## Detailed Analysis of the Indicators

The detailed analysis of all the indicators and the outcomes are mentioned below.

<table>
<thead>
<tr>
<th>Structure and Outcome Indicators</th>
<th>Benchmark</th>
<th>Reference</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotic Utilisation</td>
<td>82.59/100 occupied bed days</td>
<td>NNIS Publication Reference</td>
<td>57.20</td>
<td>51.62</td>
<td>50</td>
<td>48.52</td>
<td>42.83</td>
</tr>
<tr>
<td>Prophylactic Antibiotic Utilisation</td>
<td>100%</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Infiltration</td>
<td>&lt;10%</td>
<td></td>
<td>1.40%</td>
<td>0.90%</td>
<td>0.80%</td>
<td>0.60%</td>
<td>0.48%</td>
</tr>
<tr>
<td>Phlebitis</td>
<td>5%</td>
<td></td>
<td>2.60%</td>
<td>1.60%</td>
<td>1.30%</td>
<td>1.00%</td>
<td>0.85%</td>
</tr>
<tr>
<td>Extravasation</td>
<td>&lt;1%</td>
<td></td>
<td>0.00%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.02%</td>
</tr>
<tr>
<td>Total number of developed DVT</td>
<td>&lt;2</td>
<td></td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>No of patient screened dvt tool</td>
<td></td>
<td>16601</td>
<td>19240</td>
<td>18894</td>
<td>17028</td>
<td>34276</td>
<td></td>
</tr>
<tr>
<td>Pulmonary Thrombo Embolism (diagnosed)</td>
<td>0</td>
<td></td>
<td></td>
<td>Introduced from 2015</td>
<td>20</td>
<td>24</td>
<td>33</td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed Therapeutic Pressure Injury</td>
<td>0.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.02%</td>
</tr>
<tr>
<td>Developed Non-Therapeutic Pressure Injury</td>
<td>0.05%</td>
<td>0.03%</td>
<td>0.00%</td>
<td></td>
<td></td>
<td></td>
<td>0.00%</td>
</tr>
<tr>
<td>Pain Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no of Epidural Analgesia</td>
<td>1005</td>
<td></td>
<td>1141</td>
<td>888</td>
<td>1272</td>
<td>1224</td>
<td></td>
</tr>
<tr>
<td>Post-Op patients pain score 4 and above within 72 hours with epidural analgesia</td>
<td></td>
<td>119</td>
<td>68</td>
<td>39</td>
<td>67</td>
<td>5.24</td>
<td></td>
</tr>
<tr>
<td>Motor weakness</td>
<td>27</td>
<td></td>
<td>35</td>
<td>37</td>
<td>51</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Hypotension</td>
<td>11</td>
<td></td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Nausea &amp; Vomiting</td>
<td>4</td>
<td></td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Urinary retention</td>
<td>0</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Pruritis</td>
<td>1</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PDPH</td>
<td>145</td>
<td></td>
<td>50</td>
<td>23</td>
<td>9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Perinatal Care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exclusive Breast Milk Feeding</td>
<td>90% till 2016 &amp; 95% from 2017</td>
<td></td>
<td>96.00%</td>
<td>95.00%</td>
<td>95.76%</td>
<td>96.33%</td>
<td>97.21%</td>
</tr>
<tr>
<td>Formula feeding</td>
<td>10% till 2016 &amp; 5% from 2017</td>
<td></td>
<td>4.00%</td>
<td>5.00%</td>
<td>4.42%</td>
<td>3.68%</td>
<td>2.78%</td>
</tr>
<tr>
<td>(MORTALITY) Post PTCA mortality within 72 hrs</td>
<td>0%</td>
<td></td>
<td></td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
<td>1.42%</td>
</tr>
<tr>
<td>(MORTALITY) Number of Post interventional procedure mortality within 72 hrs - NEUROCATHLAB</td>
<td>1%</td>
<td></td>
<td>2%</td>
<td>0.50%</td>
<td>0%</td>
<td>0.01%</td>
<td>1.18</td>
</tr>
<tr>
<td>Procedural Sedation</td>
<td>Unplanned intubation</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AMI</td>
<td>Door to needle - Fibrinolytic therapy within</td>
<td></td>
<td>71%</td>
<td>38%</td>
<td>47%</td>
<td>59%</td>
<td>13%</td>
</tr>
<tr>
<td>Infection Control Indicators</td>
<td>Needle stick injuries</td>
<td>0 (Internal)</td>
<td>54</td>
<td>43</td>
<td>47</td>
<td>28</td>
<td>36</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------</td>
<td>-------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>VAP</td>
<td></td>
<td>2.5</td>
<td>2.09</td>
<td>1.9</td>
<td>0.7</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>Catheter related UTI</td>
<td></td>
<td>1.2</td>
<td>2.18</td>
<td>2.5</td>
<td>1.1</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Catheter related Blood Stream Infection</td>
<td></td>
<td>0.7</td>
<td>1</td>
<td>0.5</td>
<td>0.6</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>SSI</td>
<td></td>
<td>0.8</td>
<td>1.2</td>
<td>0.7</td>
<td>1.1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

| Patient Assessment          | Overall Documentation Compliance | 100% | 64.02 | 71.92 | 70 | 66.67 | 64% |
|                            | Time taken for assessment of indoor patients (mins) | 12.22 | 10.72 | 10.79 | 12.48 | 13.67 |
|                            | Percentage of Documentation of care plan and countersigned by the Clinician in the Inpatient case sheet | 100% | 71.45 | 61.67 | 60.25 | 52.9 | 81.6 |
|                            | SBAR Compliance | 100% | 96.12 | 91.83 | 94.75 | 94.36 | 90.1 |
|                            | Percentage of Completion of screening for Nutritional needs | 100% | 94.9 | 89.5 | 82% | 85.27 | 94.21 |
|                            | Percentage of Completion of initial nursing assessment within 30 minutes | 100% | 97.36 | 93.5 | 79% | 85.18 | 94.21 |
|                            | ER patients seen within 8 minutes | 8 mins | 6.83 | 4.55 | 4.11 | 3.69 | 3.2 |

<table>
<thead>
<tr>
<th>Process</th>
<th>Managerial Indicators</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In Patients</td>
<td>Patient Satisfaction- Excellent % - Challenges faced</td>
<td>90%</td>
<td>88.81</td>
<td>90.58</td>
<td>87.75</td>
<td>92.58</td>
<td>84.66</td>
</tr>
<tr>
<td></td>
<td>International Patient Satisfaction- Excellent %</td>
<td>90%</td>
<td>94.63%</td>
<td>97%</td>
<td>100%</td>
<td>99.5%</td>
<td>99.7%</td>
</tr>
<tr>
<td></td>
<td>Average Length of stay</td>
<td>7</td>
<td>5</td>
<td>4.8</td>
<td>4.1</td>
<td>3.8</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Mortality Rate</td>
<td>1%</td>
<td>1.60%</td>
<td>1.50%</td>
<td>1.30%</td>
<td>1.40%</td>
<td>1.10%</td>
</tr>
<tr>
<td></td>
<td>Readmission rate in ICU</td>
<td>0.03</td>
<td>0.05</td>
<td>0.21</td>
<td>0</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Readmission rate in ER</td>
<td>3.72</td>
<td>0</td>
<td>3%</td>
<td>2%</td>
<td>2.30%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total number of discharge outliers</td>
<td>5735</td>
<td>5525</td>
<td>4945</td>
<td>1806</td>
<td>1580</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RadioLOGY waiting Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient Waiting Time CT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient Waiting Time MRI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient Waiting Time USG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compliance of critical Results reporting within TAT</td>
<td>100%</td>
<td>99.9%</td>
<td>98.6%</td>
<td>100%</td>
<td>99.8%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Pharmacy Dispensing outliers</td>
<td>0</td>
<td>2.54</td>
<td>3.44</td>
<td>0.95</td>
<td>3.43</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Out Patients OP Consultation Outliers</td>
<td>78%</td>
<td>65%</td>
<td>52%</td>
<td>41%</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating Room Re-scheduling of surgeries</td>
<td>&lt;10%</td>
<td>13%</td>
<td>4.15%</td>
<td>3.90%</td>
<td>3.9</td>
<td>4.54%</td>
</tr>
<tr>
<td>Facility Indicators</td>
<td>Air Quality – Number Of Air Exchanges / Per Hour</td>
<td>25 times / hr</td>
<td>26.6</td>
<td>28.5</td>
<td>30</td>
<td>32.5</td>
<td>29</td>
</tr>
</tbody>
</table>
### An overview of performance of quality and patient safety indicators

#### Temperature control and/or percentage of humidity in OR
- **Temp-18C-24C**
  - Humidity % - 30% TO 60%
  - 100% 100% 100% 100% 100%

#### Complaints Rectified within 24 hours
- **Dept. of Civil Maintenance**
  - 100%
- **Dept. of Electrical Engineering**
  - 98% 98% 98% 95% 96%
- **Dept of Interior maintenance**
  - 97% 92% 93% 92% 94%
- **Dept of HVAC**
  - 100% 100% 99.5% 95% 94%
- **Dept of Electrical room**
  - 100% 100% 100% 99% 96%
- **Lift Breakdown beyond 3 Hours**
  - 16 13 0 3 12

#### Compliance to Drills Calendar
- 100% 100% 100% 100% 100%

#### Total Medication Errors
- **Prescription errors**
  - 242 164 151 207 145
- **Transcribing errors**
  - 230 115 97 91 81
- **Dispensing errors**
  - 267 126 107 448 226
- **Administration errors**
  - 369 194 129 156 414
- **Adverse Drug Reactions**
  - 125 107 112 108 135

#### IPSG - 1 (Identify Patient correctly) Compliance%

#### IPSG - 2 (Improve Effective Communication) Compliance%
- 99 99.87 99.95 99.79 99.98

#### IPSG - 3 (Improve the Safety of High Alert Medication) Compliance%
- 93 96.33 97.29 97.43 98.15

#### IPSG-4(Ensure Correct site, Correct procedure, Correct-Patient surgery) Compliance%

#### IPSG-5 (Reduce the Risk of Health Care Associated Infections) Compliance%
- >90% (Internal)
  - 78 81.67 84.21 85.36 85.23

#### Incident Reporting
- **Sentinel Events**
  - 0 0 0 2 0
- **Near Misses**
  - 113 67 62 70 15
- **Critical Incidents**
  - 272 264 183 554 659
- **Non Critical Incidents**
  - 1473 1956 1606 1957 1791
- **Percentage of near misses**
  - 5% 2.70% 5.70% 2.60% 0%

Source: QI Dashboard, Dept. of Quality, SRMC
Antibiotic Utilization

Introduction:
Inappropriate antibacterial treatment and overuse of antibiotics have contributed to the emergence of antibacterial-resistant bacteria. Widespread usage of antibacterial drugs in hospitals has also been associated with increase in bacterial strains and species that no longer respond to treatment with the most common antibacterial treatment.

Definition:
To monitor the antibiotic usage for reducing improper use of antibiotics to decrease antibiotic resistance and for improving patient outcomes.

Measure:
The indicator is calculated as the total antibiotic dosage given to all in patients for a month as numerator and the no. of inpatient bed days in a month as denominator.

Problems/ Challenges faced:
Prevalence of multidrug resistance organisms, when unable to establish diagnosis, patients unstable and critical.

