

Performance Improvement Indicators of Medical Record  
Department in C.K. Birla Hospital: A Retrospective Study

*By*

*Akriti Gupta*

*Dissertation submitted in partial fulfillment of the requirements of the degree  
MBA Hospital and Health Management*

*Academic year, 2017-2019*



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**TO WHOMSOEVER MAY CONCERN**

This is to certify that Akriti Gupta, student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at C.K. Birla Hospitals, Jaipur from 4<sup>th</sup> Feb 2019 to 3<sup>rd</sup> May 2019.

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 her future endeavors.

A handwritten signature in blue ink, appearing to read 'Dean'.

Dean, Academics and Student Affairs  
The IIHMR University, Jaipur

A handwritten signature in blue ink, appearing to read 'Associate Professor'.

Associate Professor  
The IIHMR University, Jaipur

15 May 2019

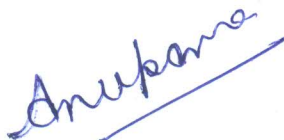
RBH/2019/May/HRD/261

Date:- 8th May 2019

**To whom so ever it may concern**

This is to certify that Ms. Akriti Gupta has successfully completed her internship training in Quality department from 04<sup>th</sup> Feb. 2019 to 03 May 2019.

We found her sincere, punctual & hardworking. We wish her every success in her future and career.



Anupama Sharma

Head – HR & Training

**THE IIHMR UNIVERSITY, JAIPUR**

**CERTIFICATE BY SCHOLAR**

This is to certify that the dissertation titled **Performance Improvement Indicators of the Medical Record Department in C.K. Birla Hospitals: A retrospective study** and submitted by **Akriti Gupta** Enrollment No **IIHMR-U/01/2017-19/0531** under the supervision of **Dr. Sandesh Kumar Sharma** for award of MBA in Hospital and Health of the University carried out during the period from

**4<sup>th</sup> Feb 2019 to 3<sup>rd</sup> May 2019** 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

## **ACKNOWLEDGEMENT**

I would take the opportunity to acknowledge the people without whom this project wouldn't have seen the light of the day. In our efforts towards the realization of the project work, I have drawn on the guidance of many people who facilitated in shaping and remodelling the project.

I got this opportunity to pursue my dissertation from C.K. Birla Hospitals, Jaipur and would like to thank Dr. Pracheesh Unit head of C.K. Birla Hospital, Jaipur for providing me with this opportunity to learn and complete this dissertation study.

I would also like to extend my gratitude to Dr. Vikram Singh Chauhan, Medical Superintendent for giving me necessary assistance and guidance.

I will also like to extend my gratitude to Dr. Sandesh Kumar Sharma for guiding me through my dissertation period.

I embrace upon this as an opportunity for my following career and will attempt to use my skills and knowledge in the best possible way.

Sincerely,

Dr. Akriti Gupta

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## 1. LIST OF GRAPHS AND FIGURES-

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Fig.9- Proportional maternal mortality rate

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## LIST OF SYMBOLS AND ABBREVIATIONS

1. MRD- Medical Record Department
2. CQI- Continuous Quality Improvement
3. KPI- Key Performance Indicators
4. TAT- Turn Around Time



# **DISSERTATION**

## 1.INTRODUCTION

- With increasing frequency, hospitals in various countries report and monitor indicator data in order to improve the quality of care . Quality indicators aim to detect sub-optimal care either in structure, process or outcome, and can be used as a tool to guide the process of quality improvement in health care. Monitoring the health care quality makes hospital care more transparent for physicians, hospitals and patients. Furthermore, it provides information to target quality improvement initiatives. However, collection of indicator data also implies an administrative burden for physicians and hospitals; therefore, the use of this information should be optimized. It is unclear which implementation strategy for quality indicators is optimal, and what effects can be achieved when quality improvement is guided by indicator information.
- The implementation of quality indicators as a tool to assist quality improvement requires effective communication strategies and the removal of hindrances. Evidence suggests that audit and feedback based on indicator data can be effective in changing health care professional practice. Monitoring the indicator data may also help to target specific quality improvement initiatives such as educational programs and development of protocols.
- The effect of monitoring indicator data to promote quality improvement, and ultimately patient care, has been demonstrated in specific situations.
- Since hospitals deal with the precious human life, the quality of healthcare services rendered becomes a major concern for the entire health care system. Much of the interest in quality of care has developed in response to recent dramatic transformations of health care systems.
- Quality management in healthcare focuses in improving effectiveness of treatments and increase patient satisfaction with the service. With an increase in population and rising health care costs, quality in healthcare is gaining attention. A healthcare system comprises small and large entities, such as pharmacies, medical clinics and hospitals, and all components need to provide quality service for the system to work properly.

