Reduction in Billing Related Errors in In-patients Department of Narayana Multispecialty Hospital, Jaipur
(A Quality Improvement Plan)

Internship Training
at
Narayana Multispecialty Hospital, Jaipur

By
Jharna Bajpai

Under the guidance of
Dr. Barun Kanjilal

Post Graduate Diploma in Hospital & Health Management
2012–14

Institute of Health Management Research
Jaipur
2014

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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Jharna Bajpai student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management Research, Jaipur has undergone internship training at Narayana Multispecialty Hospital, Jaipur from 25th February 2014 to 12th May 2014.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.
The Internship is in fulfillment of the course requirements.
I wish her all success in all his future endeavors.

Dean, Academics and Student Affairs
IIHMR, Jaipur

Professor Barun Kanjilal
IIHMR, Jaipur

NH Narayana™
Multispeciality Hospital
Unit of Narayana Health

NH/HRD-Off/2014/244 **Date: 13th May, 2014**

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. Jharna Bajpai** from Institute of Health Management Research, Jaipur has completed her dissertation Successfully in Narayana Multispecialty Hospital, Jaipur from 25th February, 2014 to 12th May, 2014.

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

The project was on "Reduction in Billing Related Errors in In-Patient Department"

We wish her success in her future endeavors.

For Narayana Multispecialty Hospital, Jaipur

NARAYANA HRUDAYALAYA PVT. LTD. JAIPUR

Vishnupriya Sharma
Sr. Manager-Human Resources

Now, Narayana Hrudayalaya Hospital, Jaipur will be known as Narayana Multispecialty Hospital, Jaipur and this change is supported by a new logo. However, all legal agreements will continue to be in the name of Narayana Hrudayalaya Pvt. Ltd. The legal entity has not changed. This is only a brand change.

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled Reduction in Billing Related Errors in IPD of Narayana Multispecialty Hospital, Jaipur submitted by Dr. Jharna Bajpai, enrollment no. 1319 under the supervision of **Prof. Barun Kanjilal** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from February, 25- 2014 to May, 12 2014 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 Jharnabajpai.

Date 23/May/14.

Acknowledgement

First and foremost I would like to thanks my Institute - **Institute of Health Management Research (IIHMR), Jaipur** for providing me the opportunities to understand my capabilities. I would like to thank one and all in the IHMR team for providing me a platform for my professional career as well as for helping me boosting up all my capabilities and making me confident enough to work for health care organisations.

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I convey my deep and sincere thanks Mr. Subhasis Bhattacharya, my mentor at Narayana Multi specialty hospital for giving me the opportunity to work under his guidance.

I extend my words of thanks to all the staff of Narayana Multi specialty hospital for always being so cooperative and facilitating me.

Dr. Jharna Bajpai

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ABSTRACT:

Title of the study: Reduction in billing related errors in Inpatient department of a Tertiary Care Hospital

Author's Name: Dr. Jharna Bajpai

Introduction: Billing plays an important role for both hospital and patients. It generates revenue for the hospital. From patients' perspective, it is important as it leads to patient satisfaction, firm belief in the organization & loyalty towards it. Gross billing mistakes can breach trust in a hospital by its customers. Thus, there occurs a symbiotic relationship between the two. Billing errors occur because of mistakes done in manually entering a service or not recording information correctly. The hospital billing errors constitute of medicine related billing errors, bedside related billing errors, investigation related billing errors and other errors.

Objective: To find out the factors responsible for billing errors of IPD of NH and to suggest action plans to reduce them.

Methodology: To know the factors responsible for these billing errors, primary data collection was done from 10 people working in billing department of the same hospital who generate bills and update the billing sheet, 20 nursing staff and 20 technicians of laboratory and radiology department by interviewing them about factors responsible for billing related errors in a hospital. Secondary data collection was done by auditing 85 files of discharged patients and week wise challenges, findings and action plans were given

Result: Continuous monitoring of the action plans was done and reduction in billing related errors was seen after implementation of these plans by 26%. In the last week of this study, the bedside errors and others came down to zero and investigation related billing errors also showed a tremendous reduction.

Key words: Billing errors, IPD, medication related billing errors, tertiary care hospital.

1.1 Introduction to the study

Billing plays an important role for both hospital and patients. It generates revenue for the hospital. From patients' perspective, it is important as it leads to patient satisfaction, firm belief in the organization & loyalty towards it. Gross billing mistakes can breach trust in a hospital by its customers. Thus, there occurs a symbiotic relationship between the two. Billing errors occur because of mistakes done in manually entering a service or not recording information correctly.

The insurance companies have taken up billing related issues with hospitals to check on the billing errors and penalizing hospitals for negligence. Following are some of the observations in billing by Insurance companies and are broadly categorized as billing errors:

Duplicate billing: To ensure that they have not been charged twice for the same service, supplies or medications.

Number of days in hospital: Check the dates of their admission and discharge. Most hospitals will charge for admission day, but not for day of discharge. If they were charged for the day of discharge, ask the hospital to waive the charge for that day. If the hospital charges them for their room/bed on the day of their discharge and charges someone else for the same room/bed on the day of their admission, the hospital will be paid twice for the same day.

Incorrect room charges: If they were in a semi-private room, charges could be made for a private room.

Unbundled Charges: This is when a group of tests are billed individually, when they should have been billed together. Surgical procedures and tests frequently consist of several parts.

Keystroke error: A computer operator accidentally hits the wrong key on a keyboard which can result in an incorrect charge or a charge for a service they didn't get.

Cancelled work: They may have been charged for expensive services or tests which their physician ordered and then cancelled or for some reason was never rendered.

A recent study by the American Medical Association found that while billing accuracy has improved, one in 10 bills paid by private health insurance have mistakes.