Sustenance strategies:
The efforts made towards minimizing antibiotic utilization were introduction of Restricted Antibiotic forms, major role was discussing with departments for strict adherence to Antibiotic policy through in-house trainings.

Performance:

The compliance level for antibiotic usage was at 54.39 for the year 2009 and was 57.2 % in 2014 and has been improved to 51.62 % in 2015, 50% in 2016, 48.52% in 2017 and further improved to 42.83% in 2018.
**Prophylactic Antibiotic Utilization**

**Introduction:**
Clinical studies have demonstrated that a common reason for failure of prophylaxis was delay of antibiotic administration until after the operation. In a comprehensive study, it was found that the lowest incidence of post-operative infection was associated with antibiotic administration during the one hour prior to surgery.

Patients undergoing surgery are more susceptible/prone to acquire infections post operatively. Hence this measure has been implemented and followed for the prevention of infection and reduction in morbidity and mortality rate.

**Definition:**
Administration of prophylactic antibiotic within 1hr prior to skin incision to prevent post-operative complications/ morbidities.

**Measure:**
The indicator is calculated as the number of patients who received appropriate prophylactic antibiotic as numerator and number of surgical patients eligible for prophylaxis as denominator.

**Problems/ Challenges faced:**
The existing process is robust and no deviations are found.

**Sustenance strategies:**
Improving the patient safety standards by providing adequate antibiotic cover and to reduce repetition of antibiotic administration. Administration of antibiotics to prevent infections in surgical patients. Continuous monitoring of the process.

**Performance:**

The prophylactic antibiotic is maintained at 100% since 2014 till date.
**IV Therapy**

**Introduction:**
Intravenous therapy is a treatment that infuses intravenous solutions, medications, blood, or blood products directly into a vein. Intravenous therapy is an effective and fast-acting way to administer fluids or medication treatment in an emergency situation, and for patients who are unable to take medications orally.

**Definition:**
Ensuring Safe IV therapy for all patients admitted in hospital facility.

**Problems/Challenges faced:**
Improper Antibiotic dilution, Flushing, Flow rate. High Medications given in the Peripheral Lines (ICU’s), Inserted IV line which has not been removed within 72 hrs.

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**Challenges & Solutions noted during the process**

- In Indian scenario, new nurses from Rural Nursing schools, were lack of skills and knowledge. (cultural differences)
- During the initial stage of joining, nurses felt difficulty in remembering and practicing what was taught.
- No reporting, however, no punitive actions were taken.
- Non Compliance when you don’t schedule in training calendar
- Spending more hours on teaching
- We developed separate induction workshop exclusive for IV rather class room teaching.
- IV policies, Quality Indicators, formats for data capturing, were framed and added into nursing hand book.
Contributing Factors:

### Factors that contribute

<table>
<thead>
<tr>
<th>Factors that contribute</th>
<th>Action items</th>
<th>Responsibility</th>
<th>Monitoring measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flush therapy not been followed</td>
<td>Flushing policy improved by post flushes before 2ml and after 3ml</td>
<td>The concerned staff nurses</td>
<td>Daily assessment done by the IV team Nurses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors that contribute</th>
<th>Action items</th>
<th>Responsibility</th>
<th>Monitoring measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous monitoring was not done</td>
<td>IV line monitoring criteria was framed</td>
<td>The concerned staff nurses</td>
<td>Daily assessment done by the IV team Nurses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors that contribute</th>
<th>Action items</th>
<th>Responsibility</th>
<th>Monitoring measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment score was not done properly</td>
<td>Peripheral line assessment score was modified</td>
<td>The concerned staff nurses</td>
<td>Daily assessment done by the IV team Nurses</td>
</tr>
</tbody>
</table>

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Sri Ramachandra Medical Centre

Annual Data

<table>
<thead>
<tr>
<th>IV Complications</th>
<th>Benchmark</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Catheter</td>
<td>57060</td>
<td>53349</td>
<td>51695</td>
<td>51351</td>
<td>41155</td>
<td>41172</td>
<td></td>
</tr>
<tr>
<td>Phlebitis</td>
<td>5%</td>
<td>2426</td>
<td>1368</td>
<td>854</td>
<td>647</td>
<td>416</td>
<td>350</td>
</tr>
<tr>
<td>Infiltration</td>
<td>&lt; 10%</td>
<td>925</td>
<td>754</td>
<td>454</td>
<td>391</td>
<td>288</td>
<td>201</td>
</tr>
<tr>
<td>Extravasation</td>
<td>&lt; 1%</td>
<td>NIL</td>
<td>2</td>
<td>NIL</td>
<td>NIL</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Sustenance strategies:

Monitored the drug flow rate properly. Strict aseptic measures were followed throughout IV Cannulation. Checked the PH value and osmolality of the drug before administration and maintained the dilution of the medicine. Observing the EJV site for any pain / swelling / redness itching. If case of abnormality doctors are informed for further management. Flush therapy was followed as per the protocol.
**Infiltration**

**Definition:**
“Infiltration” is the inadvertent administration of a nonvesicant drug into surrounding tissue. Infiltration occurs when the infuscate enters the vein.

**Measure:**
The indicator is calculated as the no. of IV complications due to infiltration * 100 as the numerator and the total no. of IV catheters inserted as the denominator.

**Performance:**

The infiltration rate was 1.4 % for the year 2014 and has steadily reduced to 0.9% in 2015, 0.8 % in 2016, 0.6% in 2017 and at 0.48 % in 2018.
**Phlebitis**

**Definition:**
Phlebitis is Acute Inflammation of the Vein directly linked to the presence of any vascular access device or the fluid or medications which involves Tenderness, pain, erythema, edema, streak formation, a palpable cord and purulence. Phlebitis can be classified into mechanical, chemical and infective phlebitis, depending on the cause of the problem.

**Measure:**
The indicator is calculated as the no. of IV complications due to phlebitis * 100 as the numerator and the total no. of IV catheters inserted as the denominator.

**Performance:**

The phlebitis rate was 2.6 % for the year 2014 and has steadily reduced to 1.6 % in 2015, 1.3 % in 2016, 1% in 2017 and at 0.85 % in 2018.
Extravasation

Definition:
“Extravasation” is the inadvertent leakage of a vesicant solution into tissue. When the Infusate comes out of the Endothelial lining and accumulates under the surrounding tissues, causing tissue necrosis.

Measure:
The indicator is calculated as the no. of IV complications due to extravasation * 100 as the numerator and the total no. of IV catheters inserted as the denominator.

Performance:

The extravasation rate was 4.41% in the year 2009 and 0.003 % for the year 2014 and was NIL for the years 2015 - 2017 and at 0.02 % in 2018.
Deep Vein Thrombosis

Introduction:
Acute venous thromboembolism includes deep venous thrombosis and pulmonary thromboembolism. They are the most common preventable cause of death in hospitals.

Definition:
Deep vein thrombosis is a condition in which a blood clot forms in one of the deep vein (usually in the legs and pelvis). To prevent DVT in patients as risk factor in all patient care areas.

Contributing Factors:

<table>
<thead>
<tr>
<th>Factors that contribute</th>
<th>Action items</th>
<th>Responsibility</th>
<th>Monitoring measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long duration of central line</td>
<td>• The need of line for the patient to be assessed everyday.</td>
<td>The Neuro surgery Anesthetist/Primary consultant</td>
<td>Daily assessment done by the Nurses</td>
</tr>
<tr>
<td></td>
<td>• Central line to be removed if not in use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If it is in use - remove within 7 days/ convert to IJV line if possible.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Sustenance strategies:

- Central line was removed if not in use. If it is in use – it is removed within 7 days/converted to IJV line if possible.
- Every day care and extra care given to the patients with central line.
- Every 4<sup>th</sup> hourly heparin flushing and chart maintaining was followed.
- The duration of central line and multiple puncture was reduced to avoid DVT.
- Femoral line was avoided if anticoagulant is contraindicated.
- Preferably large veins were chosen for long venous access.
- USG guided central line insertion is followed.
- Usage to GECS+IPC for 1 week and then LMWH after 1 week if patient is in low bleeding risk.
- Thigh cuff length garment was implemented.
- Awareness created by organizing DVT awareness week and observing World Thrombosis Day.
- Conducted CME’s for doctors, Nurses and paramedics and supporting staff were trained/educated on prevention of DVT.
Daily assess and reassess the DVT screening tool
"⇒
Daily rounds and data collection.
"⇒
Identified moderate / high risk
"⇒
Identified the prophylaxis
"⇒
Early ambulating the patient
"⇒
Follow up prophylaxis
"⇒
Education to staff and patient
Awareness Programme

DVT Awareness week was observed with the theme on MARCHING towards VTE free INDIA.

A book on “Guidelines For Prevention & Management of DVT” was released.

CME was conducted for the doctors and nurses from various specialities like Cardiology, Neurology, Orthopaedics, Critical Care and Obstetrics & Gynaecology, more than 1000 members were benefitted. Quiz competition was conducted for PGs & CRRIs on DVT.
## Annual Data of developed DVT due to Central Lines

### 2017

<table>
<thead>
<tr>
<th>TYPE OF CENTRAL LINES</th>
<th>Jan-17</th>
<th>Feb-17</th>
<th>Mar-17</th>
<th>Apr-17</th>
<th>May-17</th>
<th>Jun-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
<th>Oct-17</th>
<th>Nov-17</th>
<th>Dec-17</th>
<th>Total no. of central lines</th>
<th>Total no. of developed DVT due to central lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAVA FIX</td>
<td>9</td>
<td>16</td>
<td>16</td>
<td>6</td>
<td>11</td>
<td>14</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>11</td>
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<tr>
<td>FEMORAL LINE</td>
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<td>12</td>
<td>20</td>
<td>19</td>
<td>30</td>
<td>13</td>
<td>14</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>19</td>
<td>15</td>
<td>178</td>
<td>Nil</td>
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<tr>
<td>FEMORAL HD</td>
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<td>5</td>
<td>3</td>
<td>19</td>
<td>12</td>
<td>8</td>
<td>15</td>
<td>(1)</td>
<td>11</td>
<td>12</td>
<td>14</td>
<td>8</td>
<td>9</td>
<td>121</td>
</tr>
<tr>
<td>IJV HD</td>
<td>6</td>
<td>7</td>
<td>12</td>
<td>10</td>
<td>12</td>
<td>11</td>
<td>9</td>
<td>7</td>
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<td>8</td>
<td>9</td>
<td>11</td>
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<tr>
<td>IJV LINE</td>
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<td>72</td>
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<td>86</td>
<td>104</td>
<td>81</td>
<td>97</td>
<td>81</td>
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<td>86</td>
<td>79</td>
<td>90</td>
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<tr>
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<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>50</td>
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</table>

### 2018

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<th></th>
<th></th>
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<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>52</td>
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<tr>
<td>FEMORAL LINE</td>
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<td>14</td>
<td>19</td>
<td>9</td>
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<td>10</td>
<td>15</td>
<td>19</td>
<td>137</td>
<td>0</td>
</tr>
<tr>
<td>FEMORAL HD</td>
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<td>3</td>
<td>8</td>
<td>15</td>
<td>15</td>
<td>8</td>
<td>4</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>8</td>
<td>4</td>
<td>89</td>
<td>1</td>
</tr>
<tr>
<td>IJV HD</td>
<td>9</td>
<td>9</td>
<td>17</td>
<td>8</td>
<td>21</td>
<td>14</td>
<td>20</td>
<td>31</td>
<td>27</td>
<td>15</td>
<td>13</td>
<td>10</td>
<td>194</td>
<td>Nil</td>
</tr>
<tr>
<td>IJV LINE</td>
<td>64</td>
<td>55</td>
<td>83</td>
<td>69</td>
<td>75</td>
<td>82</td>
<td>72</td>
<td>75</td>
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<td>69</td>
<td>82</td>
<td>69</td>
<td>886</td>
<td>Nil</td>
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<tr>
<td>SUBCLAVIAN</td>
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<td>0</td>
<td>4</td>
<td>5</td>
<td>2</td>
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<td>3</td>
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<td>5</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>45</td>
<td>Nil</td>
</tr>
</tbody>
</table>
Performance:

A total of 16601 patients were screened for the year 2014 and 19240 were screened for the year 2015 and the no. of patients screened were drastically increased to 34276 for the year 2018.