## 2.Review of literature

Medical Record Department (MRD) has a vital role in making short- and long-term plans to improve health system services. The aim of this study was to describe performance improvement indicators of hospital MRD

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4485301/>

The purpose of this paper is to illustrate how Lean Six Sigma (LSS) methodology was applied to a medical records department (MRD) of a hospital in India to reduce the Turn-Around-Time (TAT) of medical records preparation process and thus to improve the productivity and performance of the department.

<https://www.emeraldinsight.com/doi/abs/10.1108/IJPPM-04-2014-0063>

The authors examined how the association between quality improvement (QI) implementation in hospitals and hospital clinical quality is moderated by hospital organizational and environmental context. The authors used Ordinary Least Squares regression analysis of 1,784 community hospitals to model seven quality indicators as a function of four measures of QI implementation and a variety of control variables. They found that forces that are external and internal to the hospital condition the impact of QI activities on quality indicators: specifically, data use, statistical tool use, and organizational emphasis on Continuous Quality Improvement (CQI). Results supported the proposition that QI implementation is unlikely to improve quality of care in hospital settings without a commensurate fit with the financial, strategic, and market imperatives faced by the hospital.

<https://doi.org/10.3200/HTPS.85.2.3-12>

Lean management is a process improvement technique to identify waste actions and processes to eliminate them. The benefits of Lean for healthcare organizations are that first, the quality of the outcomes in terms of mistakes and errors improves. The second is that the amount of time taken through the whole process significantly improves.

The purpose of this paper is to improve the Medical Records Department (MRD) processes at Ayatollah-Kashani Hospital in Isfahan, Iran by utilizing Lean management.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456871/>

Development of indicators to measure health-care quality has progressed rapidly. This development has, however, rarely occurred in a systematic fashion, and some aspects of care have received more attention than others. The aim of this study is to identify and

classify indicators currently in use to measure the quality of care provided by hospitals, and to identify gaps in current measurement.

<https://doi.org/10.1111/j.1445-5994.2009.01961.x>

Aim was to compare the quality and comprehensiveness in nursing documentation of pressure ulcers before and after implementation of an electronic health record in a hospital setting. Another aim was to investigate the use of preformulated templates for pressure ulcer recording in the electronic health record.

<https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2702.2008.02647.x>

To estimate the incidence, nature and consequences of adverse events and preventable adverse events in Swedish hospitals.

This study confirms that preventable adverse events were common, and that they caused extensive human suffering and consumed a significant amount of the available hospital resources.

<https://academic.oup.com/intqhc/article/21/4/285/1802037>

Based on the audit, a new template was constructed, with 10 physiological parameters and drop-down lists with keywords within each parameter. In this way, implicit knowledge could be converted to explicit documentation. Furthermore, the quality of documentation was improved.

<https://www.sciencedirect.com/science/article/pii/S1089947212005370>

This article describes historical and recent efforts to use EMRs to improve the quality of patient care and provides a roadmap of EMR uses for the foreseeable future.

[https://www.neurosurgery.theclinics.com/article/S1042-3680\(14\)00153-3/abstract](https://www.neurosurgery.theclinics.com/article/S1042-3680(14)00153-3/abstract)

Accurate and complete medical record documentation is essential in any healthcare setting. In addition to communicating vital patient care information, the medical record provides documentation of appropriate evaluation, treatment, and services. It also is used to evaluate practitioner performance, to monitor resource use, and to determine reimbursement. In this article, Carol Ann Martin describes the efforts of one hospital to revise and upgrade its medical record documentation by means of continuous quality improvement strategies.