1.2 Introduction of the Project:

The DAMS (Daily Audit Monitoring System) team of Narayana Multispecialty Hospital, Jaipur comprises of 22 members in 11 teams including Facility Director, Medical Superintendent, Head of departments, Nursing Superintendent and others. The purpose of DAMS is to audit files, in order to do a clinical and financial audit in patient files leading to reduction of errors related to clinical process and thus achieving improvement in patient satisfaction.

Over the period of time, it has been found that billing errors in IPD were increased in the hospital. They were under the following heads:

- Medication errors: involves drug related billing errors.
- Investigation errors: involves billing errors of laboratory and other radiological investigations.
- Bedside errors: involves billing errors of random blood sugar, portable X-rays & arterial blood gas measurement.
- Others: involves billing errors of cross consultation by a consultant, discount issues.

1.3 Objective of the study:

To find out the factors responsible for billing errors of IPD of NH and to suggest action plans to reduce them.

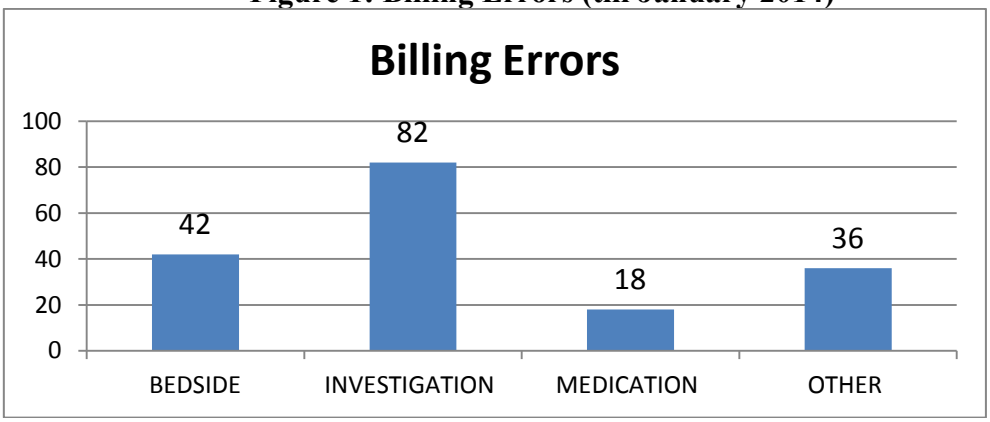
1.4 Rationale of the study:

The current levels of errors (till January 2014) were:

- Bedside Errors
- Investigation Related Errors
- Medication Related Errors
- Other Billing Errors
- Overall Billing Errors 61%

Narayana Multispecialty Hospital is one of the most reputed hospitals of Jaipur known for its quality of care and transparency in rendering services with affordability. Any amount of billing error would result in mistrust amongst the patients and insurers. In view of the same as a quality improvement project, the exercise was undertaken. Snapshot of Billing Errors (till January 2014) was:

Figure 1: Billing Errors (till January 2014)



- Bedside Errors
- Investigation Related Errors
- Medication Related Errors
- Other Billing Errors
- Overall Billing Errors 61%

2.1 Methodology

To explore the factors responsible for billing errors, a descriptive study was conducted on the staff of Narayana Multispecialty Hospital involving the people from billing department, nurses and technicians. As mentioned above, the billing errors were categorized in 4 division viz. Medicine, Bedside, Investigation and Others. But, the actual reason for their occurrence was not known. Hence a primary data collection was conducted by interviewing 10 people from billing department who generate the bills of the patients, 20 from nursing department which involved nurses as well as nurses' in-charge and 20 technicians from the department of laboratory medicine, department of radiology were interviewed.

Secondary data collection was conducted by auditing 85 files in total which were weekly audited and action plans were implemented on weekly basis.

Sampling: For the primary data collection, 10 people from billing department who generate the bills of the patients, 20 from nursing department which involved nurses as well as nurses' in-charge and 20 technicians from the department of laboratory medicine, department of radiology were interviewed. A total of 50 people were interviewed to know the reasons of billing errors. For secondary data collection, auditing of total 85 discharge patient files was done for consecutively 5 weeks; the discharge patient files which were audited by DAMS in the same week were re-audited. Action plans were suggested week wise

Tools and Techniques: The staff was directly interviewed and asked the reasons of billing related errors in IPD of NH.

Data collection: In the month of February 2014, a descriptive primary research was conducted to find out the reasons of billing errors in the hospital.

In the month of March and April, the discharge patients' files were studied on a weekly basis.

Data analysis: Data was analyzed using SPSS.

3. Results

The factors responsible for billing errors were:

Service received but bill not updated: The services have been received by the patient like any investigation, any medicine, implant, any doctor's visit for cross consultation but it was not updated in the bill resulting in loss of revenues to the hospital. This was mainly contributing to beside errors as bedside procedures like Random blood sugar, X-rays were carried out but bills were not updated.

Service not received but charged: The services were not received by the patient but mistakenly entered in the bill resulting in over billing.

Wrong billing of service / service code: This means while generation of bills, wrong service code is entered, or keystroke error due to which a service which was not received by the patient was being charged or the charges for a particular procedure which he/she has not received got updated in the final bill.

Wrong service rendered not requested: They may have been charged for expensive services or tests which their physician did not order i.e. the patient received some services, which he was not in need of. For eg: Random blood sugar test: The patient was not a diabetic patient but his blood sugar is daily monitored. This could be due to carelessness of nursing staff.

Wrong documentation: If the patient was not in semiprivate ward, he was charged of private ward and vice versa due to wrong documentation and incorrect documentation of demographic data at the time of registration or admission could also lead to billing errors.

