Patient Safety And Infection Control Quality Indicators In Delhi-NCR Region

Dr. Vaishali Vashishta, Dr. Puneeta Ajmera, Sheetal Yadav

Abstract: Nosocomial Infections most commonly known as health care associated infections were the most common complications, which were affecting the inpatients. The risks have been progressively increased during recent decades. Therefore, Infection control is an imperative component for the patient safety. This study focuses on the 18 different patient safety and infection control quality indicators in five hospitals of Delhi-NCR region emphasizing on the contributing factors associated with each of the indicators and the preventive measures to be carried out for future improvement.

Keywords: Bundle care, Hospital acquired Infections, Infection control, Patient safety, Prevention measures and Quality Improvement

1. HOSPITAL ACQUIRED INFECTIONS

A nosocomial infection — also called “hospital-acquired infection” can be defined as: “An infection acquired in hospital by a patient who was admitted for a reason other than that infection. An infection occurring in a patient in a hospital or other healthcare facility in whom the infection was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also occupational infections among staff of the facility.” (WHO, 2002) As classified by the ‘National Healthcare Safety Network’ (NHSN) with ‘Center for Disease Control’ (CDC) for surveillance, Hospital acquired Infection sites have been categorised into thirteen types alongside fifty infection sites definite based on the criteria of biological and clinical. Urinary tract infections (UTI), surgical and soft tissue infections, gastroenteritis, meningitis and respiratory infections were the most common sites. (Khan, Ahmed, & Mehboob, 2015)

1.1 Surveillance of Hospital Acquired Infections

Surveillance can be explained as “the ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know”. In the infection control process, Surveillance constrains the data associated to infected patients along with their infection sites. The Hospitals usually work on this data to prevent the infections by assessing the effectiveness of treatment. With the help of surveillance, the hospital formulate the strategy, which comprises of infection control practices. (Khan et al., 2015) In India, unfortunately adequate amount of attention has not been paid for infection control measures.

For Intensive care Unit related infections, definitive practical measures must be carried out and the monitoring of the events must be quoted regularly as “Bundle care”. A “Bundle” is a structured method designed to enhance the care of patients and the outcomes by following definite, direct, checklist-based set of evidence-based practices and it is an imperative part of surveillance for infection in Intensive Care Units. There has been shown a substantial reduction in the health care infections and improved patients’ outcomes resulting after the “Bundles” which have been arranged as an objective, bedside practice method including 3 to 5 elements. Essential practices have been prioritized and combined entirely into everyday hospital authoritative methodology as a persistent procedure for enhancing quality health services. It is seen that most health care systems frameworks the health care quality which is one of the important aspects in patient care services. The healthcare system has developed in terms of quality of care and is conveyed by new organizational structures and reimbursements approaches, which may affect the quality of care. Assessment of the quality of care has increasingly become imperative to the medical professional, Hospital and the patients. Indicators of performance outcomes allow the quality of care and services to be measured. For the assessment, the quality indicators are created that can define the performance that should occur for a particular type of patient or the related outcomes, and then monitoring if the patients’ care is constant with the indicators based on the Bundle care. The impact of monitoring which promotes the quality improvements, and conclusively patient care. Health care organizations are progressively expected to make available the clinical outcomes data as measures of clinical quality authorised bodies, purchasers and the community, under the foundation that outcome differences show quality variations across the organizations.

2. Objectives of the study

The study on Patient care, Infection control and safety Quality parameters is to determine:

- The occurrence of Hospital acquired infections (HAIs) in five hospitals of Delhi- NCR region, describing the definite types of HAIs.
- The effective preventive measures for the quality improvement to identify the opportunities for the improvement.
### 3. Operational Definitions