<https://www.ncbi.nlm.nih.gov/pubmed/10119893>

Trustees do not seem to agree on how quality accountability will be accomplished, but they are starting to agree that procedures to establish quality accountability are necessary. They also agree that leadership from the board level, coupled with a firm resolve to monitor quality, will ensure that hospitals provide high-quality care and services to their most important and influential customers: patients.

<https://europepmc.org/abstract/med/10110013>

For all three indicators of quality and productivity, improvements were observed after the CQIM was implemented. Continuous Quality Improvement methods are one strategy which health information managers can use to improve the quality of the coding process to support the provision of accurate coded data in a timely manner.

<https://journals.sagepub.com/doi/abs/10.1177/183335839702700205>

This paper provides an overview for non-specialists of the different quality evaluation and indicator schemes for inspection and improvement. It draws on the experiences of quality specialists and leaders in each Nordic country who have applied the schemes in public hospitals and healthcare services.

<https://onlinelibrary.wiley.com/doi/abs/10.1002/hpm.629>

This paper provides a brief review of definitions, characteristics, and categories of clinical indicators for quality improvement in health care.

<https://academic.oup.com/intqhc/article/15/6/523/1823652>

Clinical performance measurement is an increasingly important way for public and private purchasers alike to compare the value of health services provided by competing health delivery systems. The widespread use of performance measures has increased the demand for development of new measures that cover previously unevaluated aspects of care.

<https://www.sciencedirect.com/science/article/pii/S0749379797000329>

Four sets of issues are discussed: the intended use, and end users of indicator information; aspects of indicator validity; data quality; and dissemination and use of indicator information. Recommendations are made that apply to individual hospitals, groups of hospitals and health care systems.

[https://journals.sagepub.com/doi/abs/10.1016/S0840-4704\(10\)60938-6](https://journals.sagepub.com/doi/abs/10.1016/S0840-4704(10)60938-6)

This study investigated whether differences in quality of medical care might explain a portion of the excess mortality associated with mental disorders in the year after myocardial infarction.

<https://jamanetwork.com/journals/jamapsychiatry/article-abstract/481787>

To determine whether the 7 operations for which mortality has been advocated as a quality indicator by the Agency for Healthcare Research and Quality (coronary artery bypass graft [CABG] surgery, repair of abdominal aortic aneurysm, pancreatic resection, oesophageal resection, paediatric heart surgery, craniotomy, hip replacement) are performed frequently enough to reliably identify hospitals with increased mortality rates.

<https://jamanetwork.com/journals/jama/fullarticle/199272>

The surveillance of health care quality is greatly aided by the use of relevant quantitative indicators. This paper describes how it is possible to organize nationwide monitoring using clinical indicators.

[https://academic.oup.com/intqhc/article/16/suppl\\_1/i45/1797494](https://academic.oup.com/intqhc/article/16/suppl_1/i45/1797494)

Adjusted mortality rates were also compared for hospitals in the upper and lower fourths of the sample in terms of certain hospital characteristics. The mortality rates were 112 and 121 per 1000 for the hospitals in the upper and lower fourths, respectively, in terms of the percentage of physicians who were board-certified specialists ( $P<0.0001$ ), 112 and 120 per 1000 for occupancy rate ( $P<0.0001$ ), 113 and 120 per 1000 for payroll expenses per hospital bed ( $P<0.0001$ ), and 113 and 119 per 1000 for the percentage of nurses who were registered

<https://www.nejm.org/doi/pdf/10.1056/NEJM198912213212506>

### **3.OBJECTIVE:**

To review the performance improvement indicators of hospital MRD.