Discount issue: Occurrence of discount issues which are offered by the hospital, like- 10% discount on IPD services for people more than 60 years of age. Any patient fulfilling above criteria was devoid of this discount.

Drug not advised requisitioned: A particular drug which was not advised to the patient was requisitioned from the IP pharmacy of the hospital.

Drug not administered but charged: Any medicine which was prescribed in less dosage but requisitioned more in quantity, hence it was not administered but it will get charged.

Table no. 1: Table depicting the factors responsible for billing errors and the percentage of respondents.

FACTORS	Percentage of respondents (N=50)
Drug not advised requisitioned	13
Drug not administered but charged	22
Service received but bill not updated	18
Service not received but charged	16
Wrong documentation	7

Discount issue	8
Wrong billing of service / service code	10
Wrong service rendered not requested	4

As we can find out from the above table that almost one quarter of respondents stated the reason of billing errors as Drug not administered but charged and the second prevalent factor was Service not received but charged.

3.1 Week 1: Audit of Discharge DAMS Patient Bills

In the first week of discharge files review, 25 patients were discharged out of 35 patients audited under DAMS. The 25 discharge patient files were audited against the final bills.

Findings:

In the first week the type of errors which were observed were related to medication, investigation, bedside and some others.

Medication Errors: Medication errors accounted for 56% of total billing errors among the discharge patient files. The main reasons for the medication errors identified were on account of drugs not administered but charged and drugs not advised requisitioned (Figure 2)

Investigation Errors: investigation errors accounted for 22% of total billing errors among the discharge patient files. The main reasons for the Investigation errors were happening due to:

- Service received but bill not updated.
- Service not received but charged.
- Wrong billing of service / service code

Bedside errors: Bedside errors accounted for 19% of total billing errors among the discharge patient files. The main reasons for the bedside errors were happening due to service received but bill not updated and wrong service rendered not requested.
Other errors accounted for 3% of total billing errors. The main reasons for other errors were happening due to wrong documentation and discount issue.

With respect to the 35 files audited under DAMS in the first week, medicine errors were 51%, investigation errors were 20% and bedside errors were 17%, other errors were found to be 3%.
Also, over-billing was found to be 36% and under billing was 64% (Figure 3)

The reasons for overbilling were:

- Service not received but charged.
- Drug not administered but charged.

The reasons for under billing were:

- Service received but bill not updated.
- Drug not advised requisitioned.

Moreover, 20% discharge patient files did not have any error.

Challenges:

- The billing department was doing only bill updation. The action plans discussed above were not being performed.
- There was lack of coordination between departments when it comes to billing updation.
- There were updation related several issues, so we have to keep chasing stakeholders around to make the updation process time bound.
- The billing department was not doing bedside audit.
- Implants - GRN for consignment were not generated timely to due delay in receipt of implant invoice. This was mainly for non cardiac implants.
- In the first week, stakeholders required follow-ups to perform bedside audits and to make the updation process time bound.
- A new checklist was handed to DAMS team for verification of billing errors which included High Value Medicines administered against Med Card and bedside stock
  - Investigations prescribed at bedside / others with reports
  - Bedside procedures performed against draft bill / billing sheet
  - Consultant notes against billing updates

