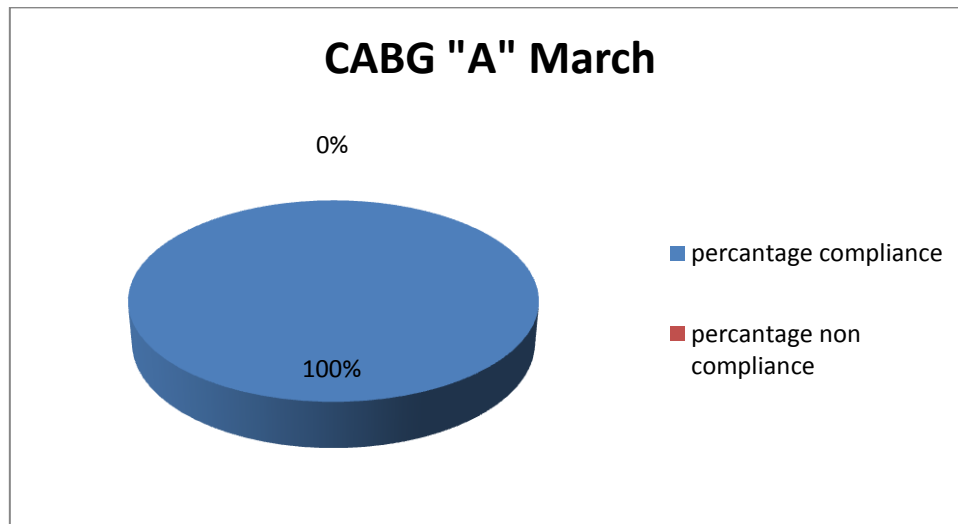


Fig 1: Total Compliance and non – compliance of CABG “A” Pathway

- b) The pre- operative compliance for CABG “A” Pathway for the month of March is 100%

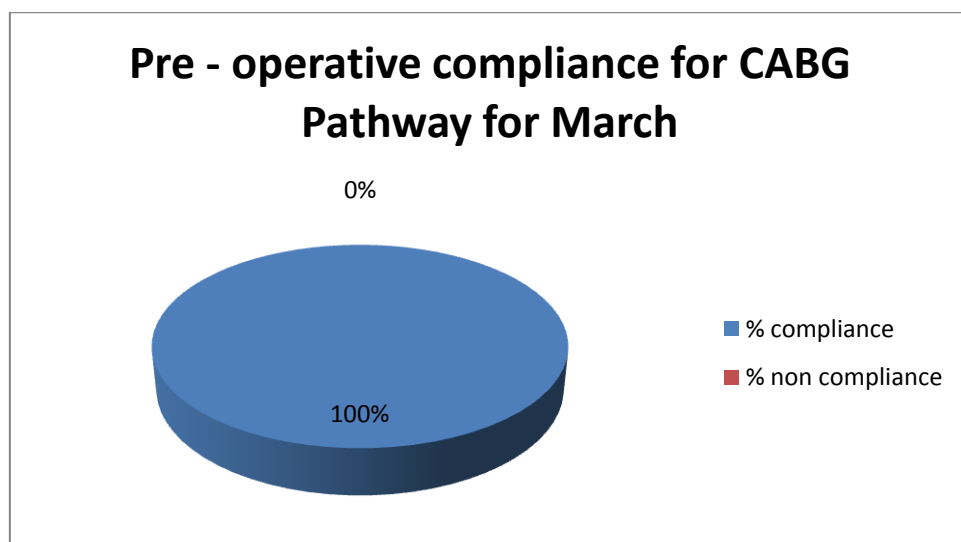


Fig 2: Pre - operative Compliance and non – compliance of CABG “A” Pathway

- c) The post – operative compliance for CABG “A” Pathway for the month of March is 100%

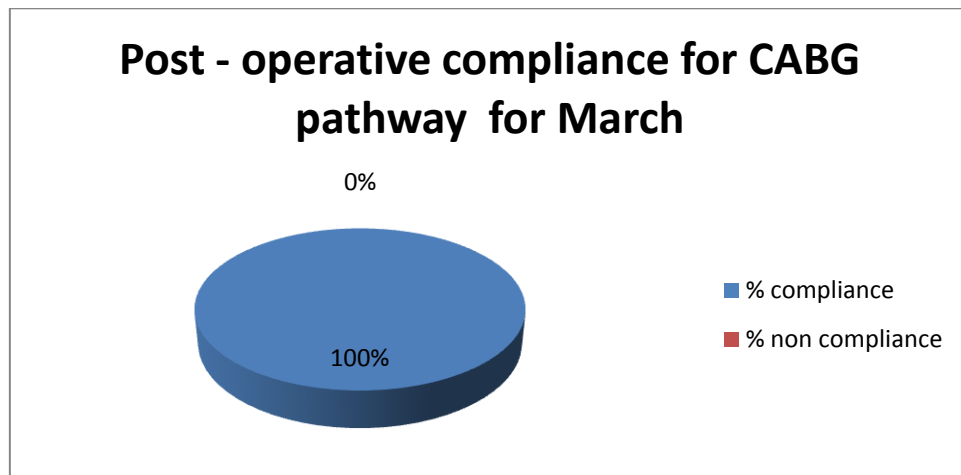


Fig 3: Post - operative Compliance and non – compliance of CABG “A” Pathway

2) For the month of April 2013

- a) The total compliance for the month of April is 99.23% as calculated from the above observational data. A non – compliance of 0.37% is owing to the absence of discharge antibiotic which was not documented in the discharge summary.

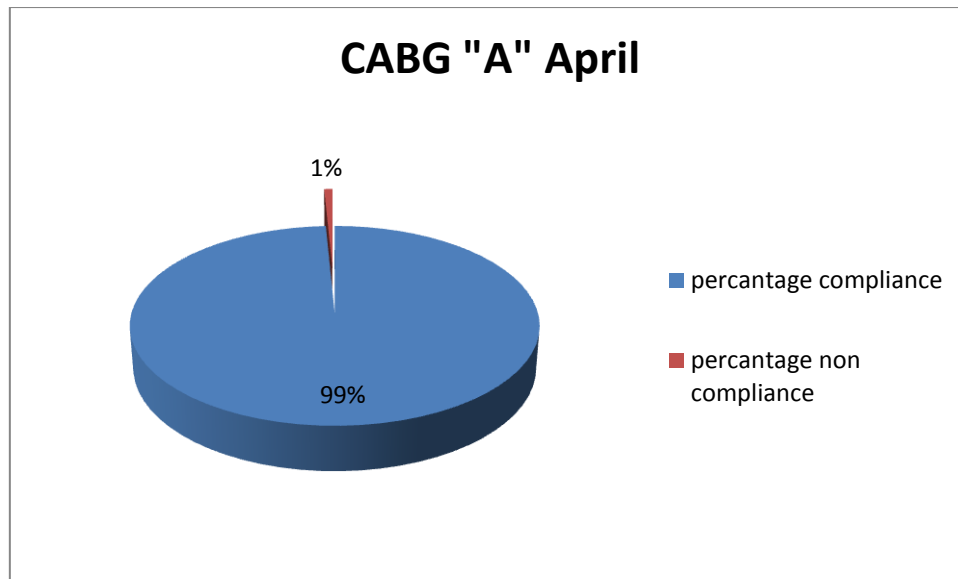


Fig 4: Total Compliance and non – compliance of CABG “A” Pathway

- b) The pre- operative compliance for CABG “A” Pathway for the month of April is 100%

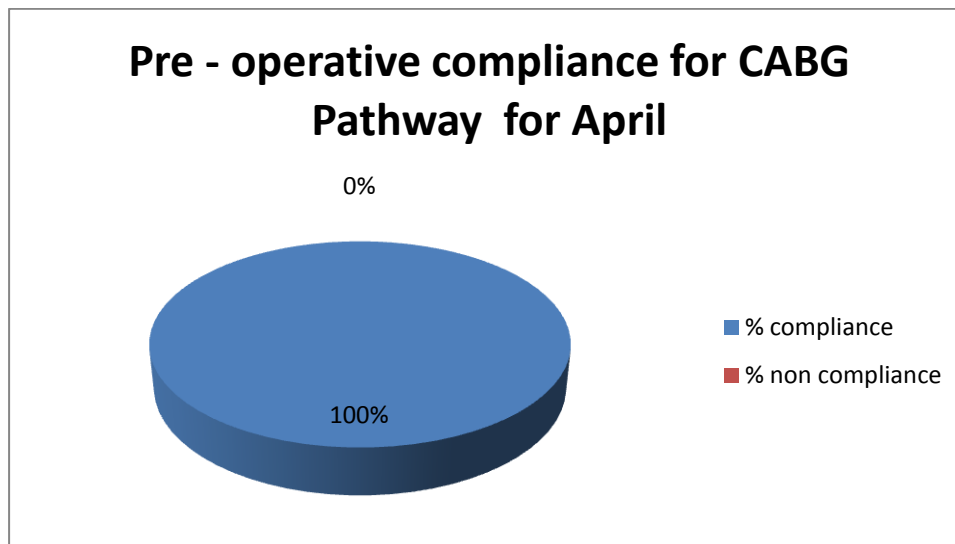


Fig 5: Pre - operative Compliance and non – compliance of CABG “A” Pathway

- c) The post – operative compliance for CABG “A” Pathway for the month of April is 98.57%. A non – compliance of 1.43% is on account of lack of documentation of discharge antibiotic in the discharge summary.