### **4.METHODOLOGY:**

4.1 STUDY SETTING: C.K. BIRLA HOSPITALS, JAIPUR

4.2 STUDY DESIGN: Retrospective study design

4.3 SAMPLING METHOD: Convenience Sampling Method.

4.4STUDY TIME PERIOD: 3 months

4.5STUDY AREA:Medical Record Department

4.6 DATA COLLECTION TECHNIQUE:

Secondary data was collected from existing hospital records for the nine months

### **LIST OF QUALITY INDICATORS INCLUDING CQI & KPI STUDIED IN MEDICAL RECORD DEPARTMENT.**

| DEPARTMENT                | INDICATORS                                                                                                                    |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Medical Record Department | Percentage of medical records not having Discharge summary                                                                    |
| Medical Record Department | Percentage of medical records not having codification as per International Classification of Diseases (ICD)                   |
| Medical Record Department | Percentage of missing records                                                                                                 |
| Medical Record Department | Mortality rate (Gross Death Rate)                                                                                             |
| Medical Record Department | Completion of Nutritional Assessment (Percentage of a case -in-patient wherein screening for nutritional needs has been done) |

|                           |                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Medical Record Department | Percentage of case(in-patients) wherein care plan with desired outcomes is documented and counter-signed by the clinician |
| Medical Record Department | Completion of Initial Assessment (Time for initial assessment of indoor arrived patients)                                 |
| Medical Record Department | Completed of Initial Nursing Assessment (Percentage of case- in patients wherein the nursing care plan is documented)     |
| Medical Record Department | Proportional maternal mortality rate                                                                                      |
| Medical Record Department | Proportional infant mortality rate                                                                                        |

## **5. ETHICAL CONSIDERATIONS**

No informed consent was taken as there were no direct interaction with the patients. In this study the only point of interaction was the department heads.

## **6.ANALYSIS**

The collected data was entered excel sheet and analysis was done using MS EXCEL.

## **7.RESULTS:**

Around 11 CQIs& KPIs of MRD Department are studied in this project.

### **7.1. Medical Record Department:**

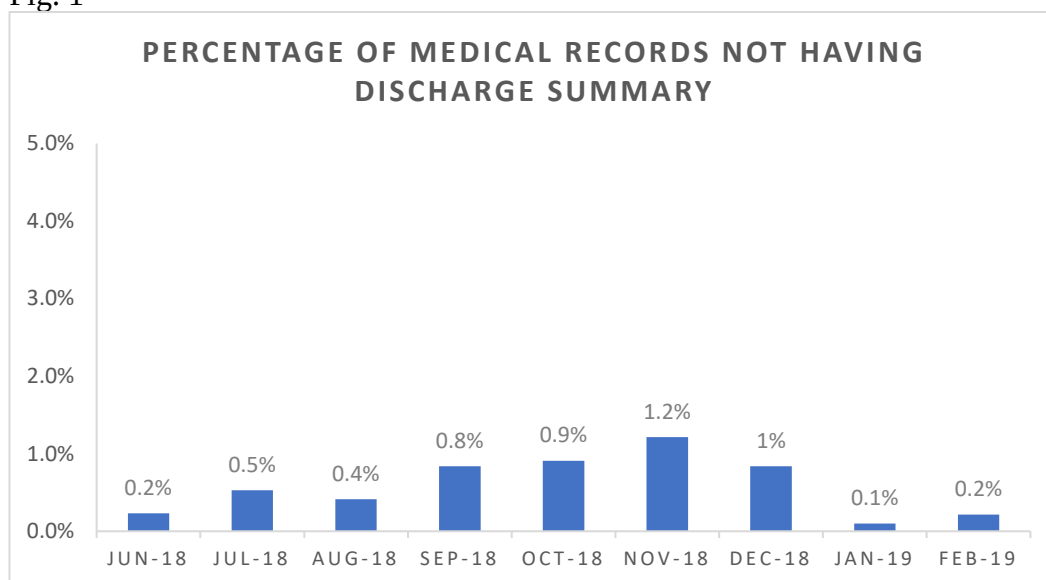
Medical Records Departments (MRD) in the hospitals are supposed to have complete records of patient's admission. Medical Records (MR) documentation in accordance with predetermined standards; medical information coding process; creation and maintenance of statistical information database for planning and budgeting for hospitals; organizing outpatient and emergency medical records

### 7.1.1 Percentage of Medical Records not having discharge summary.

**Formula:** Number of medical records not having discharge summary ÷ Number of discharges and deaths x 100

Internal Target – 0%

Fig. 1



Interpretation: Increased from the benchmark. There should be zero medical records not having discharge summary as set by internal target. In nov'18 there were 12 medical records out of 988 discharges and deaths in which there no discharge summary.