Figure 2: **Billing errors reported (in percentage)**

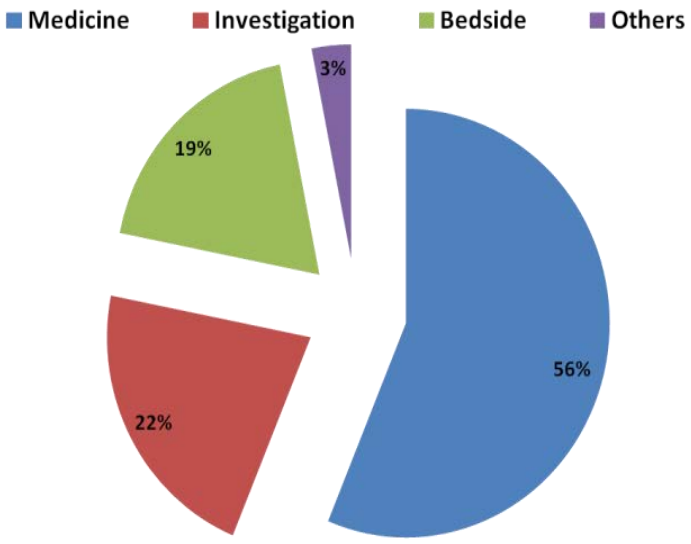


Figure 3: **Over billing v/s under billing (in percentage)**

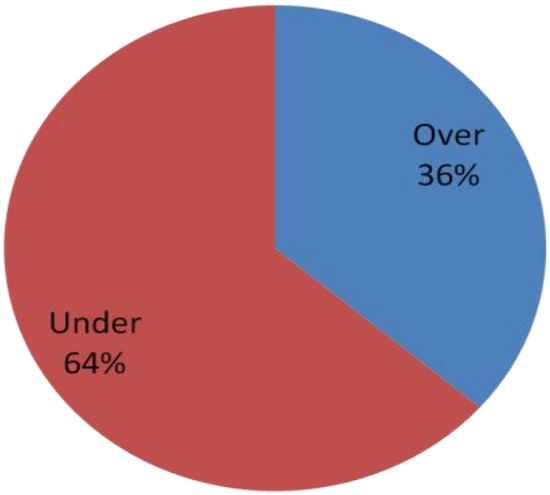
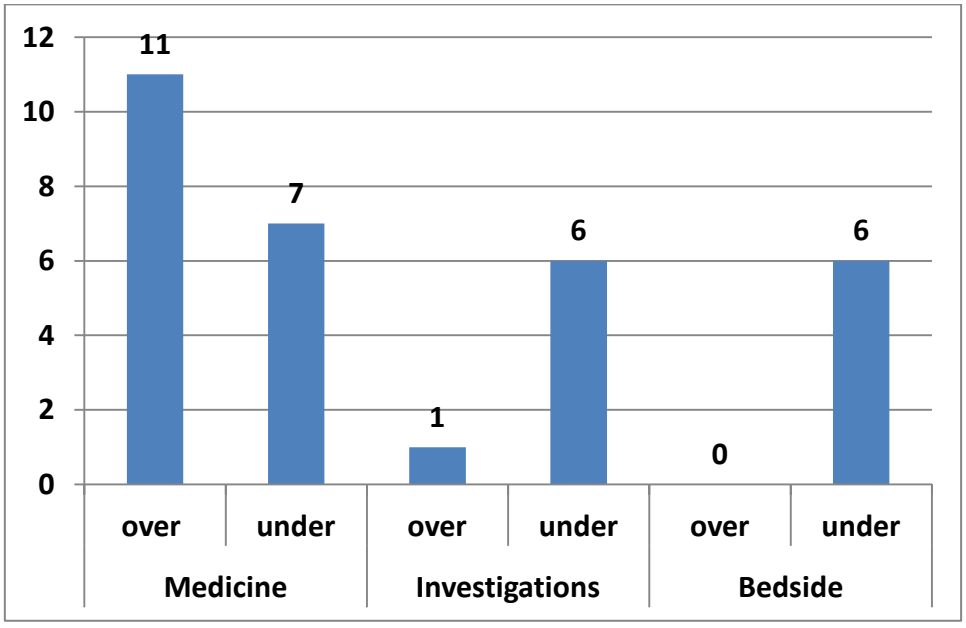


Figure 4: **Area wise breakdown Under-billed/Over-billed**



3.2 Week 2: Audit of Discharge DAMS Patient Bills

In the second week of discharge files review 21 patients were discharged out of 30 patients audited under DAMS. The 20 discharge patient files were audited against the final bills.

Findings

In the second week the type of errors which were observed were related to medication, investigation and bedside.

Medication Errors: This week, medication errors accounted for 59% of total billing errors among the discharge patient files, showed an increase by 3%. The main reasons for the medication errors identified were on account of drugs not administered but charged and drugs not advised requisitioned. (Figure 5)

Investigation Errors: This week, investigation errors accounted for 25% of total billing errors among the discharge patient files, increased by 3%. The main reasons for the investigation errors were happening due to:

- Service received but bill not updated.
- Service not received but charged.
- Wrong billing of service / service code

Bedside errors: This week, bedside errors accounted for 8% of total billing errors among the discharge patient files, reduced by 11% from week 1. The main reasons for the bedside errors were happening due to service received but bill not updated and wrong service rendered not requested.

Others errors were found to be 8%, an increase of 5% from the previous week. The main reasons for the other errors were happening due to wrong documentation and discount issue.

With respect to the 30 files audited under DAMS in the second week, medicine errors were 23%, investigation errors were 10%, others were 3% and bedside errors were 7%.

Also, over billing was found to be 42% which has increased by 6 %.(Figure 6 & 7)

Under billing was found to be 38%. The reasons for under billing were Service received but bill not updated and drug not advised requisitioned

44% discharge patient files did not have any error.

Challenges:

- Improvements were seen in bedside errors due to action plans implemented in first week, yet medicine errors and investigation errors remained high.
- Investigation Processing – only against online requisition, since the technicians were accountable for compliance, bill processing were randomly checked for radiology, non invasive cardiology and bedside investigations to check the adherence.

- Billing department was told about the improvements made and was motivated to get the errors further down.
- The billing department was asked to handover the bill to patients.