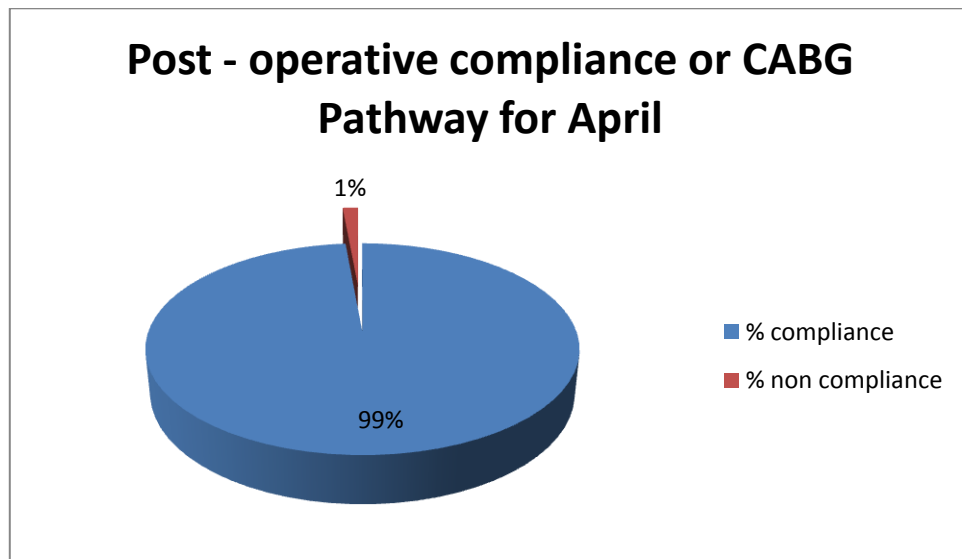


Fig 6: Post - operative Compliance and non – compliance of CABG “A” Pathway

3) Concurrent patients:

- a) The total compliance for the concurrent patients is 98.46% as calculated from the above observational data. A non compliance of 0.77% is on account of lack of documentation of discharge antibiotic in the discharge summary.

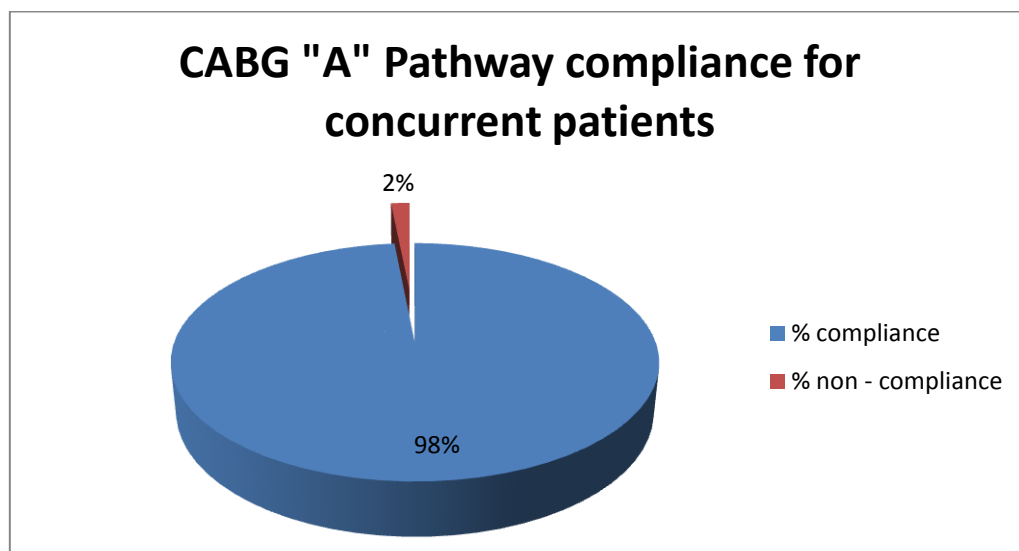


Fig 7: Total Compliance and non – compliance of CABG “A” Pathway

- b) The pre- operative compliance for CABG “A” Pathway for the concurrent patients is 100%

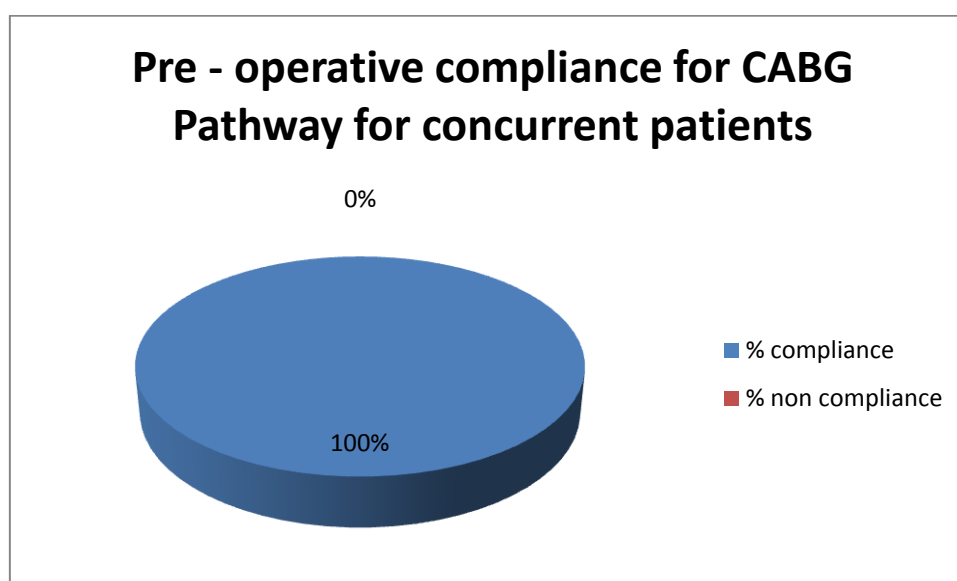


Fig 8: Pre - operative Compliance and non – compliance of CABG “A” Pathway

- c) The post - operative compliance for CABG “A” Pathway for the concurrent patients is 97.14%. A non compliance of 2.86% is on account of absence of documentation of discharge antibiotic in the discharge summary.

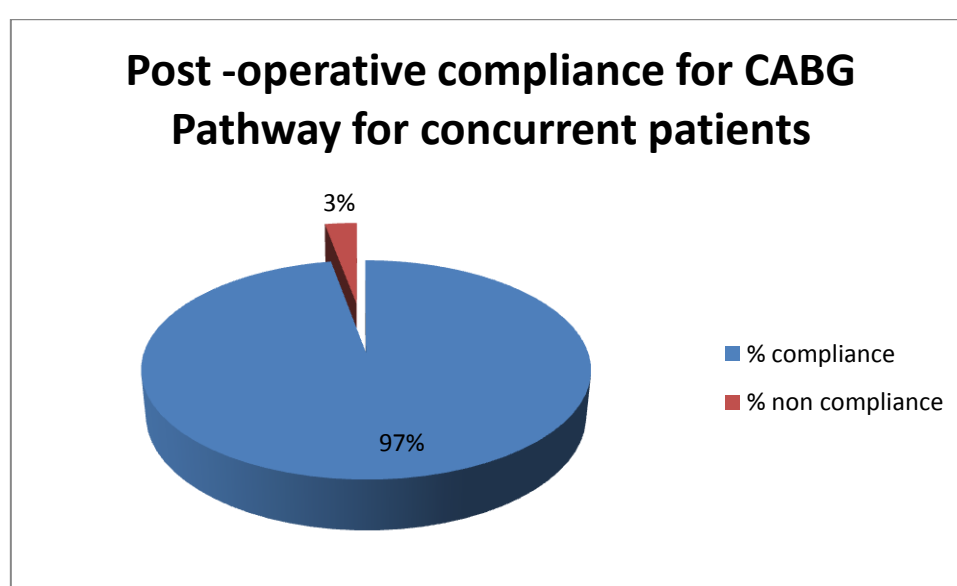


Fig 9: Post - operative Compliance and non – compliance of CABG “A” Pathway

Compliance for Hysterectomy Pathway:

1) For the month of March 2013

- a) The total compliance for the month of March is 91.07% as calculated from the above observational data. A non compliance of 8.93% is on account of absence of CBC in pre –operative profile.