Quality Indicators for the five different Hospitals in Delhi NCR region involves Patient safety and infection control.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter associated Urinary Tract Infection (CAUTI)</td>
<td>&quot;A UTI where an indwelling urinary catheter was in place for &gt;2 calendar days on the date of event, with day of device placement being Day 1,&quot; and an indwelling urinary catheter was in place on the date of event or the day before. If an indwelling urinary catheter was in place for more than 2 consecutive days in an inpatient location and then removed, the date of event for the UTI must be the day of device discontinuation or the next day for the UTI to be catheter-associated. &quot; (Control &amp; Prevention, 2015)</td>
</tr>
<tr>
<td>Central line associated bloodstream Infection (CLABS)</td>
<td>&quot;A central line-associated bloodstream infection (CLABSI) is defined as a laboratory-confirmed bloodstream infection not related to an infection at another site that develops within 48 hours of a central line placement.&quot; (Haddadin &amp; Regunath, 2019)</td>
</tr>
<tr>
<td>SUPERFICIAL Surgical site Infection (Superficial SSI) - 30 Days Surveillance</td>
<td>The Infection, which happens within 30 days post-surgery, and the infection, which involves only skin and subcutaneous tissues. (Singh, Singla, &amp; Chaudhary, 2014)</td>
</tr>
<tr>
<td>DEEP Surgical Site Infection (Deep SSI) - 30 or 90 Days Surveillance</td>
<td>The Infection occurring within 30 or 90 days post-surgical procedure and the infection involving deep soft tissue (e.g., fascial and muscle layers). (Singh et al., 2014)</td>
</tr>
<tr>
<td>Ventilator associated Pneumonia (VAP)</td>
<td>&quot;A pneumonia where the patient is on mechanical ventilation for &gt;2 calendar days on the date of event, with day of ventilator placement being Day 1, &quot; and the ventilator was in place on the date of event or the day before. &quot;If the ventilator was in place prior to inpatient admission, the ventilator day count begins with the admission date to the first inpatient location.&quot; (Control &amp; Prevention, 2009)</td>
</tr>
<tr>
<td>Hospital acquired Pressure Ulcers (HAPU)</td>
<td>Pressure ulcer is defined as &quot;an area of unrelieved pressure usually over a bony prominence leading to ischemia, cell death and tissue necrosis&quot;. The 'National Pressure Ulcer Advisory Panel' (NPUAP) and 'European Pressure Ulcer Advisory Panel' (EPUAP) had further refined this definition as &quot;localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure, or pressure in combination with shear and/or friction&quot;. (Agrawal &amp; Chauhan, 2012)</td>
</tr>
<tr>
<td>Death within 48 hrs of any surgical intervention</td>
<td>Death within 48 hrs of surgical intervention (irrespective of reason)</td>
</tr>
<tr>
<td>Return to ICU within 48 hours</td>
<td>Unplanned return to ICU within 48 hours is termed as the number of patients returning to ICUs after the clinical condition deteriorated in the ward, HDU or Step-down unit.</td>
</tr>
<tr>
<td>Return to ER within 72 hours</td>
<td>Return to ER can be defined as an unscheduled return of the patients to the emergency department within 72 hours for the same or similar chief complaint.</td>
</tr>
<tr>
<td>Unplanned return to OT within 48 hours</td>
<td>Defined as any secondary procedure required for a complication or untoward outcomes resulting directly related to the initial surgery within 48 hours of completion of the surgery.</td>
</tr>
<tr>
<td>Venous Thromboembolism (VTE)</td>
<td>Patients who are presently hospitalized, recovering from the surgical treatment or on cancer treatment are at increased threat of developing severe and potentially deadly blood clots termed as venous thromboembolism. The blood clot occurring due to the hospitalization, surgical procedure, or any other hospital treatment procedure is known as healthcare-associated VTE.</td>
</tr>
<tr>
<td>Reporting Error (Imaging)</td>
<td>Any error detected/ reported to the imaging department, before or after dispatch of an imaging result.</td>
</tr>
<tr>
<td>Lab Redo</td>
<td>A test repeated to account for intrinsic error in the results or outcomes, therefore to assure accuracy.</td>
</tr>
<tr>
<td>Errors prevented/ Detected by use of Surgical Safety Check list</td>
<td>Errors related to OT, which are prevented/detected by use of Surgical Safety Checklist in the Operation Theatre.</td>
</tr>
<tr>
<td>Sharps Injury</td>
<td>Any wound from a needle (or other sharp objects like blades, broken glass/ ampoule, etc.) that may or may not be associated with exposure to blood or other body fluids.</td>
</tr>
<tr>
<td>Patient Falls</td>
<td>&quot;A patient fall is an unplanned descent to the floor with or without injury to the patient. Include falls when a patient lands on a surface where you wouldn't expect to find a patient. All unassisted and assisted falls are to be included whether they result from physiological reasons (fainting) or environmental reasons (slippery floor). Also report patients that roll off a low bed onto a mat as a fall.”</td>
</tr>
</tbody>
</table>
“A failure in the treatment process that leads to, or has the potential to lead to, harm to the patient” (Williams, 2007). Medication errors may be categorized into:

I. Prescription Errors: Error related to completeness and clarity of prescription (e.g., illegible prescription, no documentation of dosage form, route, frequency of drug, drug allergy not considered.)