The no. of developed DVT was 7 for the year 2014 and has decreased to 4 for the year 2017 and further decreased to 3 developed DVT for the year 2018.

The no. of Pulmonary thrombo embolism diagnosed for the year 2014 was NIL and had increased to 20 for the year 2015 and further increased to 33 for the year 2017 and was drastically decreased to 22 for the year 2018.
Skin Care

Introduction:
Bedsores are known as pressure ulcers or decubitus ulcers, are lesions caused by many factors such as unrelieved pressure, friction, humidity, temperature, age, continence and medication to any part of the body, especially portions over bony or cartilaginous areas such as sacrum, elbows, knees, and ankles. It is often preventable and treatable if found early. The primary cure and treatment is to remove the pressure by turning the patient regularly (every two hours).

Definition:
The prevention, management, and wound care of pressure injuries to improve the quality of life and to restore patients with pressure injuries back to normal with minimal risks.

Challenges/Problems faced:

Sustenance Strategies:

1. System/process changed for Q2H position changing for all bed ridden patient with criteria.
2. High risk patients were analyzed and prophylactic interventions taken as follows
   a) Patients with fragile skin and bony prominent – Foam dressing application.
   b) Patients with high risk score <12 – Q6H Back care.
   c) Audit done for high risk patients twice a day.
   d) Education was been given to patient and family members regarding preventive measures of pressure injury.
3. Back care given for “Do not turn” patients under supervision of doctor without any complications.
4. Insisted all nurses to give back care for all post operative patients without any complications while receiving from the OT.

5. Encouraged nurses to give back massage for hemodynamically unstable patients without any complication and to avoid massaging over the bony prominence.

<table>
<thead>
<tr>
<th>Factors that contribute</th>
<th>Action items</th>
<th>Responsibility</th>
<th>Monitoring measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>No effective education is being given to the patients who had developed with pressure injury</td>
<td>100% Education provided to all the patients and their family members on the prevention, treatment and care of Pressure injury wound.</td>
<td>The concerned staff nurses &amp; the Skin care nurses</td>
<td>Daily assessment done by the Skin care nurses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SNO</th>
<th>TIME</th>
<th>POSITION</th>
<th>Action items</th>
<th>Responsibility</th>
<th>Monitoring measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>9 am</td>
<td>Right lateral position</td>
<td>‘Q2H position changing for the bedridden patient’ is being followed.</td>
<td>The concerned staff nurses</td>
<td>Daily assessment done by the Skin care nurses</td>
</tr>
<tr>
<td>2.</td>
<td>10 am</td>
<td>Left lateral position</td>
<td>As per protocol bedridden patient position changing chart has been modified with time and position.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>12 pm</td>
<td>Supine position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>2 pm</td>
<td>Right lateral position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>4 pm</td>
<td>Left lateral position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>6 pm</td>
<td>Supine position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>8 pm</td>
<td>Right lateral position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>10 pm</td>
<td>Left lateral position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>12 am</td>
<td>Supine position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>2 am</td>
<td>Right lateral position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>4 am</td>
<td>Left lateral position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>6 am</td>
<td>Supine position</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annual Data

| Measure: | The indicator is measured as the Number of patients who develop new/ worsening of pressure ulcer *1000 as numerator and Total no. of patient days as the numerator. |
| Reason for Therapeutic Pressure Injury | Usage of NIV Mask, Splint, ET Tie, Knee Brace, Foam Skin Tracer |
| Sustenance Strategies: | • Provided efficient education on nutrition aspects and prepared ‘protein rich pamphlets’ for patients’ care takers.  
• Efficient education by providing images of pressure injury healing process & proper dressing to the patients’ care takers during discharge.  
• To continue the project until 0% is achieved. |
Introduction
An epidural is an injection that numbs the lower half of your body. This includes your abdomen (stomach), pelvic area and legs. An epidural can either:

- stop you feeling any pain (analgesia), or
- stop you feeling any sensation at all (anaesthetic).

The epidural anaesthesia is a form of medication that is carefully injected by a specialist into the 'epidural space' in your spine. The medication blocks the nerve roots in your spine that lead to the lower part of your body. This numbs the area.

Definition
Epidural analgesia is the only mode of analgesia proven to improve outcome from major surgery and is the only form of analgesia which can provide total pain relief.

Measure
All patients who underwent EA with pain score (VAS) >4

Complications and Side effects

Problem/Challenges faced
Technical problems are leaks, catheters falling out, patchy or unilateral blocks, and catheter occlusions. Lack of facilities to care for patients with epidurals because of the potential complications of epidural analgesia.

Sustenance strategies
Epidural analgesia can reduce the incidence of postoperative pain. Continuation of the audit for efficient pain management of our patients.

Achievements

The total no. of epidural analgesia was 270 for the year 2009 and 1005 for the year 2014 and 1224 for the 2018...
Post-Op patients pain score 4 and above within 72 hours with epidural analgesia

Introduction
Spinal anesthesia is a type of neuraxial anesthesia; local anesthetic (LA) is injected into cerebrospinal fluid (CSF) in the lumbar spine to anesthetize nerves that exit the spinal cord. Spinal anesthesia is performed by placing a needle between the lumbar vertebrae and through the dura to inject anesthetic medication.

Definition
Spinal anesthesia (or spinal anesthesia), also called spinal block, subarachnoid block, intradural block and intrathecal block, is a form of neuraxial regional anesthesia involving the injection of a local anesthetic or opioid into the subarachnoid space, generally through a fine needle, usually 9 cm (3.5 in) long.

Measures
Measure of patient PDPH after giving spinal anaesthesia. All patients underwent SA with pain score (VAS) >4

Problem/Challenges faced
Technical problem and to reduce the incidence of PDPH

Sustenance strategies
To reduce the incidence of PDPH and Continuation of the audit for efficient pain management of our patients.

Achievements
To reduce PDPH and achieved 100%

The post op patient’s pain score 4 and above within 72 hrs with epidural analgesia was 9.91% for the year 2014 and was 5.25% for the 2018
Perinatal Care

Introduction:
Exclusive breast milk feeding (EBF) at hospital discharge of neonates has long been the challenge all over the world. Poor EBF rates at hospital discharge are a concern to achieve the ultimate goal of EBF. SRMC takes it as a challenge in establishing exclusive Breast Feeding among Postnatal mothers and the measures are followed to improve the Exclusive Breast feeding rate at discharge.

Definition
Evaluation of Effectiveness of breast feeding strategies on successful lactation among postnatal mothers.

Measures:
To monitor the Exclusive Breast Milk Feeding is adhered at hospital and to analyze and intervene the deviations and non-adherences.

Challenges/ Problems Faced:
Difficulty in counseling all antenatal mothers as there are only 3 sessions per week of 20 minutes duration. 2 nursing staff are accountable for breast feeding education and so the OP patients are not being educated in case they take leave. During the holidays the lactation nurses could not meet the IP patients.
Sustenance strategies:

The exclusive breast milk feeding has been sustained above the benchmark level of 90%. As part of continuous quality improvement, the benchmark for exclusive breast milk has been revised to 95% since 2017.

The formula feeding has been maintained below 10%. As part of continuous quality improvement, the benchmark for formula feeding has been revised to 5% since 2017.


Once a baby is born, counseling and Education on breast feeding techniques are imparted to the mothers.

↓

Daily assessment is done from birth till discharge.

↓

Formula feeds are prescribed as per requirement based on the Neonatologists order(Social and medical causes for Mother and baby).

↓

The data is peer reviewed at department meetings.

IMPLEMENTATION STRATEGIES

All pregnant women are informed of:

> Advantages of exclusive breast feeding for 6 months and measures to improve breast feeding
> Disadvantages of Formula feeds

All mothers and babies receive:

> Skin-to-skin contact for at least 60 minutes immediately after birth.
> Encouragement to look for signs that their babies are ready to breastfeed and offer of help if needed

All breastfeeding mothers are offered further help with breastfeeding within 4 hours of birth.

All mothers who have decided not to breastfeed are:

> All mothers are educated and demonstrated on
1. General information
2. Positioning and attachment
3. Diet
4. Breast examination

Mothers of babies in special care units are:

> Informed about risks and management of various feeding options and helped to decide what is suitable in their circumstances.
> Taught to prepare their feedings of choice and asked to demonstrate what they have learned.

> Offered help to initiate lactation
> Shown how to express their breast milk by hand and informed they need to breastfeed or express at least 6-8 times in 24 hours to maintain lactation.
**Exclusive Breast Milk Feeding**

Performance:

The exclusive breast milk feeding was achieved at 96% in 2014 and has improved and sustained at 97.21% in 2018.

**Formula Feeding**

Performance:

The formula feeding was achieved at 4% in 2014 and has improved and sustained at 2.78% in 2018.
Post PTCA mortality within 72 hours

Introduction
One of the most common high-complexity procedures for chronic cardiovascular diseases is PTCA. The main objective of this study is to estimate in-house mortality and prevalence of complications for patients who have undergone the PTCA procedure and expired within 72 hours of the procedure.

Definition
Patients who have undergone PTCA and develops complications post procedure and expires within 72 hours after the procedure.

Measure:
This measure is calculated by number of patients who have passed away within 72 hours post PTCA as numerator and number of PTCA performed as denominator *100

Problems / Challenges faced:
Patients with diabetic mellitus had the risk factor for developing complications after doing PTCA. Patients were not wheeled immediately to the theatre because of which the complications in patients increase.

Sustenance strategies:
Appropriate glycemic care is ensured for the patient before the procedure. Ensured that proper time management process is in place, to wheel the patient to the theatre within 90 minutes upon patients arrival. ER team was briefed on their roles and responsibilities to act immediately when patients arrives. Data is being audited and validated the same is being discussed along with the Medical Director and HOCS Cardiology.

Performance:

The Post PTCA mortality rate within 72 was 1% for the 2014 and had slightly increased to 3% in the year 2015 but has been drastically reduced to 1.10% for the year 2018.
Introduction
The main objective of this study is to estimate in-house mortality and prevalence of complications for patients who expired post interventional mortality within 72 hours of Neuro Cathlab the procedure.

Definition
Patients who have undergone interventional procedure in Neuro cathlab and developed complications post procedure and expired within 72 hours after the procedure.