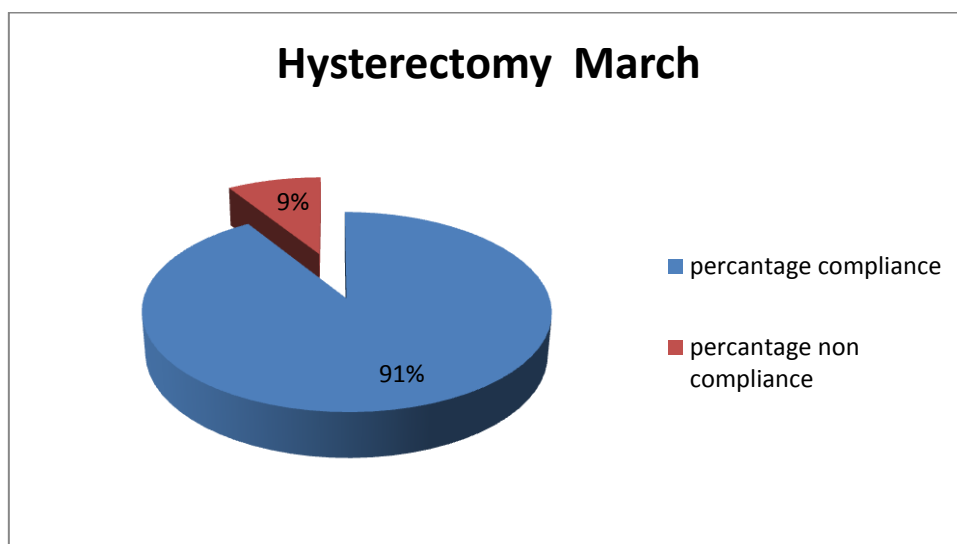


Fig 10: Total Compliance and non – compliance of Hysterectomy Pathway for March

- b) The pre- operative compliance for Hysterectomy Pathway for the month of March is 88.57%. A non – compliance of 11.43% is due to absence of CBC in the pre - operative profile.

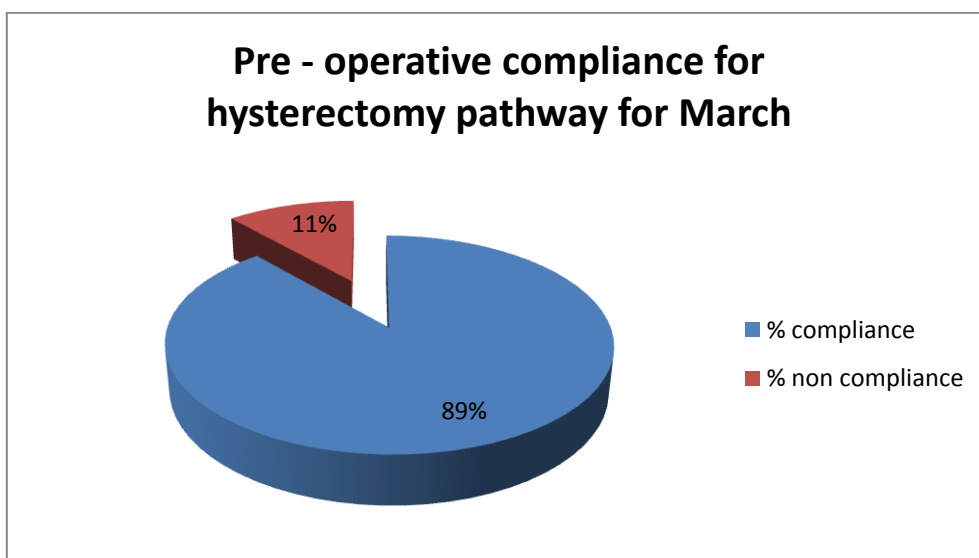


Fig 11: Pre – operative Compliance and non – compliance of Hysterectomy Pathway for March

- c) The post- operative compliance for Hysterectomy Pathway for the month of March is 100%

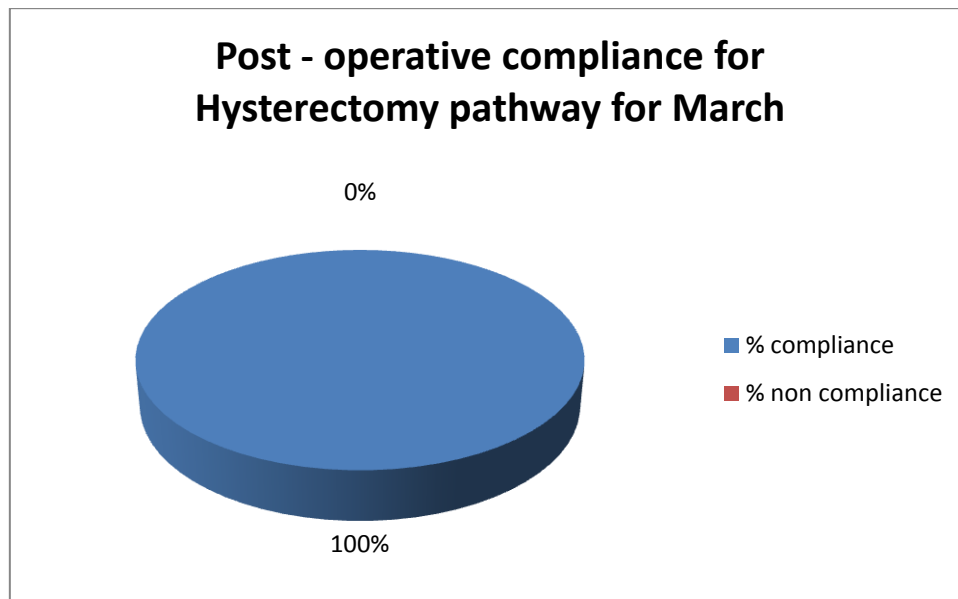


Fig 12: Post – operative Compliance and non – compliance of Hysterectomy Pathway for March

2) For the month of April 2013

- a) The total compliance for the month of April is 91.67% as calculated from the above observational data. A non compliance of 8.33% is on account of lack of CBC in pre – operative profile.

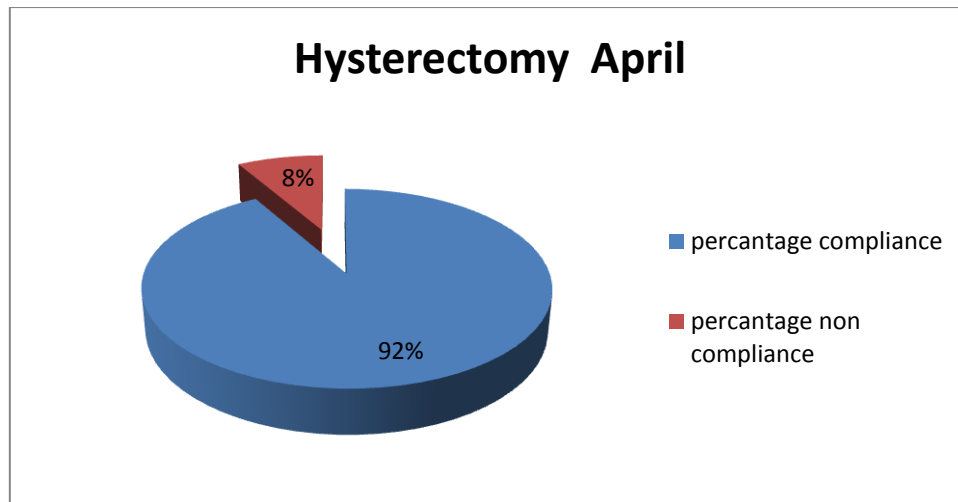


Fig 13: Total Compliance and non – compliance of Hysterectomy Pathway

- b) The pre- operative compliance for Hysterectomy Pathway for the month of April is 86.67%. A non – compliance of 13.33% is on account of absence of CBC in pre – operative profile.