Figure 5: **Billing errors reported (in percentage)**

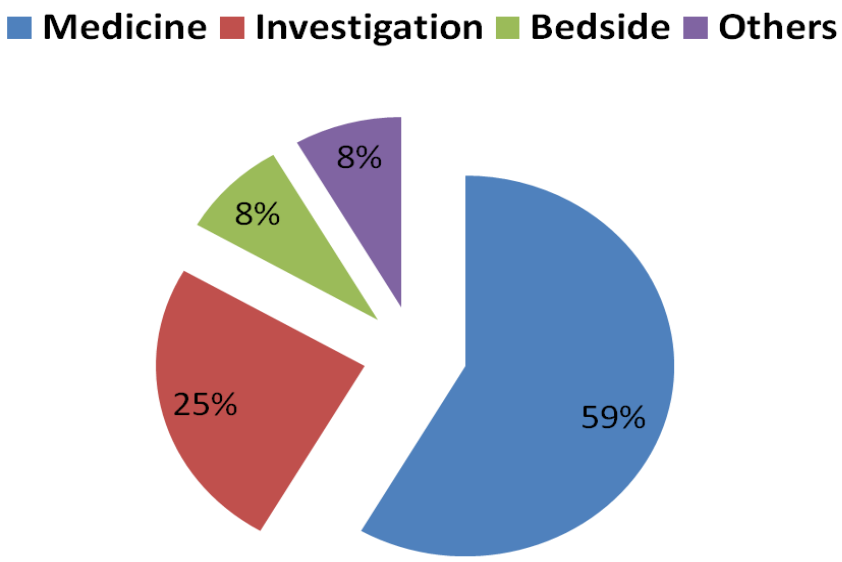


Figure 6: **Area wise breakdown Under-billed/Over-billed**

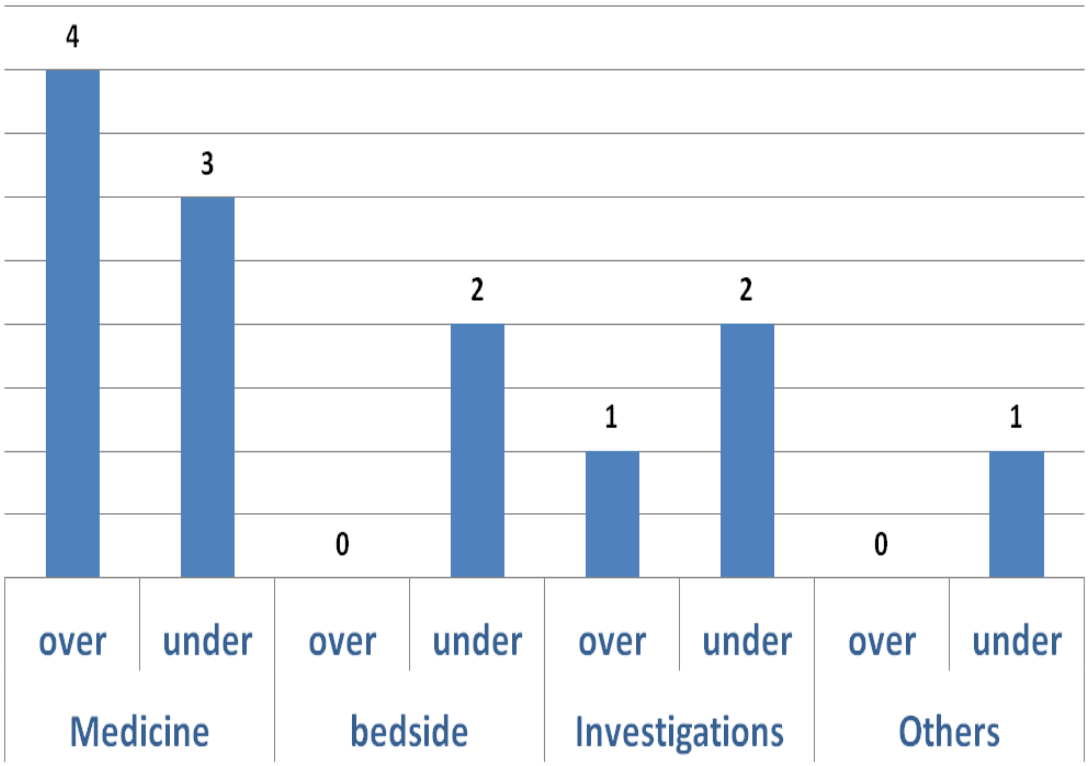
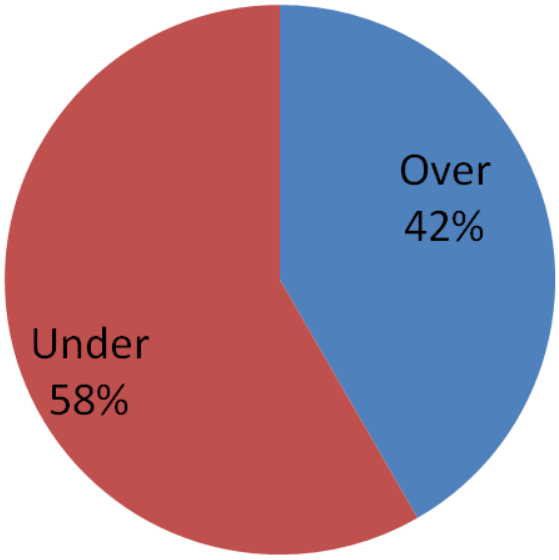


Figure 7: **Over billing v/s under billing (in percentage)**



3.3 Week 3: Audit of Discharge DAMS Patient Bills

In the third week of discharge files review 24 patients were discharged out of 14 patients audited under DAMS. The 14 discharge patient files were audited against the final bills.

Findings:

In the third week the type of errors which were observed were related to medication, investigation and bedside.

Medication Errors: This week, medication errors accounted for 50% of total billing errors among the discharge patient files, showed a reduction by 9%
The main reasons for the medication errors identified were on account of drugs not administered but charged and drugs not advised requisitioned (Figure 8)

Investigation Errors: This week, investigation errors accounted for 42% of total billing errors among the discharge patient files, increased by 17%. The main reasons for the Investigation errors were happening due to:

- Service received but bill not updated.
- Service not received but charged.
- Wrong billing of service / service code

Bedside errors: This week, bedside errors accounted for 8% of total billing errors which was same as second week among the discharge patient files. The main reasons for the Bedside errors were happening due to service received but bill not updated and wrong service rendered not requested.

With respect to the 24 files audited under DAMS in the third week, medicine errors were 25%, investigation errors were 21% and bedside errors were 4%.

Other errors have come down to zero. Twenty five per cent discharge patient files did not have any error.

Over billing was found to be 17% & Under billing was found to be 83%. (Figure 9&10)

Challenges:

- Bedside errors have shown an increase by 17%, it was only being done 2-3 times a week, the billing department was asked to perform bedside audits routinely
- Timely handover of bill summary to patients had not been started, the billing department was asked to make it time bound.

- An increase in investigation errors was also seen this week, as investigation processing only against online requisition was made and technicians were made accountable for its compliance, they were pushed to implement this more seriously.