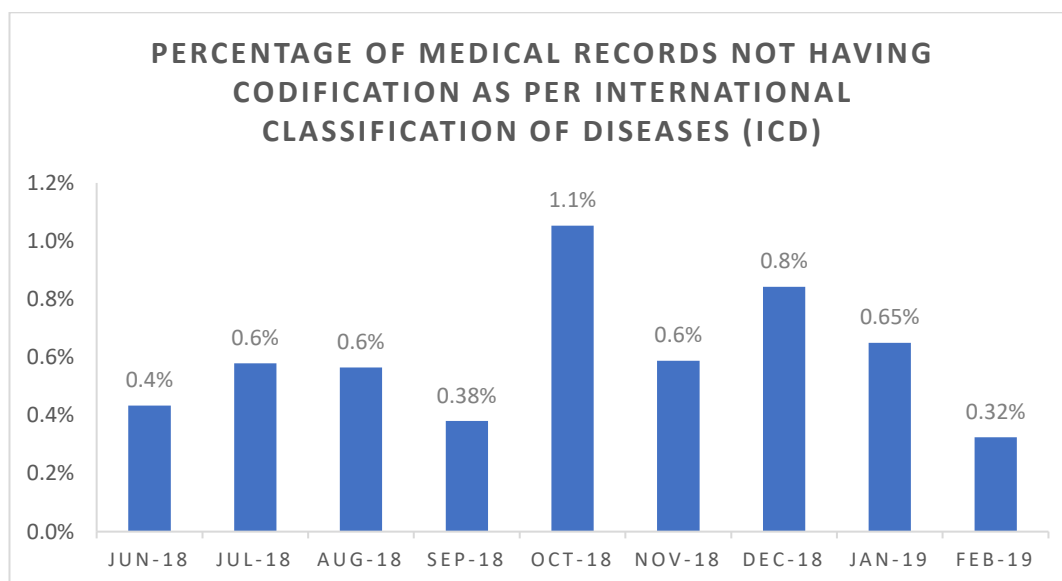


### 7.1.2 Percentage of Medical Records not having codification as per International Classification of Disease.

**Formula: Number of medical records not having codification as per International Classification of Diseases (ICD)÷Number of discharges and deathsx100**

Internal Target- <5%

Fig.2



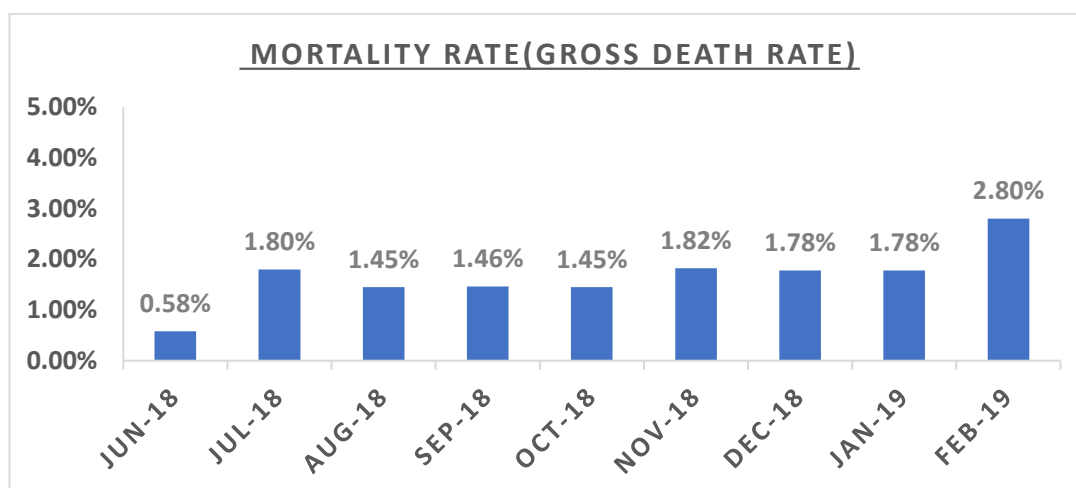
Interpretation: Within target throughout but variation in the data. In oct'18 there were 4 medical records not having codification as per international codification of diseases (ICD) out of 380 discharges and deaths.