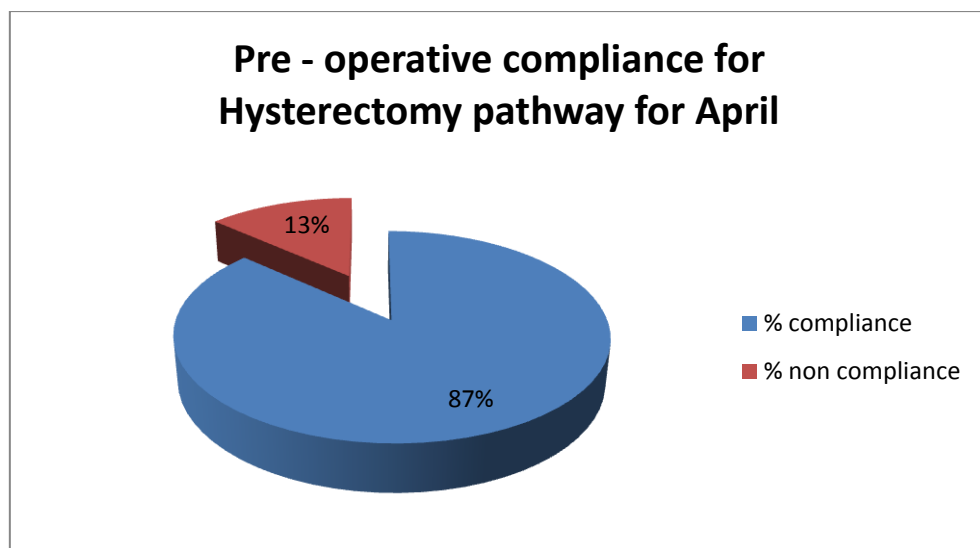


Fig 14: Pre – operative Compliance and non – compliance of Hysterectomy Pathway for April

- c) The post- operative compliance for Hysterectomy Pathway for the month of April is 100%

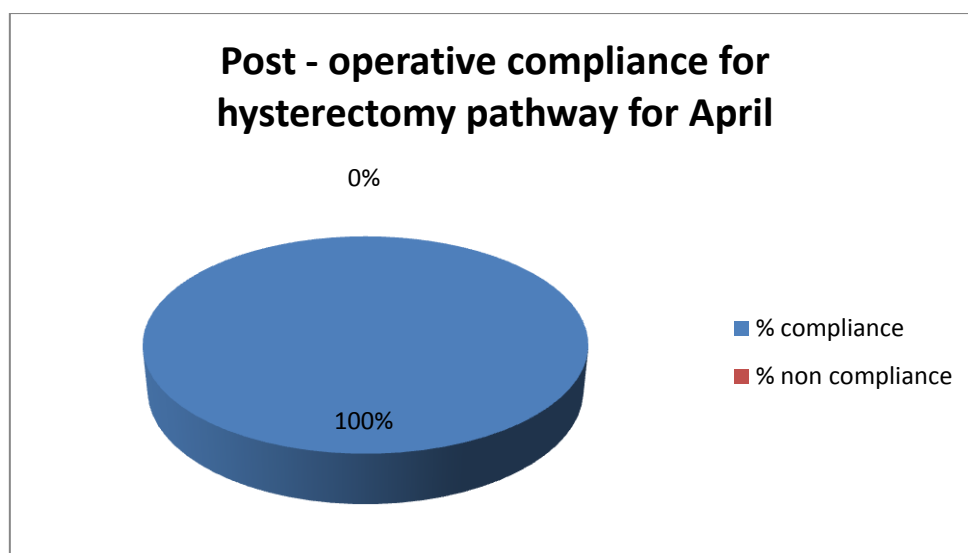


Fig 15: Post – operative Compliance and non – compliance of Hysterectomy Pathway for April

3) Concurrent Patients

- a) The total compliance for the concurrent patients is 96.43% as calculated from the above observational data. A non compliance of 3.57% is on account of lack of CBC in pre – operative profile.

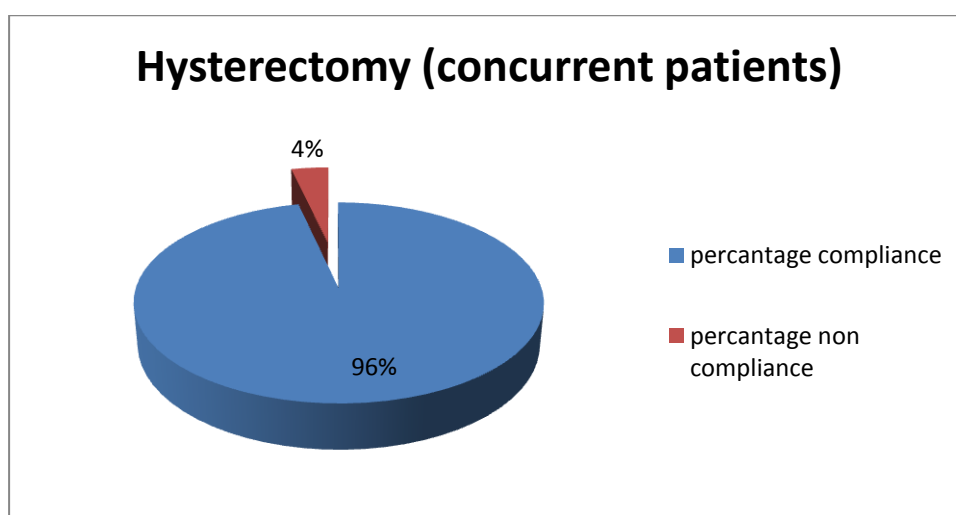


Fig 16: Total Compliance and non – compliance of Hysterectomy Pathway

- b) Owing to the absence of CBC in the pre- operative profile of the hysterectomy patients, the pre – operative compliance of the Hysterectomy pathway is low and is about 94.29% with a non – compliance of about 5.71%.

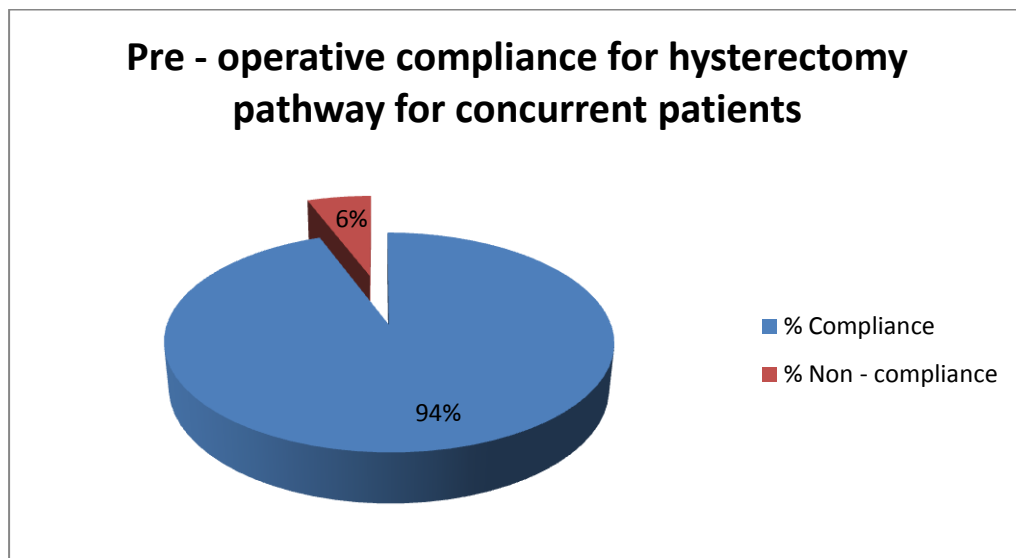


Fig 17: Pre – operative Compliance and non – compliance of Hysterectomy Pathway for April

- c) The post- operative compliance for Hysterectomy Pathway for the concurrent patients is 100%