Measure:
This measure is calculated by number of patients who have passed away within 72 hours post interventional procedure in Neuro cathlab as numerator and number of Interventional procedures performed in neuro cath lab as denominator *100

Problems / Challenges faced:
Patients with diabetic mellitus had the risk factor for developing complications after undergoing interventional procedure in neuro cathlab. Patients were not wheeled immediately to the theatre upon the arrival.

Sustenance strategies:
Appropriate glycemic care was ensured for the patient before the procedure. Ensured that proper time management process is in place, to wheel the patient to the theatre within 90 minutes upon patients arrival. ER team was briefed on their roles and responsibilities to act immediately when patients arrives. Data is being audited and validated the same is being discussed along with the Medical Director and HOCS Interventional Radiology.

Performance:

The mortality rate for post interventional procedure within 72 hrs for neurocathlab was 2% in the 2014 and was reduced to 0.005 for the year 2018.
Unplanned Intubation

Introduction
The variable intent is to capture all unplanned intubations for any reason/cause, including, but not limited to, unplanned intubations for refractory hypotension, cardiac arrest, and inability to protect airway. Risk factors for unplanned intubation have been delineated, but details regarding when and why reintubations occur as well as strategies for prevention have not been defined.

Definition
Adverse anaesthesia event is any untoward medical occurrence that was present during treatment with an anaesthetic product but which does not necessarily have a casual relationship with this treatment.

Measure:
This measure is calculated by Number of patients who developed adverse anaesthesia event as numerator and Number of patients who underwent anaesthesia as denominator * 100.

Problems / Challenges faced:
There has never such incident happened in our institute so there are no challenges faced

Sustenance strategies:
It is always been “Zero” as there was no such incident happened.

Performance:

Unplanned intubation was always maintained as NIL since 2014.
Door to Needle – Fibrinolytic Therapy within 30 mins

Introduction
Time to fibrinolytic therapy is a strong predictor of outcome in patients with an acute myocardial infarction. National guidelines recommend that Fibrinolytic therapy be given within 30 minutes of hospital arrival in patients with ST-elevation myocardial infarction.

Definition
Acute myocardial infarction (AMI) patients receiving Fibrinolytic therapy during the hospital stay and from hospital arrival to fibrinolysis of 30 minutes or less.

Measure
The indicator is measured as AMI patients who received Fibrinolytic therapy within 30 minutes of hospital arrival as numerator and AMI patients who are >= 18 years as denominator.

Problems/ Challenges Faced
Average time was 4hrs. There was a conflict in buying Inj. Elaxim which cost 40,000 + as non affordability by some category of patient group.

Sustenance Strategies
It was sorted out after permission given by Cardiology – HOCS to stock/advice Inj.Streptokinase medication which cost about Rs.4,000 +. Inj.Streptokinase was added into imprest stock and stocked to reduce the time delay to procure medication. Cardiology - HOD instructed all the Post graduates to give priority and attend the cases.

Performance:

The fibrinolytic therapy given with 30 mins was 37% for the year 2014 and is 34% for the year 2018.
Needle stick injuries

Introduction:
Everyday healthcare workers are exposed to dangerous and deadly blood borne pathogens and are at risk of occupational acquisitions of blood- borne illnesses. Occupational exposure to blood-borne pathogens among healthcare workers include percutaneous exposure i.e. exposure to needles and other sharp objects, and mucotaneous exposure i.e. contact with intact or non-intact skin, contact with mucous membranes.

Definition:
Needle stick injuries may expose workers to blood borne pathogens such as human immunodeficiency virus (HIV), hepatitis B virus, and/or hepatitis C virus. A health care worker’s risk of infection depends on several factors, such as the pathogen involved, the severity of the needle stick injury, and the availability and use of pre-exposure vaccination and post-exposure prophylaxis.

Measure:
The indicator is measured as the total number of employees who had a needle stick injury as the numerator and the no. of employees as the denominator.

Problems/ Challenges faced:
Needle stick injuries occurred mainly due to accidental injury, the suturing techniques followed and majorly due to the improper disposal of used needles.

Sustenance strategies:
Re education was done on proper segregation, discarding and handling of sharps. Audit & Tracers on disposal of sharps. Use of PPE and PEP was initiated when needed.

Performance:

The numbers of needle stick injuries were 55.2 for the year 2009 and 54 in the year 2014 and have steadily decreased to 23 for the year 2018.
Ventilator Associated Pneumonia

Introduction:
Ventilator-associated pneumonia is a lung infection that develops in a person who is on a ventilator. A ventilator is a machine that is used to help a patient breathe by giving oxygen through a tube placed in a patient’s mouth or nose, or through a hole in the front of the neck. An infection may occur if germs enter through the tube and get into the patient’s lungs. CDC provides guidelines and tools to the healthcare community to help end ventilator-associated pneumonia.

Definition:
Ventilator associated pneumonia is one of the common cause of hospital acquired infection leading to high mortality and increased length of stay in the ICU. In order to decrease the incidence of VAP in ICU patients, an integrated and comprehensive strategy (VAP Bundle) which includes a number of components were implemented.

Measure:
The indicator is calculated as the Number of Ventilator Associated Pneumonia in a month*1000 as numerator and the denominator is defined as Number of ventilator days in that month.

Problems/ Challenges faced:
HME filter not changed on time, Improper mouth care, prolonged ventilation, inappropriate hand hygiene, non-removal of condensate in circuit.

Sustenance strategies:
The practices like head elevation, avoiding intubation whenever possible, periodical draining and discarding any condensate that collects in the tubing of a mechanical ventilator were followed to prevent the ventilator associated pneumonia among patients. Ensuring adequate usage of 2% chlorhexidine solution.

Performance:

The VAP rate was 2.5 for the year 2014 and has consistently decreased to 0.67 in the year 2018.
Catheter associated Urinary Tract Infection

Introduction:
A urinary tract infection (UTI) is an infection involving any part of the urinary system, including urethra, bladder and ureters. The most important risk factor for developing a catheter-associated UTI (CAUTI) is prolonged use of the urinary catheter. Therefore, catheters should only be used for appropriate indications and should be removed as soon as they are no longer needed.

Definition:
This indicator was initiated as UTI is the most common nosocomial infection, the monitoring criteria for UTI was vital for reducing nosocomial infections in hospital.

Measure:
The indicator is calculated as the Number of urinary catheter associated UTIs in a month*1000 as numerator and Number of urinary catheter days in that month as the denominator.

Challenges/ problems faced:
The challenges faced in preventing UTI were improper catheter care, elevation of urobag above the bladder level, Clamping of catheter during investigation, Catheterization tray not available, Inappropriate hand hygiene, Improper 6th hourly catheter care, Inappropriate hand hygiene, Prolonged catheterization.

Sustenance strategies:
Checklists for Catheterization (before, during & after) was emphasized in all areas where catheterization done. Audit & Education was done on appropriate hand Hygiene & Aseptic techniques during catheterization. Random check if Q6H catheter care is given. Reinforced the nurses to assess the need of Foleys catheter everyday by confirming with the doctor. Re-education was given on appropriate hand Hygiene to be followed during catheterization and while giving catheter care. Availability of catheterization tray.

Performance:

The CAUTI rate was 1.2 for the year 2014 and is 1.5 for the year 2018.
Introduction:
Catheter-related bloodstream infection (CRBSI) is defined as the presence of bacteremia originating from an intravenous catheter. It is one of the most frequent, lethal, and costly complications of central venous catheterization and also the most common cause of nosocomial bacteremia. Central venous catheters (CVCs) pose a greater risk of device-related infections than any other types of medical device and are major causes of morbidity and mortality. They are also the main source of bacteremia and septicemia in hospitalized patients.

Definition:
It is the number of episodes of CRBSI occurring in patients on central line for more than 48hrs.

Measure:
The indicator is calculated as Number of central line associated blood stream infections in a month*1000 as the numerator and Number of central line days in that month as the denominator.

Challenges/ problems faced:
Pre existing sepsis, Lack of glycemic control, Improper port cleaning, Improper cleaning access port with alcohol before line access, Non availability of cannulation tray, Prolonged cannulation, Inappropriate Hand hygiene.

Sustenance strategies:
Re education given on cleaning of access port with alcohol swab before line access. Random audit on usage of alcohol swab.

Performance:

The CRBSI rate was 0.7 for the year 2014 and is 0.67 for the year 2018.
Surgical Site Infection

**Introduction:**
A surgical site infection is an infection that occurs after surgery, in the part of the body where the surgery took place. Surgical site infections can sometimes be superficial infections or more serious and can involve tissues under the skin, organs, or implanted material.

**Definition:**
Surgical Site Infection is the infection affecting the surgical site and occurring within 30 days of the operative procedure or within 1 year after implant surgery.

**Measure:**
The indicator is calculated as Number of surgical site infections in a given month*100 as the numerator and Number of surgeries performed in that month as the denominator.

**Challenges/ problems faced:**
Poor personal hygiene, Uncontrolled DM

**Sustenance strategies:**
Wound hygiene & personal hygiene education given to patients by nurses & ICNs for wound care after discharge, SSI prevention brochures given to patients. Audit on Antimicrobial body wash was done & re education done. 100ml hand rub given to all patients during discharge for Hand Hygiene. Glycemic control was done for patients.

**Performance:**

![Surgical Site Infection Graph](image)

The surgical Site infection was 0.8 for the year 2014 and was 1 for the year 2018.
Patient Assessment

Introduction:
Assessment forms an integral part of patient care. It is the first step in the successful evaluation of a patient and is in itself a dimension of care that influences and contributes to patient safety approach/practices.

Definition:
The patient assessment is gathering of the patient's individual physiological, psychological, sociological information and individual preferences. It also includes data collection and documentation of vital signs such as temperature, respiratory rate, heart rate, blood pressure, and pain score.

Problems/Challenges faced:
The challenges faced in documenting are majorly due to the busy schedule of the doctors as they are attending multiple cases. Since it is teaching hospital, consultants are involved with multiple tasks like balancing the patient care and educational activities. PG doctors usually assess the patients. Challenges are faced in training the PG doctors/Medical Officers as there is continuous change in duties.

Sustenance strategies:
Patient assessment has improved spot audits, through Multi disciplinary team rounds (MDTR) which includes a team consisting of doctor, physician, physiotherapist, social worker, clinical nutritionist to assess the patient condition from different aspects. Quality Improvement Initiative audits were conducted and the findings/analysis of the documentation compliance of each department were shared with their respective HOD’s through Quality Office. Awareness is also created through trainings sessions. Doctor to doctor handover practice has been initiated and is followed. Training to all doctor regarding patients assessment and documentation practices as per NABH guidelines.