### 7.1.3 Mortality Rate (Gross Death Rate)

**Formula: Number of deaths ÷ Number of discharges and deaths x100**

Internal Target- 0%

Fig.3



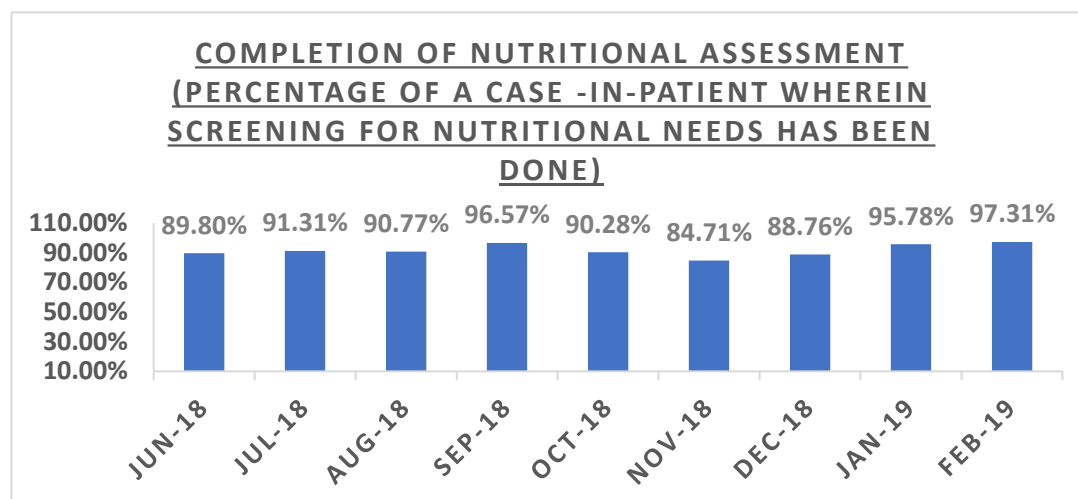
Interpretation: Increased from the benchmark. Highest in Feb'19. In feb'19 there were total no of deaths were 26 in which out of 26, 2 were cardiac cases, 1 of CTVS, 9 of Internal Medicine, 4 of Neurology, 4 of Pulmonology, 2 of GI Surgery, 1 of Paediatric & 1 of Nephrology.

### 7.1.4 Completion of Nutritional Assessment (Percentage of a case-inpatient where screening for nutritional needs has been done)

**Formula:** Number of in- patient case records wherein the screening for nutritional assessment has been documented ÷ Total number of patientsx100

Internal Target- 90-100%

Fig.4



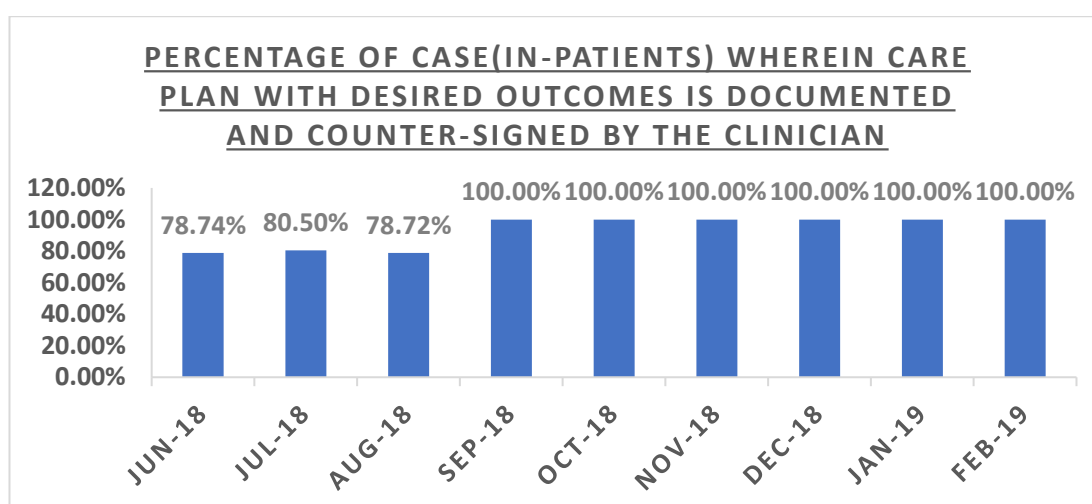
Interpretation: Lower than internal target in jun'18 & nov'18. In june'18 in 47cases dieticians did not fill form& in nov'18 in 52 cases dieticians did not fill form.