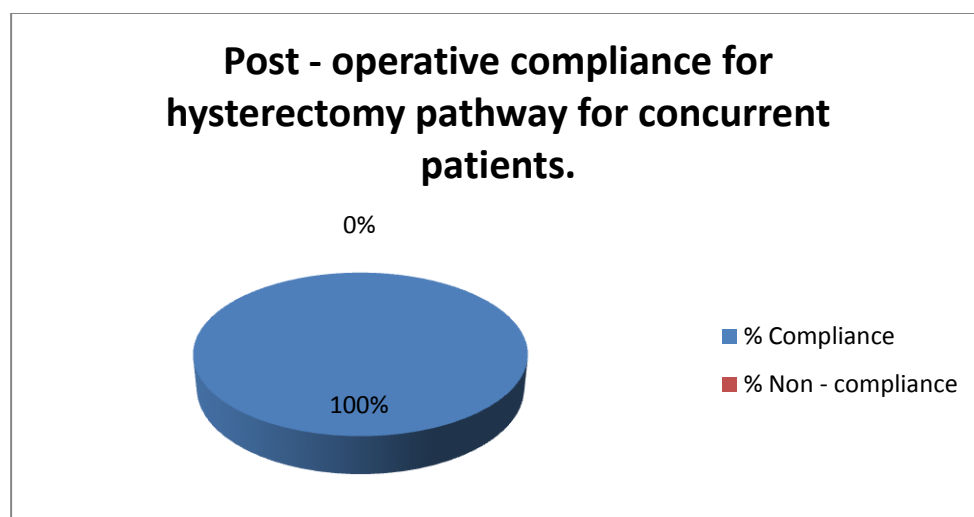


Fig 18: Post – operative Compliance and non – compliance of Hysterectomy Pathway for April

Compliance for TKR pathway:

1) For the month of March 2013

a) The total compliance for the month of March is 96.88% as calculated from the above observational data. A non compliance of 3.13% is on account of following parameters –

- i) Pre – operative patient education
- ii) Physiotherapy on OT day
- iii) Post –operative X ray

The graphical representation is as given below.

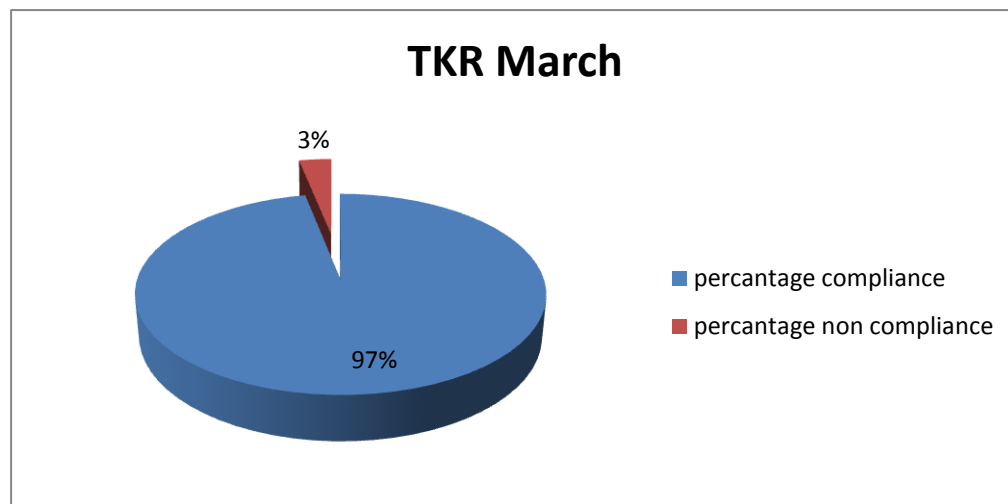


Fig 19: Total Compliance and non – compliance For TKR

b) The pre-operative compliance for March is 96.88%. A non – compliance of 3.13% is on account of lack of documentation of pre - operative patient education and physiotherapy.

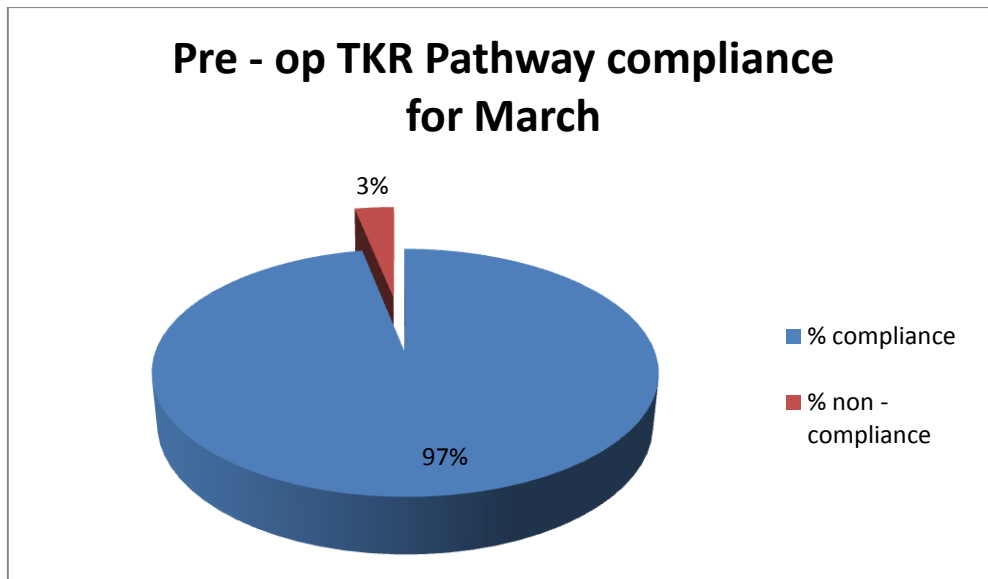


Fig 20: Compliance and non – compliance For Pre-Operative Parameters for TKR

- c) The OT day compliance for March is 92.05%. A non compliance of 7.95% is on account of lack of documentation of physiotherapy rendered to the patients on OT day.

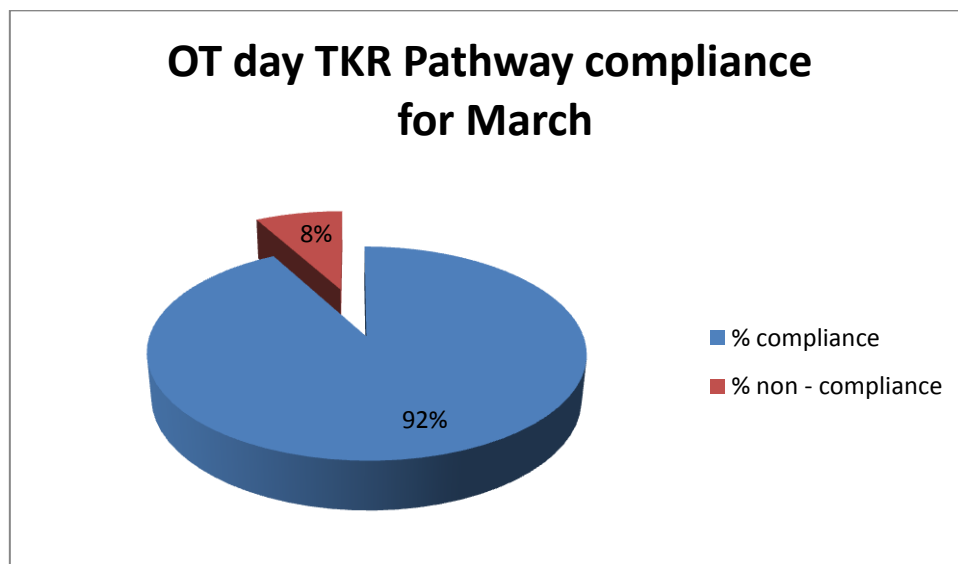
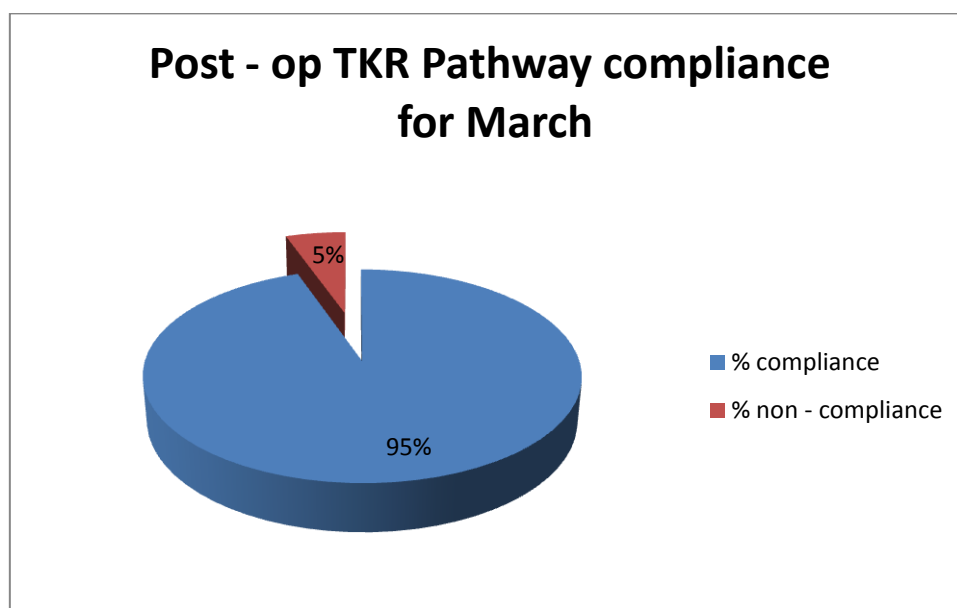


Fig 21: Compliance and non – compliance For OT Day Parameters for TKR

- d) The post-operative compliance for March is 94.64%. A non compliance of 5.36% is on account of post operative X ray not done on the assigned day as per the pathway but was done on post - op Day -1.