Training the Doctors on NABH Standards

Number of sessions held- 41

Percentage of participation

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Attended (%)</th>
<th>Not Attended (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No of Doctors (400)</td>
<td>70% (280)</td>
<td>30% (120)</td>
</tr>
<tr>
<td>Total No of PG’s (474)</td>
<td>65% (307)</td>
<td>35% (167)</td>
</tr>
<tr>
<td>Total No of Medical Officers (55)</td>
<td>38% (21)</td>
<td>62% (34)</td>
</tr>
</tbody>
</table>

Department wise attendance list

<table>
<thead>
<tr>
<th>DEPARTMENTS</th>
<th>Attended %</th>
<th>Not Attended %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty</td>
<td>DOCTORS</td>
<td>PG's</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>ACCIDENT &amp; EMERGENCY MEDICINE</td>
<td>80% (8)</td>
<td>77% (10)</td>
</tr>
<tr>
<td>ANAESTHESIOLOGY</td>
<td>64% (18)</td>
<td>92% (35)</td>
</tr>
<tr>
<td>ARTHROSCOPY &amp; SPORTS MEDICINE</td>
<td>86% (6)</td>
<td>60% (3)</td>
</tr>
<tr>
<td>CARDIO THORACIC SURGERY</td>
<td>50% (2)</td>
<td>100% (3)</td>
</tr>
<tr>
<td>CARDIOLOGY</td>
<td>83% (10)</td>
<td>72% (5)</td>
</tr>
<tr>
<td>CHEST &amp; TB</td>
<td>73% (8)</td>
<td>89% (8)</td>
</tr>
<tr>
<td>CRITICAL CARE MEDICINE</td>
<td>60% (3)</td>
<td>100% (2)</td>
</tr>
<tr>
<td>DERMATOLOGY &amp; VENEREOLOGY</td>
<td>75% (8)</td>
<td>72% (13)</td>
</tr>
<tr>
<td>EAR NOSE THROAT</td>
<td>64% (9)</td>
<td>78% (14)</td>
</tr>
<tr>
<td>ENDOCRINOLOGY</td>
<td>100% (3)</td>
<td>0</td>
</tr>
<tr>
<td>GENERAL MEDICINE</td>
<td>91% (32)</td>
<td>93% (39)</td>
</tr>
<tr>
<td>GENERAL SURGERY</td>
<td>68% (23)</td>
<td>56% (27)</td>
</tr>
<tr>
<td>MEDICAL GASTROENTEROLOGY</td>
<td>25% (1)</td>
<td>72% (5)</td>
</tr>
<tr>
<td>MEDICAL ONCOLOGY</td>
<td>80% (4)</td>
<td>0</td>
</tr>
<tr>
<td>NEONATOLOGY</td>
<td>78% (7)</td>
<td>0</td>
</tr>
<tr>
<td>NEPHROLOGY</td>
<td>100% (6)</td>
<td>67% (4)</td>
</tr>
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<td>NEURO RADIOLOGY</td>
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<td>100% (2)</td>
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<tr>
<td>NEURO SURGERY</td>
<td>57% (4)</td>
<td>73% (8)</td>
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<tr>
<td>NEUROLOGY</td>
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<td>86% (6)</td>
</tr>
<tr>
<td>NUCLEAR MEDICINE</td>
<td>100% (1)</td>
<td>0</td>
</tr>
<tr>
<td>OBSTETRICS &amp; GYNAECOLOGY</td>
<td>66% (21)</td>
<td>32% (16)</td>
</tr>
<tr>
<td>OPHTHALMOLOGY</td>
<td>59% (10)</td>
<td>18% (3)</td>
</tr>
<tr>
<td>ORTHOPAEDIC SURGERY</td>
<td>21% (7)</td>
<td>71% (39)</td>
</tr>
<tr>
<td>PAEDIATRIC MEDICINE</td>
<td>79% (26)</td>
<td>49% (19)</td>
</tr>
<tr>
<td>PAEDIATRIC SURGERY</td>
<td>100% (3)</td>
<td>100% (1)</td>
</tr>
<tr>
<td>PLASTIC SURGERY</td>
<td>75% (6)</td>
<td>100% (4)</td>
</tr>
<tr>
<td>PSYCHIATRY</td>
<td>100% (7)</td>
<td>100% (6)</td>
</tr>
<tr>
<td>RADIOLOGY</td>
<td>61% (14)</td>
<td>42% (4)</td>
</tr>
<tr>
<td>SMART</td>
<td>100% (5)</td>
<td>78% (7)</td>
</tr>
<tr>
<td>SURGICAL GASTROENTEROLOGY</td>
<td>100% (3)</td>
<td>100% (4)</td>
</tr>
<tr>
<td>SURGICAL ONCOLOGY</td>
<td>100% (3)</td>
<td>0</td>
</tr>
<tr>
<td>TRANSFUSION MEDICINE</td>
<td>75% (3)</td>
<td>83% (5)</td>
</tr>
<tr>
<td>UROLOGY</td>
<td>67% (6)</td>
<td>17% (1)</td>
</tr>
<tr>
<td>VASCULAR SURGERY</td>
<td>100% (4)</td>
<td>100% (3)</td>
</tr>
</tbody>
</table>
Overall Documentation Compliance

Definition:
Documentation compliance indicates the completeness of documenting the open medical records. It includes history and physical assessment, diagnosis, plan of care, continual pain score assessment, Medication orders and countersign by the treating physician.

Measure:
This indicator was calculated by considering the compliance of documentation for all patient records as per hospital policy * 100 as the numerator and the no. of open case sheets audited as the denominator.

Performance:

The compliance was initially at 68% for the year 2009 and 64% in 2014 and was 64% for the year 2018.
**Time taken for assessment of indoor patients (hrs)**

**Definition:**
The time from the patient has arrived at the bed of the ward till the time that the initial assessment has been completed by a doctor.

**Measure:**
The indicator is calculated as sum of time taken for the assessments as the numerator and total number of patients in indoor as the denominator. The initial assessment of the in patients to completed within 24 hrs of admission.

**Performance:**

The time taken for conducting the initial assessment of the patient was 12.22 for the 2014 and has increased to 13.6 in 2018.
**Percentage of Documentation of care plan and countersigned by the Clinician in the Inpatient case sheet**

**Definition:**
The plan of care recommended by the clinician and its documentation is an integral part of patient assessment compliance. The care plan should be documented by the treating consultant and also to be countersigned.

**Measure:**
The indicator is calculated as the Number of in-patient case records wherein the care plan with desired outcomes has been documented * 100 as the numerator and the total no. of patients as the denominator.

**Performance:**

![Percentage of Documentation of care plan and countersigned by the Clinician in the Inpatient case sheet](chart)

The compliance was 71.45 for the year 2014 and has improved to 81.6 for the year 2018.
SBAR Compliance

Definition:
The specific measure is selected to identify the unique role that nurses have in caring for the overall health and well-being of patients and allows them to communicate their patients, continuity of care with subject to doctor's orders or interventions. S BAR Compliance also helps to maintain the integrity of care and streamline the treatment to the individual's needs and goals. Each patient is different, and the approach of treating each patient must also be different. The S BAR Compliance also facilitates the continuity of care for each patient and to fasten the nursing interventions and plan of care that are directly tailored to the individual to the individual, which ultimately increases the effectiveness of treatment.

Measure:
The indicator is calculated as Number of in-patients records with SBAR Compliance as the numerator and Total number of in-patient records audited as the denominator.

Problems/Challenges faced:
Nurses are partially compliant in awareness of SBAR of patient care. The busy schedule of the nurses and the excessive documentation of the case sheets forms resulted in the decrease in the SBAR compliance. Failed to document the name and signature either by Handing or taking over nurse. The handing over nurse, documents all the columns including signature before starting the handing over process.

Sustenance Strategies:
Hand off communication was improved by spot audits. Spot corrections and education and ongoing nursing education given through centralized training, CNE, new nurses induction program, monitoring, supervising and auditing by Nursing leaders, incharges, documentation team and IPSG I & II team.

Performance:

The compliance percentage was at 96.12 for the year 2014 and is now at 90.1 for the year 2018.
Percentage of Completion of screening for Nutritional needs

Definition:
The nutritional needs of the patient are assessed by the clinical nutritionist during the multi-disciplinary team rounds. Assessment and documentation of the nutritional needs of the patient should be completed within 24 hrs of admission.

Measure:
The indicator is measured by capturing the number of inpatient case records wherein the nutritional assessment has been completed and documented * 100 as the numerator and the total number of patients admitted as the denominator.

Sustenance Strategies:
Nutrition risk screening criteria revised as per the standard references to aid in identifying more patients “At Nutritional Risk”. Criteria for identifying nutritional risk listed out and educated to the dietitians. New Screening proforma included in the case sheet since April’14

Performance:

The compliance level was 89.5 for the year 2015 and has improved drastically to 94.21 for the year 2018.
Introduction:
Nursing assessment is the gathering of information about a patient's physiological, psychological, sociological, and spiritual status by a licensed Registered Nurse.
An initial assessment, also called an admission assessment, is performed when the patient enters health care from a health care centre. The purposes are to evaluate the patient’s health status, to identify functional health patterns that are problematic, plan and to provide care

Definition:
Nursing admission assessment and documentation should be completed by the nurse with patient, parent or care giver, ideally upon arrival to the ward.
It must be completed within 24 hours of admission.
The function of the initial nursing assessment is to identify the assessment parameters and responsibilities needed to plan and deliver appropriate individualized care to the patient.

Measure:
This indicator was calculated by considering the compliance of documentation for all patient record as per hospital policy. Open case sheets audited by inservice education team.

Problems/ Challenges faced:
Incomplete documentation, High attrition, 30% of nursing leaderships have gone for higher studies to complete their graduation offered by the SRIHER. Change in protocols due to revision of NABH standards, unable to train efficiently 1200 nurses within short time.

Sustenance Strategies:
Spot corrections and education and Ongoing nursing education through centralized training, CNE, new nurses induction program by in service education team. Monitoring, supervising and random check by Nursing leaders, in charges and documentation team.

Performance:

The completion of initial nursing assessment within 30 mins was 97.3% for the year 2014 and is 94.21% for the year 2018.
**ER patients seen within 8 minutes**

**Definition:**
It is the time taken for completion of initial assessment by the doctor for patients presenting in ER. The time is calculated from the patient's arrival at the emergency till the time the initial assessment is completed by a doctor.

**Measure:**
The indicator is calculated as Sum of time taken for the assessment as the numerator and total number of patients in emergency as the denominator.

**Performance:**

The overall time taken for initial assessment in ER was 6.83 mins for the year 2014 and was 3.2 mins for the year 2018.
Patient Satisfaction - Excellent %

Introduction:
Patient satisfaction is a highly desirable outcome of clinical care in the hospital. Patient satisfaction is an indicator that is indispensable to the assessment of the quality of care in hospitals.

Definition:
Patient satisfaction is defined in terms of the degree to which the patient’s expectations are fulfilled. It is an expression of the gap between the expected and perceived characteristics of a service.

Measure:
The patient satisfaction excellent % is calculated as all the in-patients who rated service as excellent in a month * 100 as numerator and the total number of patients surveyed in that month as denominator.

Problems/ Challenges faced:
Patients unwilling to fill forms, patient forget to fill forms as they are in a hurry to get discharged. Proper follow up was also not done by the secretaries to check if the filled in feedback forms were collected upon discharging the patients.

Sustenance strategies:
Floor wise social workers were assigned to collect filled in feedback forms. Again this process was re modified as the blue card would be issued only after the filled in feedback form was submitted.

Performance:

The patient satisfaction of excellent percentage was 56.25% for the year 2009 and was 88.81% in 2014 and had improved 92.58% in 2017. In 2018 the patient satisfaction was 94%.
Introduction:
Improving the overall satisfaction of international patients undergoing treatment at SRMC by delivering quality care and service at affordable rate.

Definition:
Feedback collection is a process in which patient expresses their good and bad experiences at all areas across the hospital for all inpatient services.