II. Transcription Errors: Errors occurred during transcribing medication to prescription to administration chart

III. Dispensing Errors: Related to wrong dispensing of drug as to wrong drug/dosage form/strength/delayed dispensing (leading to missed dose) from pharmacy, including issuing of expired drug

IV. Administration Errors: Error related to administration as to administration of wrong drug/strength/dose/route/time/ frequency/expired drug, including un administered drug.

V. Monitoring Errors: Medication error reaching the patient due to lack of drug monitoring.

4. Significance of the study
Hospitals in several countries monitors and reports indicator’s data for the improvement of the quality of care. Quality indicators intents to identify the sub-standard care either in procedure or in outcome, that can be used as an apparatus to monitor the process of quality improvement in the Hospitals. Hospitals’ quality has been made more translucent after monitoring, for the physician, hospitals and patients. Moreover, Quality improvement initiatives can be achieved by the information provided by the data. Nonetheless, administrative burden can be increased for physicians and hospitals in the collection of data. The evaluation of the quality of care which is provided by the hospital not only inspire medical practitioners and managers for the improvements but also safeguards public responsibilities in terms of accountability, which enables the patients to make informed choices and facilitate informed commissioning.

5. Review of literature
• In a study conducted in the year 2018, it was found that >1/3rd of HAIs were developed in several ICUs, which were approximately accounting for an occurrence of 15% to 40% of all hospital admissions. Infection isn’t generally the most common reason for the patients’ deaths in the Intensive Care Units; Increased patients’ stay, and excessive hospital cost is strongly associated with it. Enhanced facts of medical epidemiology, aetiology of microbes and Disease’s pathophysiology helps to recognize the theories of infection control, and thus, an appropriate antibiotics’ use. During prevention ofNosocomial Infections in the ICU to deliver the improved care, have persistently remain a challenge because in the developing countries, there is rapid working professional turnovers, absence of organized ICUs and insufficient awareness towards the infection control practices. Health care workers must be focused regarding the infection control practices in the ICUs or in the hospital and it must be practised as a part of routine work. (Mukhopadhyay, 2018)

• In a report from the year 2005, data collected from the ‘National Nosocomial Infections Surveillance’ (NNIS) were analysed. This system was recognized in the year 1970, in which certain hospitals in the US regularly began presenting their surveillance data of Hospital acquired Infections for accretion into a national record at the ‘Centers for Disease Control and Prevention’ (CDC). The NNIS system included only general acute care Hospitals in the USA and involvement in this system was a voluntary approach. Up until 1986, surveillance of the hospital widespread, nosocomial infections for all the hospitalized patients were monitored at all sites. The data was analysed from the NNIS system (of the year 1986-2003) in an approach to find out that gram-negative bacilli in Intensive Care Units causing the most prevalent HAIs: pneumonia, surgical site infection (SSI), urinary tract infection (UTI), and bloodstream infection (BSI). Hospital acquired infections in Intensive Care Unit (ICU) mostly associated with Gram-negative bacilli. (Weinstein, Gaynes, & Edwards, 2005)

6. Research Methodology
I. Inclusion and Exclusion Criteria
Out of various quality parameters, the 18 Quality indicators were chosen and tracked which includes CLABSI, CAUTI, SSI, VAP, HAPU, Death within 48 hrs of any surgical intervention, Return to ICU within 48 hours, Return to ICU within 48 hours, Medication Error, Unplanned Return to OT within 48 hours, Sharps Injury, Patient Falls, Errors Prevented/Detected by use of Surgical Safety Check List, Venous Thromboembolism (VTE), Reporting errors (Imaging), Lab Redo. Other quality indicators were excluded from the study (For example: Postoperative sepsis, Accidental puncture, Iatrogenic pneumothorax in neonates, Postoperative wound dehiscence etc.). The inclusion and exclusion criteria of the related indicators are as follows:

<table>
<thead>
<tr>
<th>Quality Indicators</th>
<th>Inclusion criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
</table>
| Catheter associated Urinary Tract Infection (CAUTI) | Only Adult ICU patients | Infants and Paediatric age group  
Cases whose sample requests originating from non ICU locations  
Patients with other lines (e.g. peripheral lines)  
Patients admitted to the hospital with a central line and with positive blood culture report  
Infection present at time of infection (PATOS)  
Stitch abscess, "pin site" infections/colostomy stomas & burn site infections |
| Central line associated bloodstream Infection (CLABSI) | Only Adult ICU patients | Infants and Paediatric age group  
Cases whose sample requests originating from non ICU locations  
 Patients who are admitted to the hospital with an indwelling UC and with positive blood culture report  
Patients admitted to the hospital with a central line and with positive blood culture report |
| Surgical Site Infection (SSI) | All operated cases with "primary skin closure" | Infected at time of infection (PATOS)  
Stitch abscess, "pin site" infections/colostomy stomas & burn site infections |
| Ventilator associated Pneumonia (VAP) | All Adult ICU patients | Infants and Paediatric age group  
Other Ventilator Associated Events – VAC, IVAC  
 Patients admitted/transferred to the hospital with any VAE at the time of admission/transfer  
Patients with less than 48 hours ventilation |
| Hospital acquired Pressure Ulcers (HAPU) | Hospital wide  
All hospitalized patients including Infants & Paediatric Age group | Pressure ulcer(s) already present at the time of admission  
Diabetic Foot Ulcers  
Vascular Insufficiency Ulcers |
| Death within 48 hrs of any surgical intervention | All procedures performed in OT  
All deaths within 48 hours of any surgical intervention | None |
| Return to ICU within 48 hours | Hospital wide  
All ICU patients including Infants & Paediatric Age group being stepped down to ward. | Patients stepped down from ICU to HDU  
Patients stepped down from HDU and returning to HDU or ICU  
Patients stepped down from ICU and stepped up to HDU |
<p>| Return to ER within 72 hours | All patients returning to ER within 72 hours with same/related complaint(s). | Patients discharged from the hospital and returning to ER |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return to OT within 48 hours</td>
<td>• All Operated cases</td>
<td>• Planned return (e.g. multi stage surgery)</td>
</tr>
<tr>
<td>Venous Thromboembolism (VTE)</td>
<td>• Hospital wide</td>
<td>• Patients admitted to the hospital with DVT, VTE, or PE, with no history of admission in this hospital within last 3 months.</td>
</tr>
<tr>
<td></td>
<td>• All admitted patients</td>
<td></td>
</tr>
<tr>
<td>Patients Fall</td>
<td>• Hospital wide</td>
<td>OPD patients</td>
</tr>
<tr>
<td></td>
<td>• All hospitalized patients including Infants &amp; Paediatric Age group.</td>
<td>Patient attendants/visitors</td>
</tr>
<tr>
<td>Reporting Error (Imaging)</td>
<td>• IP as well as OP cases</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• Wrong patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrong side/site/marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrong report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wrong investigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Transcription errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dispatch Error</td>
<td></td>
</tr>
<tr>
<td>Lab Redo</td>
<td>• IP as well as OP cases</td>
<td>None</td>
</tr>
<tr>
<td>Errors prevented/ Detected by use of Surgical Safety Check list</td>
<td>• All cases performed in the OT</td>
<td>Any error not mentioned in inclusion criteria</td>
</tr>
<tr>
<td>Sharps Injury</td>
<td>• Hospital wide</td>
<td>Blood/body-fluid exposures without sharps injury.</td>
</tr>
<tr>
<td></td>
<td>• All staff members</td>
<td></td>
</tr>
<tr>
<td>Medication Errors</td>
<td>• IP Patients only</td>
<td>Self-reported errors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Errors related to appropriateness of prescription</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medication errors in OPD patients.</td>
</tr>
</tbody>
</table>
II. Data Collection Methodology:
This was a retrospective study. The data had been collected and reported by the Quality managers in a defined template. The data had been collected were compiled centrally and as per the identified gap, feedback was given back to the hospital for the future improvements.

III. Data Collection Period:
One-year data (January to December) from five different hospitals of the Delhi NCR region were recorded for 18 quality indicators.

IV. Procedure
One-year data (January to December) from five hospitals of Delhi NCR region were tracked for 18 quality indicators. The average score for 18 Quality Indicators were calculated from which mean score were calculated which was taken as a benchmark so that the performance (average score) could be compared from the same (Mean score). The benchmarking was done to identify the best from the four and measuring the performances for the future improvements. The analysis was done to identify the internal opportunities for the enhancements.

7. Data analysis and Result

Figure 1: Catheter associated Urinary Tract Infection (CAUTI)

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of CAUTI cases Contributing factor: Probable factor may be Immunocompromised and there was a Breech in catheter care maintenance practice

Figure 2: Central line associated bloodstream Infection (CLABSI)

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of CLABSI cases. Contributing factor: Contributing factor may be the non-compliance of the hub cleaning protocols, Nurse- patient ratio, lapses in Hand hygiene protocols.