**Fig 22: Compliance and non – compliance For Post Operative
Parameters for TK**

2) For the month of April 2013

- a) The total compliance for the month of April is 96.97% as calculated from the above observational data. A non- compliance of 3.03% is on account of following parameters –
- i) Post – operative patient education
 - ii) Physiotherapy on OT day
 - iii) Post –operative X ray

The graphical representation is as given below.

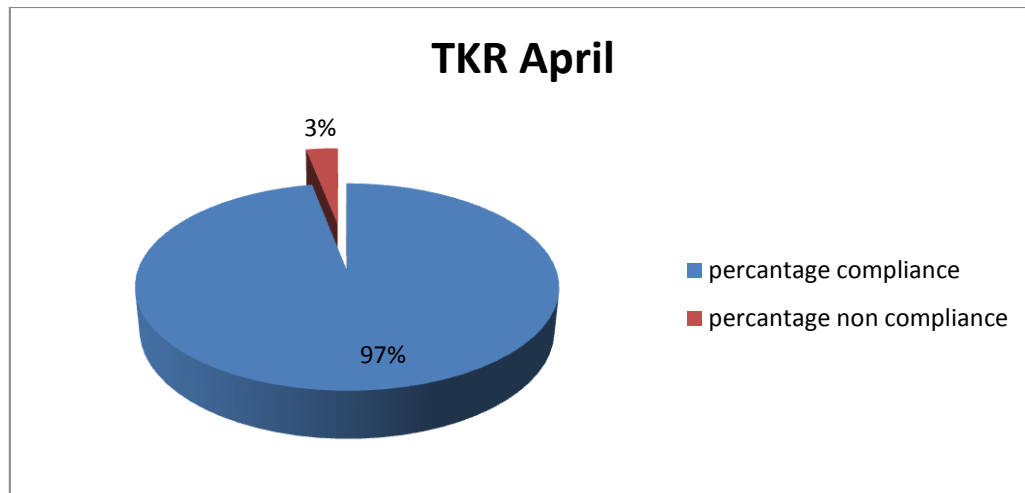


Fig 23: Total Compliance and non – compliance For TKR

- b) The pre-operative compliance for April is 97.92%. A non compliance of 2.08% is on account of an antibiotic different from that recommended in the pathway was given preoperatively.

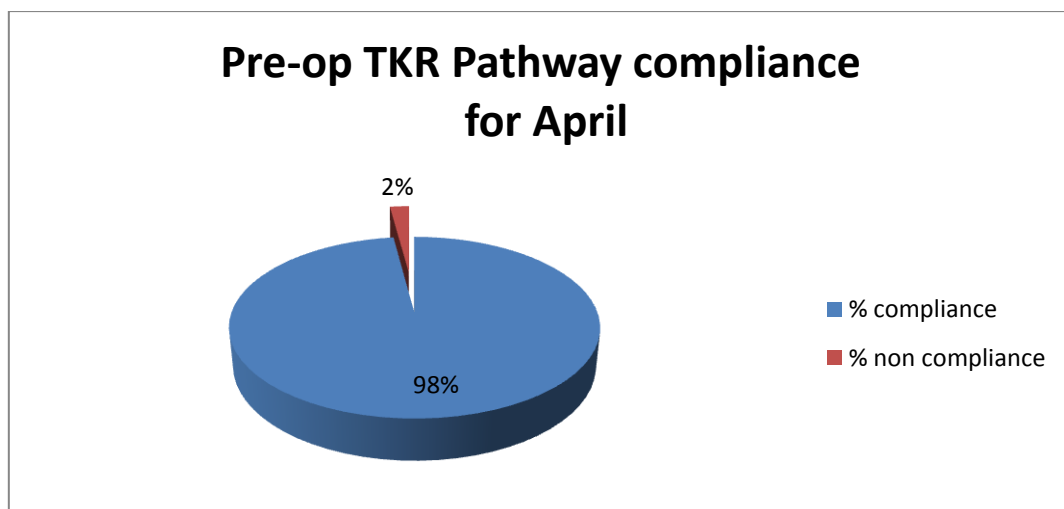


Fig 24: Compliance and non – compliance For Pre-Operative Parameters for TKR

- c) The OT day compliance for April is 92.42%. A non compliance of 7.50% is on account of lack of documentation of physiotherapy rendered to the patients on OT day.

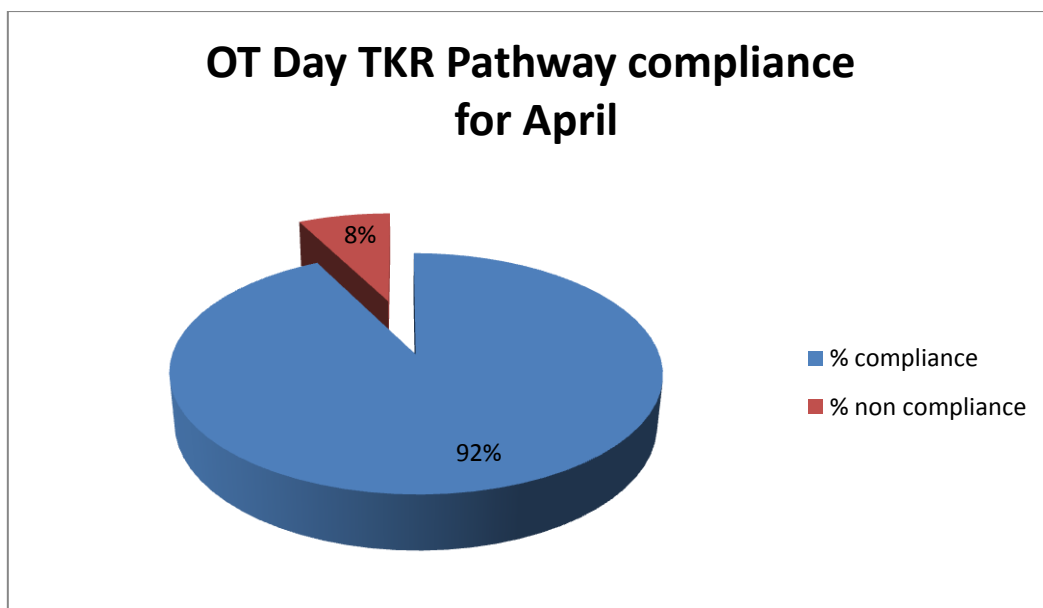


Fig 25: Compliance and non – compliance For OT Day Parameters for TKR

- d) The post-operative compliance for April is 94.44%. A non compliance of 5.56% is on account of post operative X ray not done on the assigned day.