### 7.1.5 Percentage of case(in-patients) wherein care plan with desired outcomes is documented and counter-signed by the clinician

**Formula: Number of in- patient case records wherein the care plan with desired outcomes has been documented and counter-signed by the clinician ÷ Total number of patientsx100:**

Internal Target- 90-100%

Fig.5



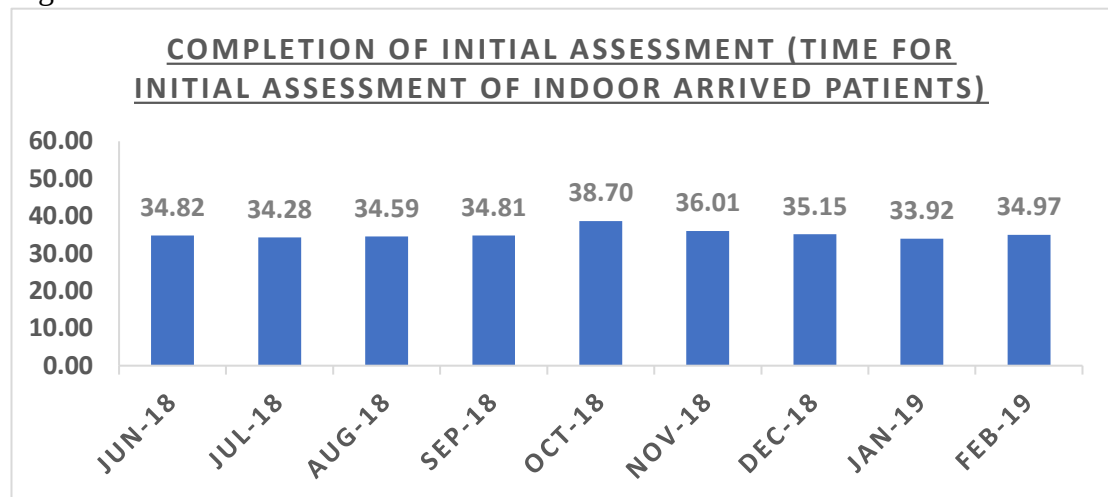
Interpretation: Lower than internal target in jun'18, jul'18, aug'18. In jun'18 in 98 cases there were no counter signed by clinician. In jul'18 there were 101 cases in which there were no counter sign by clinician. In aug'18 there were 113 cases in which there were no counter sign by clinician.

### 7.1.6 Completion of Initial Assessment (Time for initial assessment of indoor arrived patients)

**Formula:  $\text{Sum of time taken for the assessment} \div \text{Total Number of patients in indoor} \times 100$**

Internal Target- <60 minutes.