Figure 8: **Billing errors reported (in percentage)**

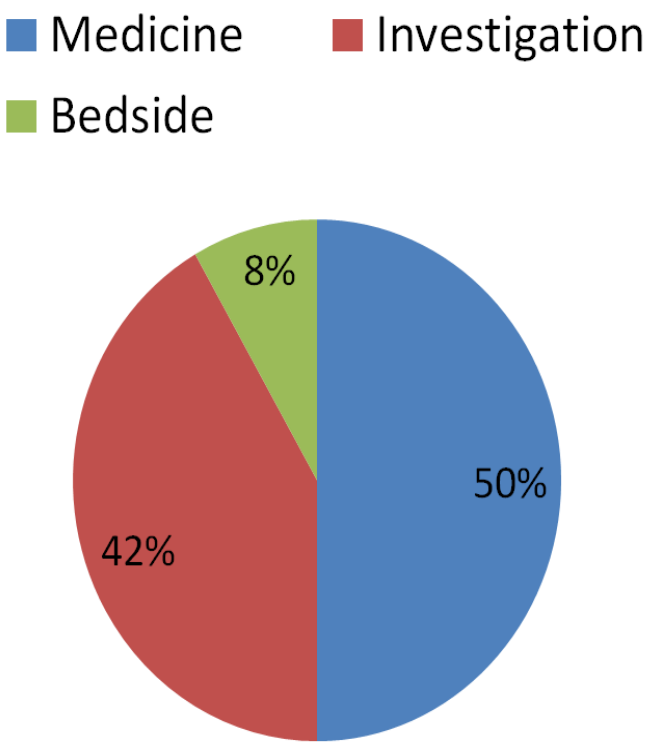


Figure 9: **Over billing v/s under billing (in percentage)**

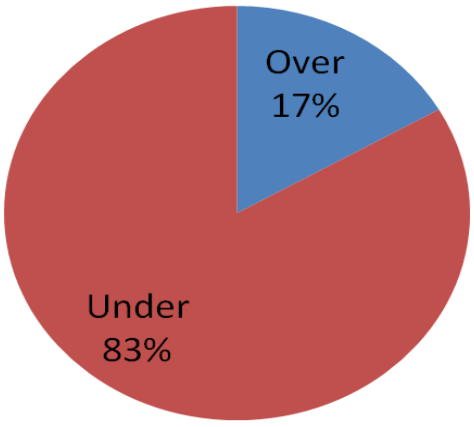
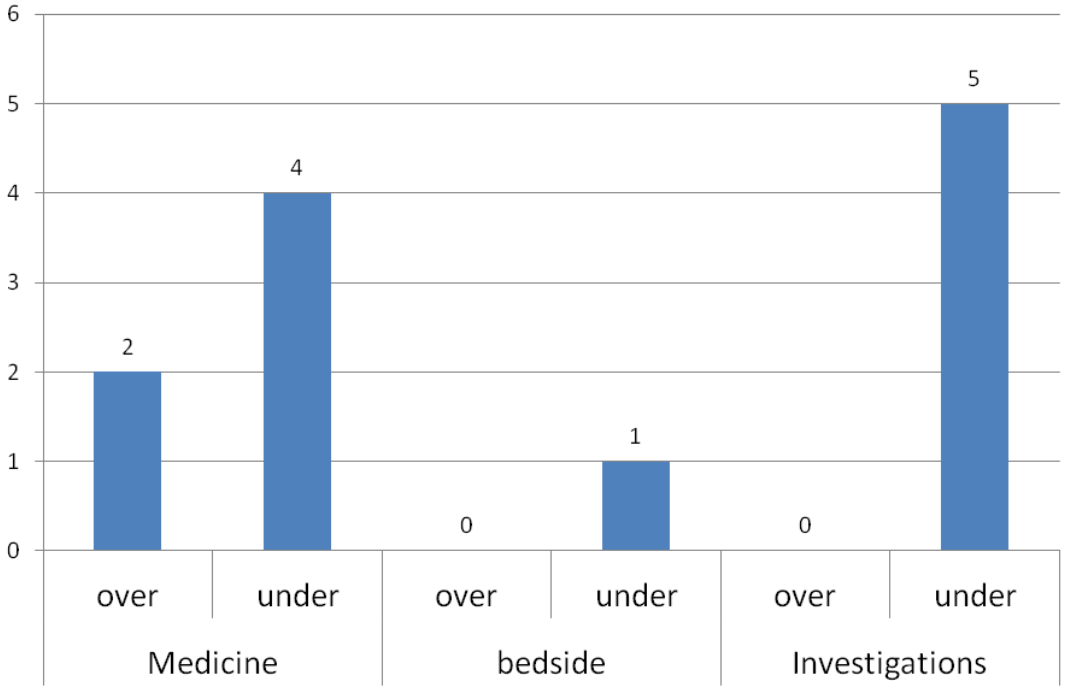


Figure 10: **Area wise breakdown Under-billed/Over-billed**



3.4 Week 4: Audit of Discharge DAMS Patient Bills

In the first week of discharge files review, 22 patients were discharged out of 15 patients audited under DAMS. The 15 discharge patient files were audited against the final bills.

Findings:

In the fourth week the type of errors which were observed were related to medication and investigation. Bedside errors and others errors have come down to zero.

Medication Errors: This week, medication errors accounted for 50% of total billing errors among the discharge patient files, which was same as that of previous third week. The main reasons for the medication errors identified were on account of drugs not administered but charged and drugs not advised requisitioned (Figure 10)

Investigation Errors: This week, investigation errors accounted for 50% of total billing errors among the discharge patient files. The main reasons for the investigation errors were happening due to:

- Service received but bill not updated.
- Service not received but charged.
- Wrong billing of service / service code

With respect to the 22 files audited under DAMS in the fourth week, both medicine errors and investigation errors were 18%.

Over billing was found to be 25%. Under billing was found to be 75%, it has decreased by 8% (Figure 11 & 12)

Moreover, 43% discharge patient files did not have any error.