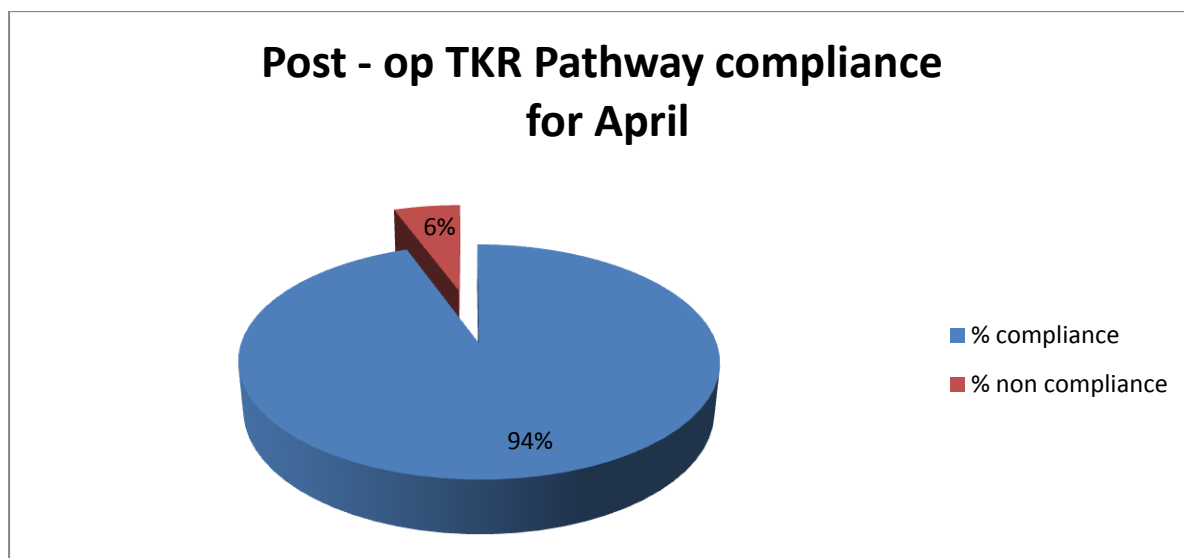


Fig 26: Compliance and non – compliance For Post operative Parameters for TKR

3) Concurrent Patients

- a) The total compliance for the concurrent patients is 91.67% as calculated from the above observational data. A non compliance of 8.33% is on account of following parameters –
- iv) Pre – operative patient education
 - v) Physiotherapy on OT day
 - vi) Post –operative X ray
 - vii) Post – operative patient education

The graphical representation is as given below.

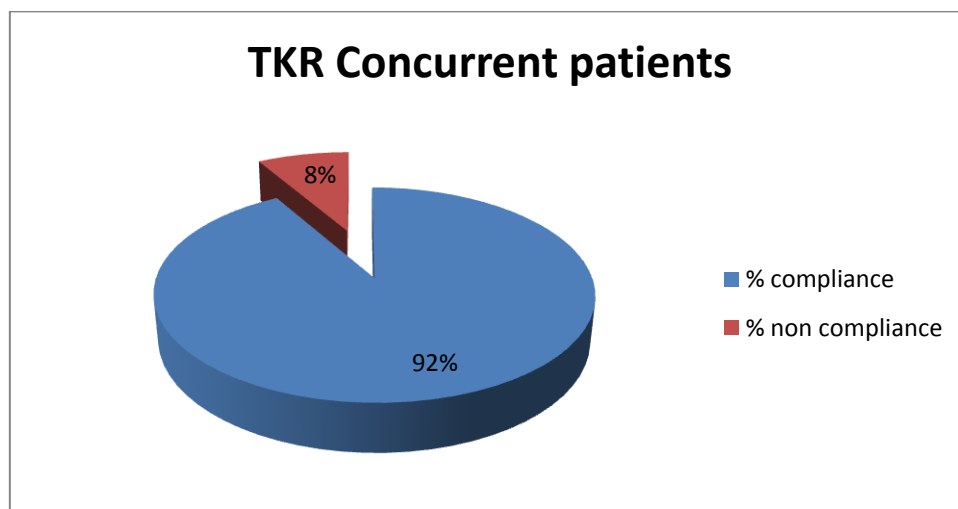


Fig 27: Total Compliance and non – compliance for TKR Pathway

- b) The pre-operative compliance for Concurrent Patient is 41.67%. A non compliance of 2.08% is on account of an antibiotic different from that recommended in the pathway given preoperatively.

Pre - op TKR Pathway compliance for concurrent patients

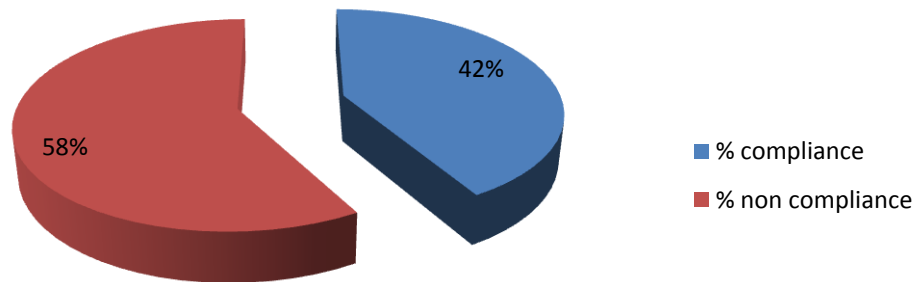


Fig 28: Compliance and non – compliance For Pre-Operative Parameters for TKR

- c) The OT day compliance for Concurrent patients is 91.92%. A non compliance of 8.08% is on account of lack of documentation of physiotherapy rendered to patients on OT day.

OT Day TKR Pathway compliance for concurrent patients

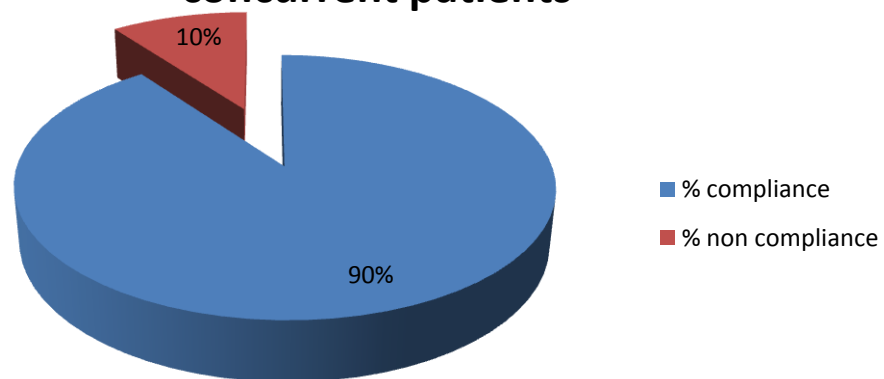


Fig 29: Compliance and non – compliance For OT Day Parameters for TKR

- d) The post operative compliance for Concurrent patients is 90.48%. A non compliance of 9.52% is on account of absence of post operative X ray on the assigned day & lack of patient education after surgery.

Post - op TKR pathway compliance for concurrent patients

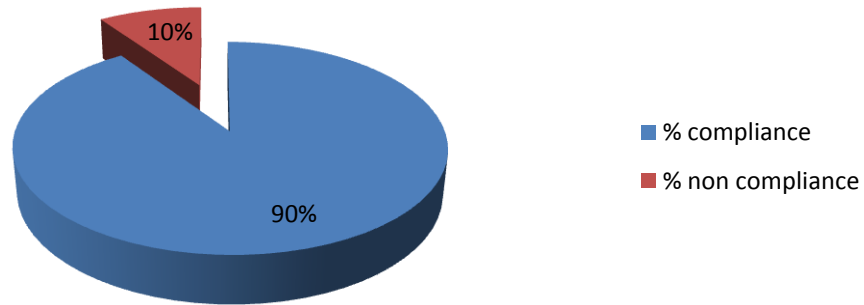


Fig 30: Compliance and non – compliance For Post-Operative Parameters for TKR

Special Observations

It was observed that in TKR pathway, the patient education, both pre and post operative, suggested a gap in documentation of the education given verbally to the patients.

According to the data analysis, in the retrospective data, the compliance for these parameters almost touches the 100% mark but the picture was quite contradictory in case of concurrent patient observations. The compliance in the concurrent patients was very low and the post operative patient education was as low as 0.

Study period	Pre – operative education compliance	Post – operative education compliance
March	87.50%	100%
April	100%	60%
concurrent	66.67%	0

Table: shows compliance of patient education (both pre & post – operative) for the entire study period.

The following illustrations are a representation of the situation.