Measure:
This form is collected from the patient/attender at the time of discharge after the patient has availed all services at hospital and is ready to leave the hospital.

Problems/ Challenges faced:
Patients unwilling to fill forms, patient forget to fill forms as they are in a hurry to get discharged. Proper follow up was also not done by the secretaries to check if the filled in feedback forms were collected upon discharging the patients.

Sustenance strategies:
Floor wise social workers were assigned to collect filled in feedback forms. Again this process was re modified as the blue card would be issued only after the filled in feedback form was submitted. International Patients Care and Service staff provides the feedback form and collects it before patients leave the hospital. International Dept staff reads the feedback form for the patient convenience. Patients freely express their feedback and suggestions to improve the services and care to achieve excellence. Patients are happy that they are involved in the improvement process to attain excellence.

Performance:

The patient satisfaction of International patients was at 80% for the year 2009 and was 94.63 % for the year 2014 and was improved consistently and it was at 99.7 % for the year 2018.
Average Length Of Stay

Introduction
The average length of stay in hospitals is a statistical calculation often used for health planning purposes.

Definition
Length of stay (LOS) is a term used to measure the duration of a single episode of hospitalization. Inpatient days are calculated by subtracting day of admission from day of discharge. However, persons entering and leaving a hospital on the same day have a length of stay of one.

Measure:
This measure is calculated by Number of Inpatient days in a given month as numerator by Number of discharges and death in that month as denominator.

Problems / Challenges faced:
Patient’s attenders were not willing to discharge the patients. Length of stay increases because of the change in clinical condition of some patients. Some of the challenges faced are patient have to wait to get their test report. Since multidisciplinary team is involved in patient care is another cause for the delay, Delay in discharge process are some of the problems faced. Increase in ALOS results in non-availability of beds. Failure or delay in administering antibiotics in post operatives surgical patients where the susceptibility of infection to increase which increases the patient stay longer.

Sustenance strategies:
Discharge delays have been reduced, all the consultants are instructed to discharge the patient immediately once the patient becomes stable. Compliances to CPGs and complying with admission and discharge criteria. Improving the patient safety standards by providing adequate antibiotic cover for administration in surgical patients to reduce the length of stay. The percentage of patients needing a prolonged hospital stay > 5 days has significantly reduced, after implementation of the clinical pathway by standardization of care among various consultants. In the very few patients who needed a stay > 5 days, the cause was analyzed, and measures were taken to achieve an optimum outcome.

Performance:

The average length of stay was 5 days for the year 2014 and was 3.7 days for the year 2018.
Mortality Rate

Introduction
Mortality rate is a measure to analyze the number of deaths in a hospital. This data is very vital to identify the number of deaths in a month.

Definition
Mortality rate is the percentage of deaths associated with a disease or medical treatment.

Measure:
This measure is calculated by Number of deaths in a month as numerator by the number of discharges and deaths*100.

Problems / Challenges faced:
Implementing of clinical pathways resistance from doctors as each one has different protocol. Variation from treatment protocol between one consultant to another and to bring in uniformity. Standardization of treatment involves consistent effort from management, leadership to consultant level for acceptance towards organization wide protocol. If there is delay / gap in follow up of Non Compliances to communicate to the concerned and sooner we see drop in CPG adherence. Needed lot of manpower to update and monitor outcomes of clinical indicators.

Sustenance strategies:
Implementation of evidence based clinical practices / guidelines like AMI measures, Heart failure, stroke, etc. measuring readmission of ICU & ER. Monitoring and analysis for exploration rates, Mortality & Morbidity reviews helped to sustain the good practices. After implementing the standardization of care among various consultants by way of clinical pathways there has been optimum outcome.

Performance:

The mortality rate was 1.6% for the year 2014 and was 1.1% for the year 2018.
Re-Admission in to ER

Introduction
There are several factors that lead to early return of patients to the medical center. Determining the mentioned factors could help decrease the rate of readmission and restore patient's confidence. This measure was taken up to reduce the readmission rates with similar complaints.

Definition
Any patient getting readmitted into the hospital presenting with similar illness within 72 hours.

Measure:
This measure is calculated by Number of returns to emergency within 72 hours with similar presenting complaints*100 as numerator by Number of patients who have come to the emergency as denominator.

Problems / Challenges faced:
Patient leaving the emergency service at his/her own request in spite of the medical recommendations.

Sustenance strategies:
Regular audit is being done to find out the reasons for readmissions. The same is being analyzed and presented in the monthly meetings. ER administrators are instructed to take help from doctors to council the patients when they are not willing to get treated.

Performance:

<table>
<thead>
<tr>
<th>Year</th>
<th>Re admission rate in ER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>3.72%</td>
</tr>
<tr>
<td>2015</td>
<td>0%</td>
</tr>
<tr>
<td>2016</td>
<td>3%</td>
</tr>
<tr>
<td>2017</td>
<td>2%</td>
</tr>
<tr>
<td>2018</td>
<td>2.30%</td>
</tr>
</tbody>
</table>

The readmission rate in ER was 3.72% for the year 2014 and was 2.3% for the year 2018
Readmission in to ICU

Introduction
A zero readmission rate reflects a more defensive approach by the ICU team, which increases LOS in ICU causing risk of nosocomial infection, iatrogenic complications, and no availability of beds for the deserving patients. A higher readmission rate indicates premature decision to shift out patients.

Definition
Readmission is defined as admission to ICU of a patient within 48 hours who had been previously admitted to the ICU during the same hospitalization stay.

Measure:
This measure is calculated by number of readmission to ICU as numerator by number of transfers outs of ICU as denominator.

Problems / Challenges faced:
Very minimal readmissions happen due to the change in clinical condition of the patients. No major challenges faced for this measure.

Sustenance strategies:
Adhering to the strict protocols of admission and discharge criteria.

Performance:

The readmission rate in ICU was 0.03% for the year 2014 and was 0.1 for the year 2018.
In Patients - Total number of discharge outliers

Introduction:
In order to improve the satisfaction among the patients and to reduce the waiting time of patients at the admission counter for the availability of inpatient beds, this indicator was chosen to identify the number of times the patients has left the hospital after the desirable set time limit.

Definition:
Discharge is the process by which a patient is shifted out from the hospital with all concerned medical summaries after meeting the discharge criteria. The discharge process is deemed to have started when the consultant formally approves discharge and ends with the patient leaving the patient care unit.

Measure:
This process starts from the time when the consultants writes discharge in the case sheet and ends when the blue card is issued to the patient. This indicator was calculated by the Sum of time taken for discharge as numerator and the number of patients discharged as denominator.

Problems / Challenges faced:
Insurance patients had to wait for more than 8 to 10 hours as our insurance department had to rely on the insurance companies. Delay in getting the discharge summary as the doctors are busy in theatres or Ops. Individual patient take their own time (auspicious time) to vacate the room.

Sustenance strategies:
Ward executives had regular follow ups with doctors to get the discharge summary ready. New software was implemented in insurance department to reduce the outliers. SMS being sent at every stage of discharge process right from received to approval. Half day charge was implemented for patients getting discharged before 12.00noon.

Performance:
Initially Discharge outliers were very high in the year 2014 for more than 8 hours after following. Stringent protocols and regular follow ups the same was reduced by hours gradually. Dash Board was created in each ward on status of all advised discharges with timeframes. Following up with admitting consultants and team by ward executives to receive discharge summary on time.

The total number of discharge outliers was 5735 for the year and was 5525 for the year 2014 and was 1580 for the year 2018.
Radiology waiting Time - Patient Waiting Time CT / MRI/ USG

Introduction:
Scans are used to produce detailed images of many structures inside the body including the internal organs, blood vessels and bones, etc. This indicator was captured to reduce the waiting time of patients who come to take scans at Radiology.

Definition:
A waiting time is a length of time which one must wait in order for a specific action to occur, after that action is requested or mandated. Waiting time for diagnostics is the time from which the patient has come to the diagnostic service (requisition form has been presented to the counter) till the time that the test is initiated. Waiting time for out-patient consultation is the time from which the patient has come to the concerned out patient department (it may or may not be the same time as registration) till the time that the concerned consultant (not the junior doctor/resident) begins the assessment.

Measure:
Waiting time is measured or captured from the time the patients reached the Radiology department and produces the request until the patient goes out of Radiology after completing the scan. It is calculated by the Sum Time taken from appointment time to generation of final report for all requisitions from Ward/ ICU/ OPDs which include CT, MRI & USG and Total number of requisitions from Ward, ICU & OPs as denominator. Internal benchmark is being fixed as less than 5%.

Problems / Challenges faced:
Appointment system was not in place. Patients were served on first cum basis. All OP & IP patients were coming at the same time and it was difficult to priorities the patients. Patient comes with incomplete Radiology request because of which the Radiologist could not complete the study. Initially the outliers were very high as there was no proper monitoring or follow-up.

Sustenance strategies:
This indicator is an outcome measure and was taken up to reduce the waiting time and increase the quality of service provided wherein the patients are satisfied. Now appointment system is being followed very strictly. Radiologist are being updated and educated on reducing the outliers. Prioritizing outpatients during general working hours and performing inpatient studies after 6pm (exceptions – ICU/ER). Scheduling slots were modified, separate slots fixed for ICU/ER spread over 2 hours all together (MRI). CT procedures performed with no major problems due to the fact of 2 CT equipments available. Routine working hours in Ultrasound has been extended to 7pm has reduced the waiting period considerably. Additional radiologists posted in the evening shift has resulted in timely reporting and also increased throughput in CT and MRI because of simultaneous monitoring during scans.
Performance:

The waiting time for CT was 14.76 for the year 2009 and was 10.25 for the year 2014 and was 4.06 for the year 2018.

The waiting time for MRI was 11.16 for the year 2009 and 10.5 for the year 2014 and was 6.14 for the year 2018.

The waiting time for USG was 9.12 for the year 2009 and 8.3 for the year 2014 and was 2.21 for the year 2018.
Audit Findings

Measure 1 : Patient Waiting Time

**Definition**: The duration patient is made to wait for radiological investigations - CT, MRI, USG.

**Numerator**: Time taken from *appointment time to start of investigation* for all requisitions which include CT, MRI & USG.

**Denominator**: Total number of requisitions processed.

**Turn around Time (TAT) for Patient Waiting Time**
- URGENT requisition - Immediate;
- ROUTINE requisition - 30 mins

**Findings Compliance %:**
- Overall Waiting time of patients within TAT - 54 %
- Overall Waiting time of patients beyond TAT - 46 %

**Overall TAT for Patient’s Waiting Time**

**Numerator**: Time taken from *appointment time to start of investigation* for all requisitions which include CT, MRI & USG.

**Denominator**: Total number of requisitions processed

**Expected TAT for Patient’s Waiting Time**
- URGENT requests - *Immediate*
- ROUTINE requests: 30 mins

![Overall TAT for Patient Waiting Time](chart)

Audit Findings

Measure 2 : Final Report generation Time

**Definition**: The duration taken for generation of final report for radiological investigations - CT, MRI, USG.

**Numerator**: Time taken from *time of completion of study* time to *generation of final report* for all requisitions which include CT, MRI & USG.

**Denominator**: Total number of requisitions processed.

**Turn around Time (TAT) for Final Report generation**
- 8.00 am to 7.00 pm = Reports to be available within 2 hrs from the completion of the study
- 7.00 pm to 8.00 am = Reports to be available by 10.00 am.