Fig.6



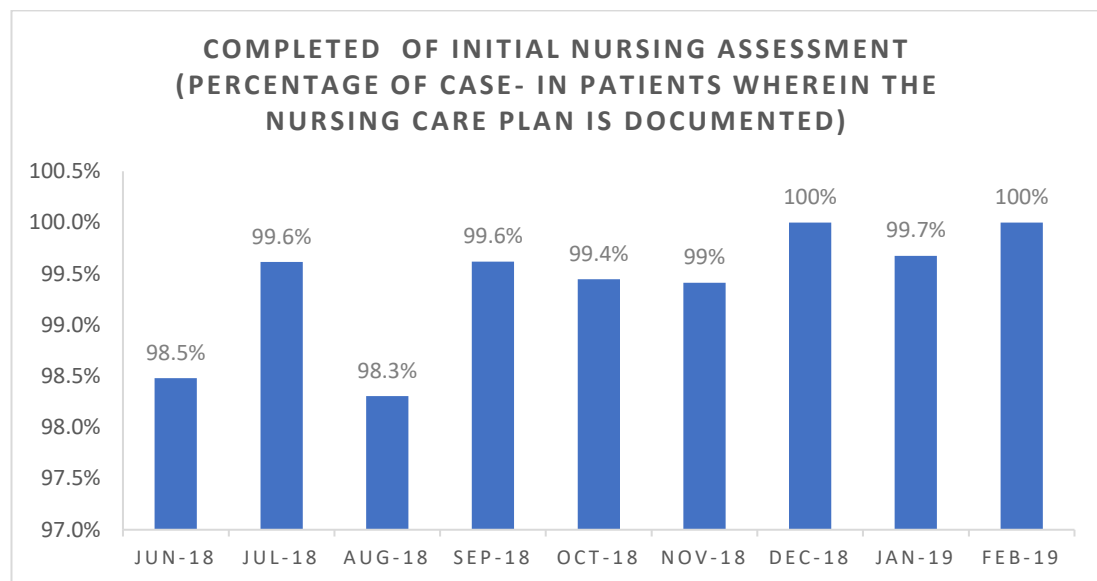
Interpretation: Within target throughout but variation in data. In oct'18 sum of time taken for initial assessment of indoor arrived patients was 13932 mins in 360 indoor patients.

### 7.1.7 Completed of Initial Nursing Assessment (Percentage of case- in patients wherein the nursing care plan is documented)

**Formula: Number of in-patient case records wherein the nursing care plan has been documented ÷ Total number of patients x 100**

Internal Target- 90-100%

Fig.7



Interpretation: Within target throughout but variation in the data. In aug'18 there were 522 in patient records wherein the nursing care plan has been documented out of 531 patients. There were 9 case records in which nursing care plan has not been documented.

### **7.1.8Proportional maternal mortality rate**

**Formula: Total no. of maternal deaths÷Number of live birth x100,000**

Internal target- 0

There were no maternal deaths occurred in all the nine months.

### **7.1.9Proportional infant mortality rate**

**Formula: Total no. of infant deaths÷Number of live birth x1000**

Internal Target- 0

There were no infant deaths occurred in all the nine months.

### **7.1.10 Percentage of Missing Records.**

**Formula: Number of missing records÷Number of recordsx100**

Internal Target- 0%

There were no missing records in all the nine months.

## **8. SUGGESTIONS**

- Based on completion nutritional assessment results show that the percentage has gone below internal targets, which suggests compromise on quality care. It is recommended that proper training of dieticians should be carried out so that there should be proper and timely screening of nutritional needs for each patient.
- It is recommended that there should be proper maintenance of discharge summary in MRD. Hospital should emphasize that majority of the patients should get discharged with summary unless otherwise. Hospital should define TAT for cases where discharge summary is not ready at the time of discharge and set process so that file is completed and dispatched to MRD within TAT. Hospital should review their discharge process and makenecessary changes so that issue of pending discharge summaries gets nullified.

- There should be a surveillance system to increase awareness and review of deaths and even the hospital policy should be revised and strengthened to reduce potential hospital acquired infection. Special attention should be diverted towards mortality meets so that the rate of deaths in hospital can be brought down within target.
- Staff should be properly trained on latest ICD coding so that all the files which are going to MRD should be completed with codification. MRD staff should be trained to cross check the same and raise an alert if same is not completed. There should be proper coding of medical records as per ICD to review previous cases of a given disease to provide insight into the management of current patient's health problems. Proper training of staff should be there to have proper codification of medical records as soon as the file comes to MRD.

## **9. CONCLUSION:**

Results of the study support the fact that hospital performance is associated with hospital level quality indicators. Effective strategies if implemented in daily practice can improve healthcare quality. Regular collection of quality indicator data and their analysis gives way to continuous improvement programmes which in turn lead to quality of service/ patient care. It also helps in development of process and modification of the existing process which can significantly contribute to the increase in the level of the hospital performance. But there is significant variation in process and data depending upon different healthcare setups and different departments, thus individual look into different indicators at each level will define the level of improvement achieved.



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