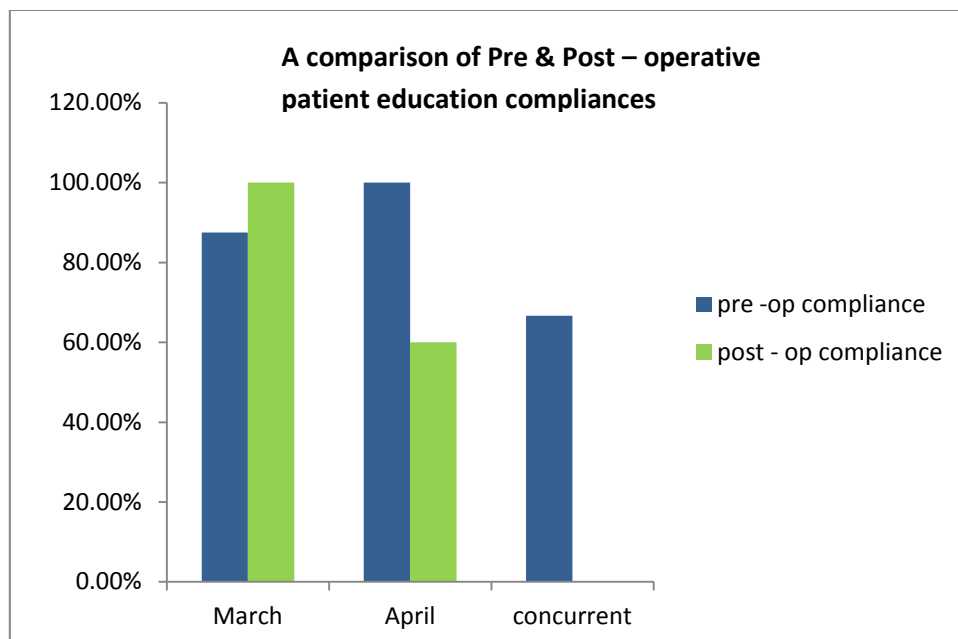
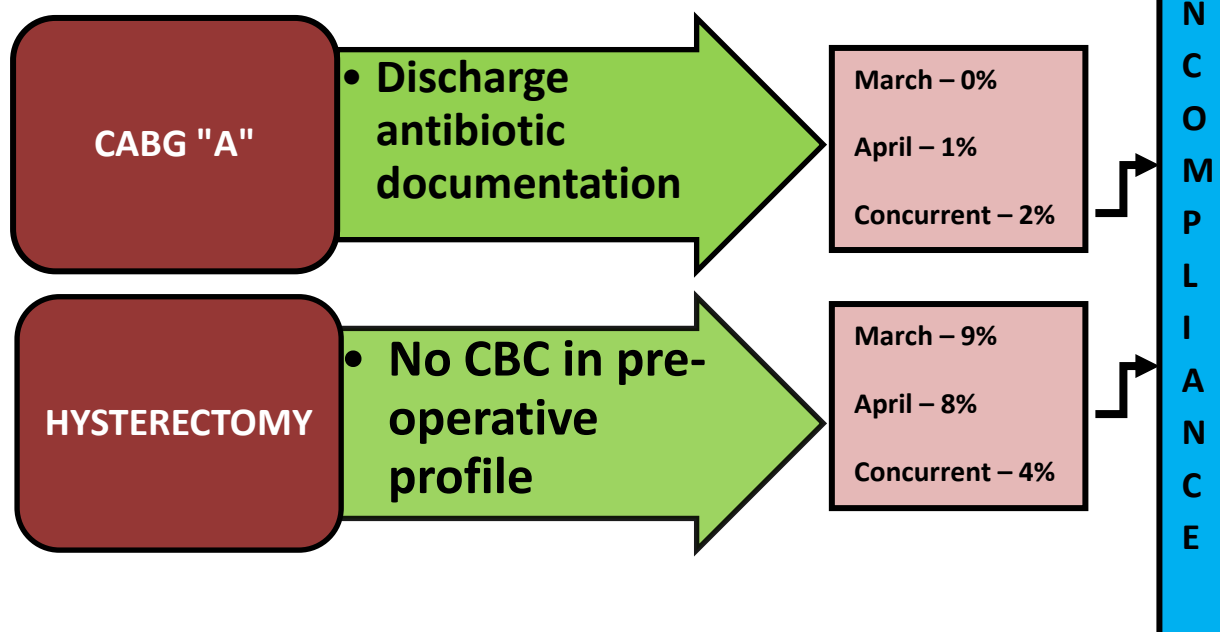
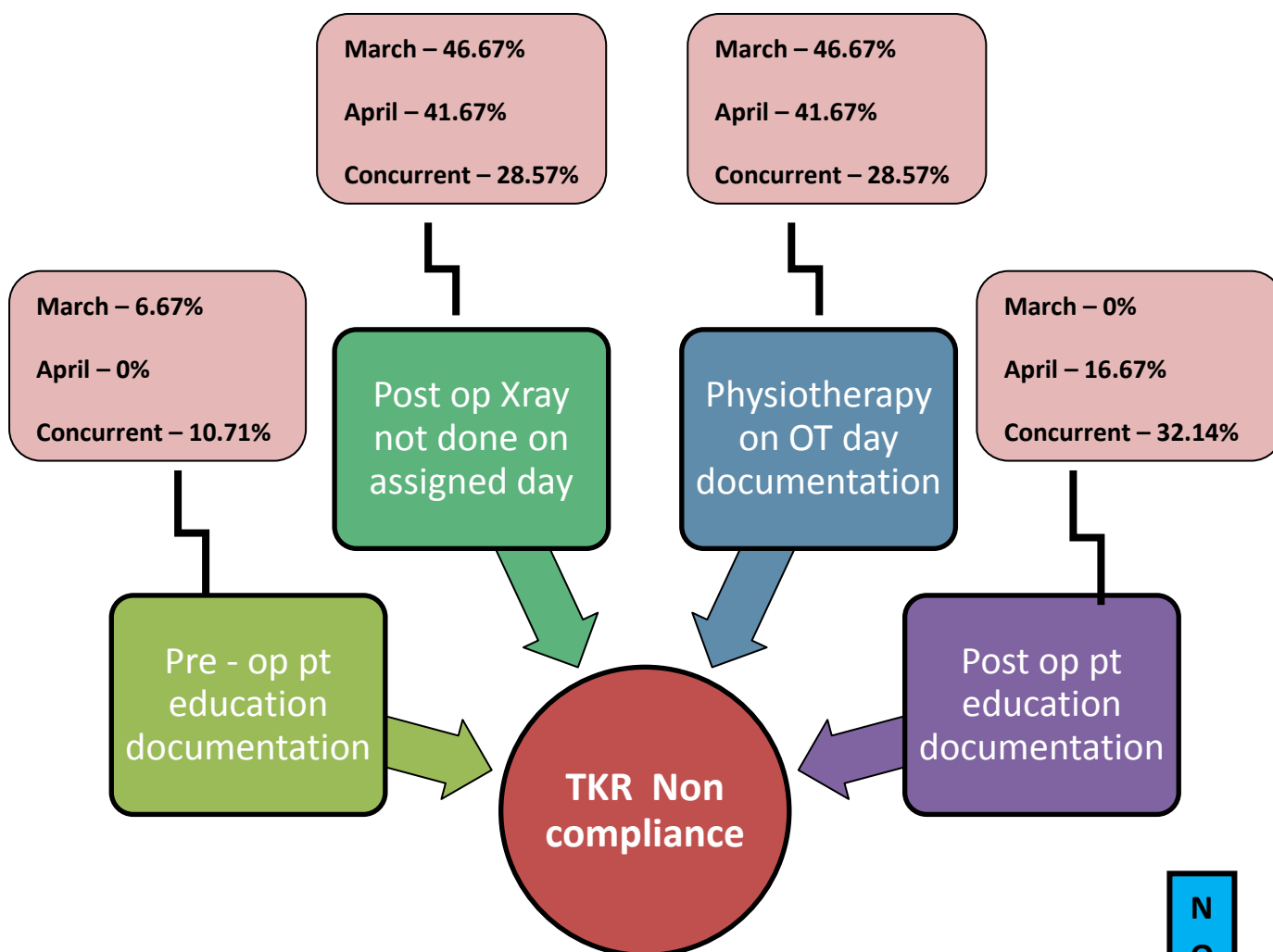


Fig 31: A comparison of compliances for pre & post – operative patient education for March, April & concurrent patients.

Key findings:

The key findings of the study of compliance towards clinical pathways can be summarised by the following diagram -----



Result & conclusion:

The level of compliance of pathways in all the three specialities were high except in the case of few of TKR Pathway parameters like pre & post operative patient education, post – operative X ray and physiotherapy on OT day.

Suggestions:

Special attention to be paid on pathway parameters whose compliance rate is lower than 80%.

As most of the post – operative X- rays in TKR pathway are done on post – operative day 1, it may be a good idea to include post – op X – ray on day 1 rather than on day 2 in the pathway checklist. This suggestion should be thoroughly discussed by the concerned consultant before implementation.

As discussed with the physiotherapist, the physiotherapy on OT day is mostly rendered by the nursing staff, but there is no documentation for the same. Thus bridging the gap between what is done and what is documented is the need of the hour.

Better monitoring system in the wards should be introduced so as to minimise the gap between actual deliveries of services and their documentation.

Limitations:

All observations are based on the written records available in the hospital.