For URGENT requests, provisional report to be given immediately after investigation;

**Findings Compliance %**:
- % of Provisional reports given - 18 %
- Overall final report generation within TAT - 71 %
- Overall final report generation beyond TAT - 29 %
Overall TAT for Report Generation

Numerator:
Time taken from appointment time to generation of final report for all requisitions which include CT, MRI & USG.

Denominator:
Total number of requisitions performed

TAT for Final Report Generation
8:00 am to 7:00 pm = Reports to be available within 2 hrs from the completion of the study
7:00 pm to 8:00 am = Reports to be available by 10:00 am.

FINDINGS
(URGENT - Requisitions)

Patient Waiting Time
- Patient Waiting time within TAT - 51 %
- Patient Waiting time beyond TAT - 49 %

Report Generation Time
- Report generation time within TAT - 75 %
- Report generation time beyond TAT - 15 %

TAT for Patient’s Waiting Time
- All URGENT Requisitions

Numerator:
Time taken from appointment time to start of investigation for all URGENT requisitions which include CT, MRI & USG.

Denominator:
Total number of URGENT requisitions performed

TAT for Patient’s Waiting Time - URGENT
TAT for Report Generation
- All URGENT Requisitions

Numerator:
Time taken from entry of patient to generation of final report for all URGENT requisitions which include CT, MRI & USG.

Denominator:
Total number of URGENT requisitions performed

TAT for Report Generation
8:00 am to 7:00 pm = Reports to be available within 2 hrs from the completion of the study
7:00 pm to 8:00 am = Reports to be available by 10.00 am.

FINDINGS
(URGENT - Requisitions) (8 am - 4 pm)

Patient Waiting Time
- Patient Waiting time within TAT - 47 %
- Patient Waiting time beyond TAT - 53 %

Report Generation Time
- Report generation time within TAT - 63 %
- Report generation time beyond TAT - 10 %
- Data not available - 27 %

FINDINGS
(URGENT - Requisitions) (8am - 4 pm)

Patient Waiting Time
- Patient Waiting time within TAT - 47 %
- Patient Waiting time beyond TAT - 53 %
TAT for Patient’s Waiting Time
- URGENT requisitions (8 am – 4 pm)

Numerator:
Time taken from appointment time to start of investigation for all URGENT requisitions which include CT, MRI & USG from 8 am to 4 pm.

Denominator:
Total number of URGENT requisitions performed from 8 am to 4 pm.

| TAT for Patient Waiting Time (URGENT) - 8 am to 4 pm |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| % of TAT for Patient Waiting Time (URGENT) - 8 am to 4 pm | 47% | 12% | 18% | 10% | 3% |
| Within TAT (30 mins) | 30 mins - 1 hr | 1 hr - 1.30 mins | 1.30 mins - 2 hr | > 2 hr |

FINDINGS
(URGENT - Requisitions) (8am – 4 pm)

Report Generation Time

- Report generation time within TAT - 80 %
- Report generation time beyond TAT - 20 %

TAT for Report Generation
- URGENT Requisitions (8 am – 4 pm)

Numerator:
Time taken from appointment time to generation of final report for all URGENT requisitions which include CT, MRI & USG from 8 am to 4 pm.

Denominator:
Total number of URGENT requisitions performed from 8 am to 4 pm.

TAT for Final Report Generation
8:00 am to 4:00 pm = Reports to be available within 2 hrs from the completion of the study.

<table>
<thead>
<tr>
<th>TAT for REPORT GENERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>report generation within TAT</td>
</tr>
<tr>
<td>30mins-1hr</td>
</tr>
</tbody>
</table>
FINDINGS
(URGENT - Requisitions) (4 pm – 8 am)

Patient Waiting Time
- Patient Waiting time within TAT - 58 %
- Patient Waiting time beyond TAT - 42 %

Report Generation Time
- Report generation time within TAT - 90 %
- Report generation time beyond TAT - 10 %

FINDINGS
(URGENT - Requisitions) (4 pm – 8 am)

Patient Waiting Time
- Patient Waiting time within TAT - 58 %
- Patient Waiting time beyond TAT - 42 %

TAT for Report Generation
- URGENT Requisitions (4 pm – 8 am)

**Numerator:**
Time taken from appointment time to generation of final report for all URGENT requisitions which include CT, MRI & USG from 4 pm to 8 am.

**Denominator:**
Total number of URGENT requisitions performed from 4 pm to 8 am.

TAT for Final Report Generation
- 4:00 pm to 7:00 pm: Reports to be available within 2 hrs from the completion of the study.
- 7:00 pm to 8:00 am: Reports to be available by 10:00 am.

TAT for REPORT GENERATION URGENT Requisitions (4 pm – 8 am)

<table>
<thead>
<tr>
<th>report generation within TAT</th>
<th>30mins-1hr</th>
<th>1 hr-1.30min</th>
<th>&gt;2hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of TAT for REPORT GENERATION</td>
<td>80%</td>
<td>10%</td>
<td>5%</td>
</tr>
</tbody>
</table>
FINDINGS
(NGU - Requisitions)

**Patient Waiting Time**
- Patient Waiting time within TAT - 49 %
- Patient Waiting time beyond TAT - 51 %
- Data not available - 26 %

**Report Generation Time**
- % of Provisional report given - 20 %
- Report generation time within TAT - 41 %
- Report generation time beyond TAT - 49 %

---

FINDINGS
(NGU - Requisitions)

**Patient Waiting Time**

- Patient Waiting time within TAT - 49 %
- Patient Waiting time beyond TAT - 51 %

---

**TAT for Patient’s Waiting Time - ICU**

**Numerator:**
Time taken from appointment time to start of investigation for all requisitions from ICU which include CT, MRI & USG.

**Denominator:**
Total number of requisitions from ICU.

<table>
<thead>
<tr>
<th>% of TAT for Patient Waiting Time - ICU</th>
</tr>
</thead>
<tbody>
<tr>
<td>within TAT (30mins)</td>
</tr>
<tr>
<td>49%</td>
</tr>
</tbody>
</table>
SRI RAMACHANDRA MEDICAL CENTRE

TAT for Report Generation – ICU

**Numerator:**
Time taken from appointment time to generation of final report for all requisitions from ICU which include CT, MRI, & USG.

**Denominator:**
Total number of requisitions from ICU.

**TAT for Final Report Generation**
- 8:00 am to 7:00 pm = Reports to be available within 2 hrs from the completion of the study
- 7:00 pm to 8:00 am = Reports to be available by 10:00 am.

**FINDINGS**
(ER - Requisitions)

**Patient Waiting Time**
- Patient Waiting time within TAT - 54 %
- Patient Waiting time beyond TAT - 46 %

**Report Generation Time**
- % of Provisional reports given - 25 %
- Report generation time within TAT - 71 %
- Report generation time beyond TAT - 4 %

**FINDINGS**
(ER - Requisitions)

**Patient Waiting Time**
- Patient Waiting time within TAT - 70 %
- Patient Waiting time beyond TAT - 30 %
TAT for Patient’s Waiting Time - ER

Numerator:
Time taken from appointment time to start of investigation for all requisitions from ER which include CT, MRI & USG.

Denominator:
Total number of requisitions from ER.

**FINDINGS**
(Routine - Requisitions)

**Patient Waiting Time**
- Patient Waiting time within TAT - 44 %
- Patient Waiting time beyond TAT - 56 %

**Report Generation Time**
- Report generation time within TAT - 73 %
- Report generation time beyond TAT - 27 %
TAT for Patient’s Waiting Time
- All ROUTINE Requisitions

**Numerator:**
Time taken from appointment time to start of investigation for all ROUTINE requisitions which include CT, MRI & USG.

**Denominator:**
Total number of ROUTINE requisitions.

---

![Chart showing % of TAT for patient waiting time](chart.png)

**FINDINGS**
(ROUTINE - Requisitions) (8am - 4 pm)

**Patient Waiting Time**
- Patient Waiting time within TAT - 41 %
- Patient Waiting time beyond TAT - 59 %

**Report Generation Time**
- Report generation time within TAT - 77 %
- Report generation time beyond TAT - 23 %

---

**FINDINGS**
(ROUTINE - Requisitions) (8am - 4 pm)

**Patient Waiting Time**
- Patient Waiting time within TAT - 41 %
- Patient Waiting time beyond TAT - 59 %
TAT for Patient’s Waiting Time
- ROUTINE requisitions (8 am – 4 pm)

**Numerator:**
Time taken from appointment time to start of investigation for all ROUTINE requisitions which include CT, MRI & USG from 8 am to 4 pm.

**Denominator:**
Total number of ROUTINE requisitions.

<table>
<thead>
<tr>
<th>% TAT for Patient Waiting Time - ROUTINE (8AM-4PM)</th>
<th>within TAT (30mins)</th>
<th>30mins-1hr</th>
<th>1 hr-1.30min</th>
<th>&gt;2hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>41%</td>
<td>20%</td>
<td>20%</td>
<td>19%</td>
<td></td>
</tr>
</tbody>
</table>

**TAT for Report Generation**
- ROUTINE Requisitions (8 am – 4 pm)

**Numerator:**
Time taken from appointment time to generation of final report for all ROUTINE requisitions which include CT, MRI & USG from 8 am to 4 pm.

**Denominator:**
Total number of ROUTINE requisitions performed.

<table>
<thead>
<tr>
<th>% of TAT for REPORT GENERATION (ROUTINE 8AM-4PM)</th>
<th>report generation within TAT</th>
<th>30mins-1hr</th>
<th>1 hr-1.30min</th>
<th>&gt;2hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>77%</td>
<td>10%</td>
<td>10%</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>
TAT for Patient’s Waiting Time
- ROUTINE requisitions (4 pm – 8 am)

Numerator:
Time taken from appointment time to start of investigation for all ROUTINE requisitions which include CT, MRI & USG from 4 pm to 8 am.

Denominator:
Total number of ROUTINE requisitions.

% TAT for Patient Waiting Time - ROUTINE (4PM-8AM)

<table>
<thead>
<tr>
<th>TAT within</th>
<th>0%</th>
<th>20%</th>
<th>20%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(30mins)</td>
<td>45%</td>
<td>20%</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>30mins-1hr</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 hr-1.30min</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;2hrs</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

TAT for Report Generation
- ROUTINE Requisitions (4 pm – 8 am)

Numerator:
Time taken from appointment time to generation of final report for all ROUTINE requisitions which include CT, MRI & USG from 4 pm to 8 am.

Denominator:
Total number of ROUTINE requisitions performed.

TAT for Final Report Generation
8:00 am to 7:00 pm = Reports to be available within 2 hrs from the completion of the study.
7:00 am to 8:00 am = Reports to be available by 10:00 am.

TAT for REPORT GENERATION (ROUTINE 4 PM-8AM)

<table>
<thead>
<tr>
<th>Report generation within TAT</th>
<th>0%</th>
<th>20%</th>
<th>20%</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(30mins-1hr)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1 hr-1.30min</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;2hrs</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

% of TAT for REPORT GENERATION (ROUTINE 4 PM-8AM)

40% | 20% | 20% | 20%
TAT for Patient’s Waiting Time - WARD

**Numerator:**
Time taken from appointment time to start of investigation for all requisitions from Ward which include CT, MRI & USG.