Figure 3: Ventilator associated Pneumonia (VAP)

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of VAP cases. Contributing factor: Breech found in VAP bundle

Figure 4: Superficial SSI (30 days surveillance)

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of SSI Superficial (30 days) cases Contributing
Factors: Patient factors like obesity, Hypothermia, Long duration of surgery might be the probable causes for infection.

**Figure 5. Deep Surgical Site Infection (30 days surveillance)**

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of this indicator Contributing Factors: Patients' diabetic condition, high pre-operative sugar level, uncontrolled on insulin (post operatively) may be the probable cause.

**Figure 6. Deep SSI (90 days surveillance)**

Interpretation: 3 out of 5 hospitals had showed the highest prevalence of this indicator Contributing Factors: Patients' diabetic condition, high pre-operative sugar level, uncontrolled on insulin (post operatively) may be the probable cause.

**Figure 7. Return to ER within 72 hours**

Interpretation: None of the hospitals had shown the prevalence of this indicator when compared to the mean score. Contributing Factors: Probable contributing factor may be non-compliance of instructions or refusal for the admission by the patient.

**Figure 8. Death within 48 hours of any surgical intervention**

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of this indicator Contributing factor: Risk factors of the diseases

**Figure 9. Unplanned return to OT within 48 hours**

Interpretation: 3 out of 5 hospitals had showed the highest prevalence of this indicator Contributing Factors: Non-compliance to Surgical Safety checklist may be the probable cause.

**Figure 10. Return to ICU within 48 hours**
Interpretation: 2 out of 5 hospitals had showed the highest prevalence of this indicator. Contributing Factors: Early transfer to ward, Aggravation of pre-existing risk factors may be the one of the contributing factors.

Figure 11. Hospital acquired Pressure Ulcers (HAPU)

Interpretation: 3 out of 5 hospitals had showed the highest prevalence HAPU cases. Contributing Factors: May be due to the disease condition (Device related or moisture related pressure ulcers)

Figure 12. Lab Redo

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of Lab Redo cases. Contributing Factors: Analytical error, microbiological and the sample drawn in the wrong vacutainer were the most common contributing errors

Figure 13. Venous Thromboembolism (VTE)

Interpretation: 1 out of 5 hospital had showed the highest prevalence of VTE cases. Contributing Factors: Patient factor- Age, Obesity may be the probable cause

Figure 14: Reporting Errors

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of this indicator. Contributing Factors: Reporting and Investigation errors reported

Figure 15: Errors Prevented/Detection by the use of Surgical Safety Checklist

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of this indicator. Contributing Factors: One of the contributing factor may be that Patient shifted to OT procedure and Anaesthesia incomplete consent.

Figure 16: Patients Fall
Interpretation: 1 out of 5 hospitals had showed the highest prevalence of this indicator. Contributing Factors: Maximum number of patients slipped in the washroom, as the patients were not accompanied by any attendant.

**Figure 17. Sharps Injury**

Interpretation: 2 out of 5 hospitals had showed the highest prevalence of this indicator. Contributing factor: Maximum cases reported due to re-capping of insulin pen, inappropriate technique was one of the contributing factor, post cannulation due to used stylet on the bedside.

**Figure 18. Medication Errors**

Interpretation: 1 out of 5 hospital had showed the highest prevalence of this indicator. Prescription errors were the most common error as a whole.

8. Discussion and Conclusion
Hospital acquired Infections is a significant outcome indicator and this analysis demonstrates that HAI prevalence is different in all the five hospitals. Patient care environment and strategies are the factors that have led incomparable equations in these five hospitals. More attention should be emphasized by the Hospital management by promoting infection prevention practices to attain the improved control of Hospital acquired Infections in the five different hospitals. Moreover, timely analytical investigations are needed to identify the risk factors associated with HAI.