Challenges:

- Due to the sincere efforts put by the billing department, no bedside errors and others have found, but still medicine errors and investigation errors were needed to bring down.
- Technicians were followed up to verify online requisitions so that compliance is maintained.
- Handover of bills to patients has started but yet not streamlined.

Figure 11: **Billing errors reported (in percentage)**

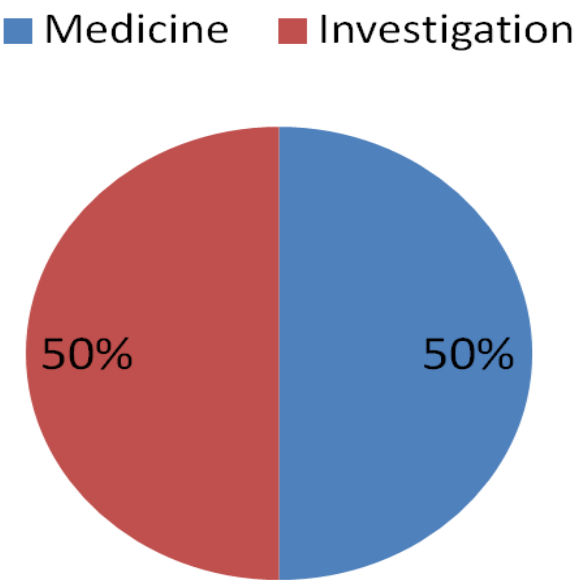


Figure 12: **Over billing v/s under billing (in percentage)**

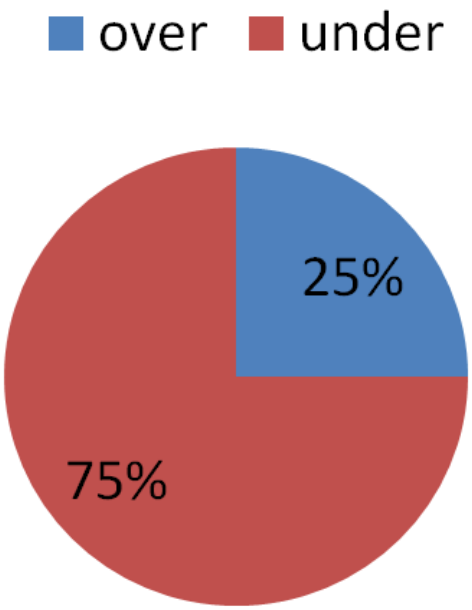
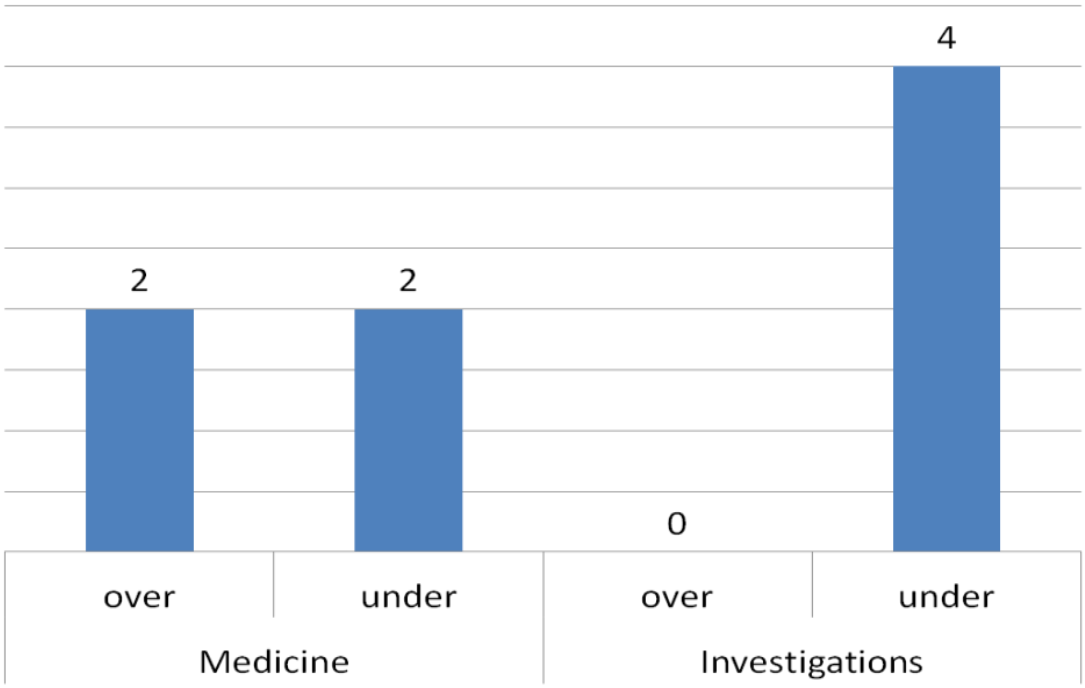


Figure 13: **Area wise breakdown Under-billed/Over-billed**



3.5 Week 5: Audit of Discharge DAMS Patient Bills

In the fifth week of discharge files review, 18 patients were discharged out of 10 patients audited under DAMS. The 10 discharge patient files were audited against the final bills.

Findings:
In the fifth week, the types of errors which were observed were related to medication and investigation. No bedside errors and others errors have been found.
Medication Errors: This week, medication errors accounted for 75% of total billing errors among the discharge patient files, which was 25% more than that of previous week. The main reasons for the medication errors identified were on account of drugs not administered but charged and drugs not advised requisitioned (Figure 14)

Investigation Errors: This week, investigation errors accounted for 25% of total billing errors among the discharge patient files, decreased by 25% from fourth week.

With respect to the 18 files audited under DAMS in the fifth week, medicine errors were 16.6%, investigation errors were 5.5% and bedside errors were 17%.

The main reasons for the investigation errors were happening due to:

- Service received but bill not updated.
- Service not received but charged.

Also, under billing and over billing occupied equal weightage i.e. 50%. (Figure 15 & 16)

Moreover, No bedside errors and others have been found this week like the previous week and 55% discharge patient files did not have any error.

Figure 14: **Billing errors reported (in percentage)**

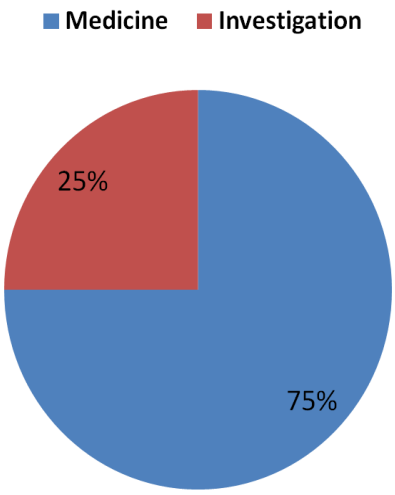


Figure 15: **Over billing v/s under billing (in percentage)**

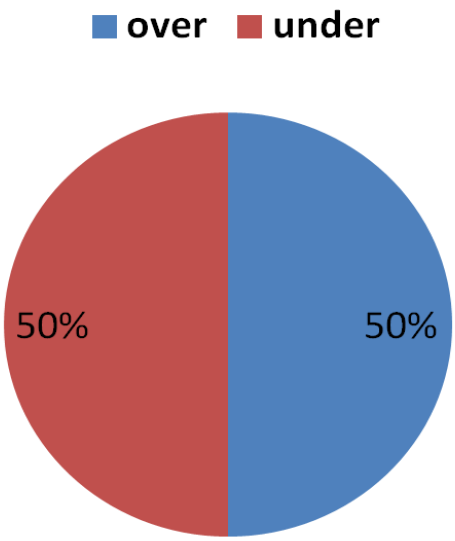
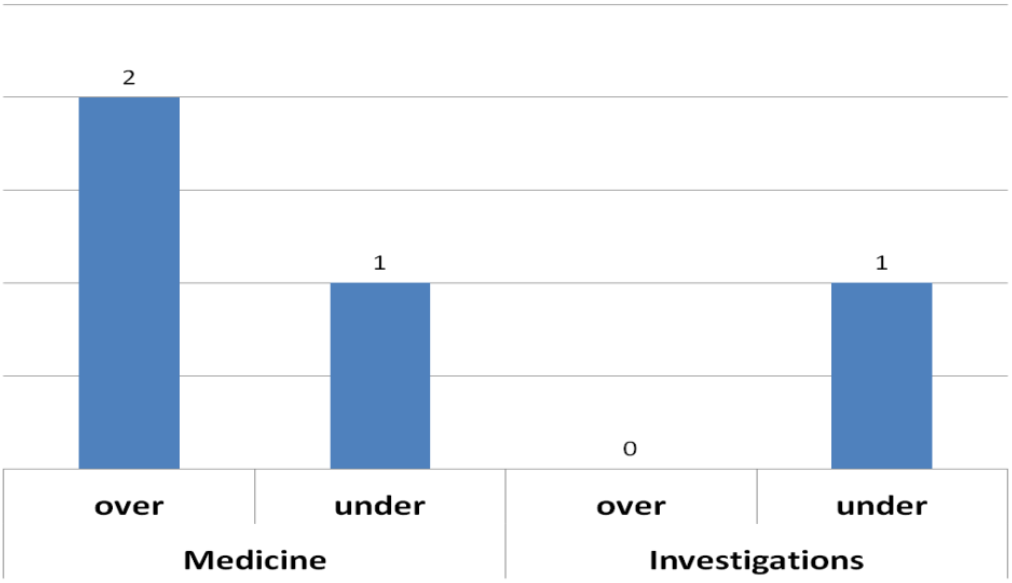


Figure 16: **Area wise breakdown Under-billed/Over-billed**



Conclusion:

From where we started with almost 61% of the bills showing billing related errors, the overall exercise helped bring down the billing errors to 55%. This means only 45% files had errors, so reduction of about 26% from the initial level of the start of this exercise.The exercise allowed stakeholders to identify the reasons for the billing related errors and correct them at its origin thus reducing billing related errors considerably. Apart from the files audited, regular billing audit by IP billing team allowed them to identify if there were any billing error. Further during the final billing more emphasis as put to cross check specific areas like investigations, bedside services and correct if there were any errors found. The exercise also brought billing updation and daily billing audit process much streamlined in the 5 weeks. Currently the process has become a routine which allows control on minimising billing related errors. We have still work on hand to bring down 45% of billing related errors The effort is reduce the billing related errors almost negligible. The success of this achievement goes to the action plans implemented and performance by the team with full dedication. In future also, the following steps will be continued so as to keep the billing related errors minimum. During the week wise discharge billing error tracking, week 1 showed 20% files without any billing error. In the subsequent second week showed enthusiasm amongst stakeholders towards implementation of the action plans which resulted in 44% files not having any billing error. However, in week three, billing related errors increased which was due to the bedside audits not performed routinely. The stakeholders were informed about this sudden increase in the errors and were encouraged to bring the errors down as they were able to achieve in second week. Thus, the stakeholders got involved in this process with full dedication which resulted in 43% discharge patient files not having any error and the same trend continued in the fifth week achieving a target of 55% discharge patient files not having any error.

Figure 17: **Figure depicting week wise findings of files containing NO errors**