**Figure 19. No. of cases**

**Figure 20. Infection control indicators**

**Figure 21. Patient safety indicators**
<table>
<thead>
<tr>
<th>CAUTI</th>
<th>Strict CAUTI insertion and maintenance Bundles should be followed.</th>
</tr>
</thead>
</table>
| CLABSI | • Emphasized on following strict CLABSI bundle maintenance practices.  
• Area wise training and audits to be carried out by ICN to ensure all aseptic measures are being followed  
• Compliance to hub cleaning protocol  
• Reinforcement of hub cleaning / needleless connector cleaning protocols by Area In charges  
• Nurse: patient ratio to be optimised, staff to be trained before being asked to handle patients.  
• On the job training / focussed trainings being done.  
• Improvement in practices observed.  
• Proper Hand hygiene protocols |
| Surgical Site Infection (SSI) | • Redosing of anti-biotic if blood loss is more than 1500ml  
• Serum blood glucose to be maintained below 180mg/dl during and immediate post-operative period  
• Antimicrobial agent to be administered as per protocol  
• Normal body temperature to be maintained throughout surgical procedure  
• OR temperature and humidity to be maintained throughout surgical procedure |
| Ventilator Associated Pneumonia (VAP) | • Glycemic control to be maintained  
• Maintenance of the cuff pressure of ET-tube (at least 20cms H2O)  
• Head of the bed to be kept elevated  
• Providing mouth care (using chlorhexidine gluconate)  
• Ulcer and DVT prevention measures |
| Return to ER within 72 hours | • Pre - Triaging  
• Pre - discharge assessment of the patient  
• Pre - discharge investigation  
• Cross consultation (if applicable)  
• ER discharge advise and follow up instructions |
| Unplanned Return to OT within 48 hours | • Pre- assessment check-up should be done properly  
• Safety Surgical Checklist form should be followed  
• Post op airway patency, vital signs, level of consciousness should be checked |
| Return to ICU within 48 hours | • Care instructions for next 24 hours and to be properly carried out in the ward  
• Suctioning frequency for tracheostomized patients  
• Instructions for care of for drain inserted patients  
• Patient to be reviewed by the on-duty floor doctor within 1 hour of transfer to the ward |
| Death within 48 hrs of any Surgical intervention | • Timely diagnosis and Treatment  
• Patient care |
| Hospital Associated Pressure Ulcers (HAPU) | • Patient assessed using Braden scale daily and within 2 hours of admission  
• Skin assessment done every 8 hours  
• Turning and positioning done every 2 hours (bed) or 1 hour (chair)  
• Moisture barrier/transparent dressing to prevent friction  
• Heels elevated using soft pillows/elevator or heel protector used  
• Nutritional consult to be done for high risk patient  
• Working pressure relieving mattress in place |
| Venous Thrombo-Embolism (VTE) | - DVT risk assessment to be done.  
- Based on risk assessment, appropriate prophylactic and care measures to be initiated. |
| Lab Redo and Reporting Errors Imaging | - Clearly written processes or procedures to be developed  
- Systematic training and assessment of the efficiency of medical professionals  
- Use of technology to support and managerial operations  
- Enhancing the communication between the laboratory and the healthcare professionals. |
| Errors prevented/detected by the use of Surgical Safety Checklist | - There should be no deviation from the Surgical Safety Checklist  
- No gap in communication |
| Patients Fall | - Fall risk assessment and prevention practices to be done.  
- Any problems related to the patient to be reported to the health care provider  
- Patient and their family to be educated about the same |
| Sharps Injury | - Practice on passing of sharps from one staff to another by hand during a surgical procedure  
- Sharps to be disposed immediately after use.  
- Bulk disposal of sharps or needles taken up to the sharp disposal container/destroyer located away from the site where injection is administered. |
| Medication Errors | - Automated monitoring  
- Documentation of the drugs are necessary  
- Proper reconciliation of the medications to be followed  
- Medications to be double checked by two different nurses  
- Preparation and administration of the drug to be done at the same time |
9. Recommendations

- The quality parameters should also be expanded to the other critical wards or should be hospital wide as the quality parameters have only constricted to the ICU locations.
- The checklist should be maintained for the specified infection and Healthcare acquired Infections so that improvements can be made.
- The surveillance of the Quality parameters to be done on the regular basis so that immediate improvements can be done.
- The healthcare professionals should be trained for the Quality and safety measures to reduce the incidence of HAIs.

10. Limitations of study

- Data collected by the auditor is susceptible to both confounding and misclassification bias, as it is an observational approach.
- The study focused on the comparisons between the measures for quality improvement, which was made to identify the future improvements, but since the sample study was of the 1-year data, comparative trends could not be checked.

11. Future prospects of study

Several points could be covered by the researchers in future such as:
- The scope of the study can be expanded by including the Infants and paediatric patients.
- Specific quality indicators included only the ICU departments, other critical areas could also be considered.
- Other than these 18 quality indicators, other important indicators could also be considered (Postoperative sepsis, Accidental puncture, iatrogenic pneumothorax in neonates, Postoperative wound dehiscence etc.)
- More than 1-year data could be analysed so that comparative trends could be checked.

References