**Denominator:**
Total number of requisitions from Ward.

<table>
<thead>
<tr>
<th>% TAT for Patient Waiting Time - WARD</th>
<th>within TAT (30mins)</th>
<th>30mins-1hr</th>
<th>1 hr-1.30min</th>
<th>&gt;2hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

TAT for Report Generation – WARD

**Numerator:**
Time taken from appointment time to generation of final report for all requisitions from Ward which include CT, MRI & USG.

**Denominator:**
Total number of requisitions from Ward.

**TAT for Final Report Generation**
- 8:00 am to 7:00 pm = Reports to be available within 2 hrs from the completion of the study
- 7:00 pm to 8:00 am = Reports to be available by 10:00 am.

<table>
<thead>
<tr>
<th>% of TAT for REPORT GENERATION(ROUTINE)</th>
<th>report generation within TAT</th>
<th>30mins-1hr</th>
<th>1 hr-1.30min</th>
<th>&gt;2hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>38%</td>
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</tr>
<tr>
<td>25%</td>
<td></td>
<td></td>
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<tr>
<td>25%</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12%</td>
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</tbody>
</table>

Overall audit findings

Audit findings reflect increased waiting time of patients for CT, USG, MRI. However, the reporting time is well within acceptable timeframe (as per the definition of TAT).

Suggestions recommended

To reduce the waiting list considerably and simultaneously reduce the patient’s waiting time is challenging and there exists a necessity to strike a balance between both. Hence, prioritizing outpatients during general working hours and performing inpatient studies after 6pm (exceptions – ICU/ER) would be a better option.
Action Taken

- Scheduling slots were modified, separate slots fixed for ICU/ER spread over 2 hours all together (MRI).
- CT procedures performed with no major problems due to the fact of 2 CT equipments available.
- Routine working hours in Ultrasound has been extended to 7pm has reduced the waiting period considerably.
- Additional radiologists posted in the evening shift has resulted in timely reporting and also increased throughput in CT and MRI because of simultaneous monitoring during scans.

Improvements measured

<table>
<thead>
<tr>
<th>Modality</th>
<th>Mar’18</th>
<th>Apr’18</th>
<th>May ’18</th>
<th>Jun’18</th>
<th>Jul’18</th>
<th>Aug’18</th>
<th>Sep’18</th>
<th>Oct’18</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT %</td>
<td>1.48</td>
<td>1.15</td>
<td>0.64</td>
<td>1.2</td>
<td>1.8</td>
<td>0.57</td>
<td>0.8</td>
<td>0.77</td>
</tr>
<tr>
<td>MRI %</td>
<td>2.3</td>
<td>0.7</td>
<td>0.95</td>
<td>1.7</td>
<td>1.1</td>
<td>1.2</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>USG %</td>
<td>2.4</td>
<td>0.98</td>
<td>1.22</td>
<td>0.74</td>
<td>0.37</td>
<td>0.2</td>
<td>0.03</td>
<td>0.73</td>
</tr>
</tbody>
</table>

- Reporting outliers have also reduced comparatively, inspite of the fact that it was well within the benchmark even during the time of audit.

Improvements measured

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan’18</th>
<th>Feb’18</th>
<th>Mar’18</th>
<th>Apr’18</th>
<th>May’18</th>
<th>Jun’18</th>
<th>Jul’18</th>
<th>Aug’18</th>
<th>Sep’18</th>
<th>Oct’18</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Delay %</td>
<td>2.2</td>
<td>4.5</td>
<td>5.9</td>
<td>5.2</td>
<td>5.9</td>
<td>7.2</td>
<td>4.9</td>
<td>2.8</td>
<td>3.24</td>
<td>2.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan’18</th>
<th>Feb’18</th>
<th>Mar’18</th>
<th>Apr’18</th>
<th>May’18</th>
<th>Jun’18</th>
<th>Jul’18</th>
<th>Aug’18</th>
<th>Sep’18</th>
<th>Oct’18</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI Delay %</td>
<td>5.8</td>
<td>5.7</td>
<td>9.6</td>
<td>6.1</td>
<td>7.9</td>
<td>12.3</td>
<td>12.3</td>
<td>9</td>
<td>9.4</td>
<td>6.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan’18</th>
<th>Feb’18</th>
<th>Mar’18</th>
<th>Apr’18</th>
<th>May’18</th>
<th>Jun’18</th>
<th>Jul’18</th>
<th>Aug’18</th>
<th>Sep’18</th>
<th>Oct’18</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Delay %</td>
<td>3.36</td>
<td>2.5</td>
<td>3.0</td>
<td>2.75</td>
<td>2.1</td>
<td>3.2</td>
<td>2.2</td>
<td>1.5</td>
<td>1.9</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Waiting time of patients for imaging procedures (CT,MRI,USG) has come down significantly.
Introduction
Values of the test parameters which is above or below the reference range. All abnormal values need not be critical values. Values which need immediate intervention without which results in increased morbidity and mortality and affects patient care.

Definition
A critical value is a result which “represents a pathophysiological state at such variance with normal as to be life threatening unless something is done promptly and for which some corrective action could be taken

Measure:
This measure is calculated by total number of critical values informed as numerator and number of critical values generated during the particular month as denominator

Problems / Challenges faced:
Shortage of lab staff to inform the critical values. Most of the times the telephone extension is being engaged / busy and the lab staff keep calling the ward / ICU to inform the values and they forget to inform later. Nurses fail to document the critical values in the case sheet and inform the consultants.

Sustenance strategies:
Lab personnel are being strictly instructed to inform the critical values immediately to the ward incharge. Also once the result is released automated pop up alert comes on the screen where it will be easy for the nurses to view the report. Immediate information is given to the consultant

Performance:

The compliance of critical results reporting within TAT was 99.9% for the year 2014 and was 100% for the year 2018
Pharmacy - Dispensing outliers

Introduction
There are many factors intrinsic to the process, which leads to the delay in drug dispatch. It is essential to monitor the data to identify these factors contributing to delay in dispensing which in turn may lead to process modifications for better outcomes.

Definition
Dispensing refers to the process of preparing and giving medicine to the patient care units on the basis of a prescription (STAT/ Routine / Urgent). Programs to improve rational use have often been concentrated on ensuring rational prescribing habits, overlooking dispensing and the patient's use of medicines.

Measure:
Dispensing outliers are measured from the time the DC is generated from a patient care until the medications reaches the ward / ICU. Total no. of prescriptions delivered to the ward after the time frame which depends upon the urgency in need of the drugs like routine two hour, emergency 45 minutes, and STAT (Electrolytes) 20 minutes respectively is the numerator and Total number of indents received is the denominator.

Problems / Challenges faced:
Shortage of transport personnel for transferring the medications from pharmacy to inpatient areas. All the routine prescriptions were mentioned as urgent and DC was raised which the pharmacy was finding difficult to process. Nurses in the ward take time to receive the medication from transport personnel and update in the system as they are busy with the patient or shall accompany doctor rounds and the transport personnel wait until the nurse arrives.

Sustenance strategies:
Nurses were educated not to raise DC as urgent for routine drugs. Increased the number of transport personnel. Increased the STAT medication time from 15 minutes to 20 minutes.

Performance:

The Dispensing outliers was 2.54 for the year 2014 and was 1.1 for the year 2018.
Introduction
In order to improve the satisfaction in patients consultation outliers in all private clinics was monitored.

Definition
Waiting time is a length of time which one must wait in order for a specific action to occur, after that action is requested or mandated. Waiting time for diagnostics is the time from which the patient has come to the diagnostic service (requisition form has been presented to the counter) till the time that the test is initiated. Waiting time for out-patient consultations is the time from which the patient has come to the concerned out-patient department (it may or may not be the same time as registration) till the time that the concerned consultant (not the junior doctor/resident) begins the assessment.

Measure:
Sum (Patient-in time for consultation/procedural patient reporting time in OPD/Diagnostics)
Number of patients reported in OPD/Diagnostics

Problems / Challenges faced:
Patients come when there is no slot for a particular doctor the patient had to wait for long hours. Doctors get stuck-up with the theatre cases. Patient visiting/consulting without prior appointment. Patient with appointment arriving late. Majority of patient seeking appointment to visit/consulting in a particular time slot. (eg): Morning Slot

Sustenance strategies:
Individual data is being shared with the consultants. The report is being sent to Medical Directors office on the outliers.

Performance:

The OP Consultation outliers was 403 for the year 2014 and was 450 for the year 2018
Operating Room - Re-scheduling of surgeries

Introduction
Rescheduling is the process of adjusting the surgery schedule when the current schedule is subjected to disruptions on the day of surgery. Deviations from scheduled case durations can be caused by unpredictable complications during surgery, patient health issues before surgery, surgeon availability and many other reasons and this can impact theatre utilization.

Definition
Re-scheduling of patients includes cancellation and postponement (beyond 4 hours) of the surgery.

Measure:
This measure is calculated by Number of cases rescheduled as numerator and Number of surgeries planned *100 as the denominator

Problems / Challenges faced:
Patients posted for surgery may not have got the approval from insurance company. Some of the patients may be unfit due to the change in their medical condition. Patient Not admitted or Co-existing disease needs Optimization. At times there are issue with the operating surgeon who may be held up in some other issues which are some of the challenges faced for rescheduling of surgeries.

Sustenance strategies:
Data is being captured by the OR nurse and the same is being reviewed in the operating room committee meeting if any major or unnecessary deviations are found the same is being escalated to the surgeon. Insurance staff tried their maximum to get the approval for the posted patients.

Performance:

The re-scheduling of surgeries was 13% for the year 2014 and was 4.54 for the year 2018
Introduction
Two principles for air conditioning operating rooms are that air should be supplied at the ceiling, in a unidirectional or laminar air pattern, and that higher air change rates result in lower bacterial counts within the room.

Definition
If the air in the space is either uniform or perfectly mixed, air changes per hour are a measure of how many times the air within a defined space is replaced.

Measure:
Benchmark is defined as 25 air exchanges / hour

The following were maintained to measure the air quality at OR

Minimum total air changes is 20 based on biological load and the location. The fresh air component of the air change is required to be minimum 4 air changes out of total minimum 20 air changes. Our hospital has 100% fresh air system and appropriate energy saving devices has been installed.

Air Velocity: The airflow is unidirectional and downwards on the OT table. The air face velocity of 25-35 FPM (feet per minute) from non-aspirating unidirectional laminar flow diffuser/ceiling array is installed.

Positive Pressure: The minimum positive pressure recommended is 2.5 Pascal (0.01 inches of water). This positive differential pressure is maintained between OTs and adjoining areas to prevent outside air entry into OT. Positive pressure is maintained in OT at all times (operational & non-operational hours)

Air handling in the OT including air Quality: Air is supplied through Terminal HEPA (High-Efficiency Particulate Air) filters in the ceiling. The HEPA is at AHU level inside OT. The minimum size of the filtration area extends one foot on all sides of the OT table.

Air Filtration: The AHU (i.e. air handling unit) is an air purification unit and air filtration unit. There are two sets of washable flange type filters of efficiency 90% down to 10 microns and 99% down to 5 microns with aluminium / SS 304 frame within the AHU. The necessary service panels are provided for servicing the filters, motors & blowers. HEPA filters of efficiency 99.97% down to 0.3 microns or higher efficiency are to be provided.

Temperature & Relative Humidity: 210C ± 3 0C (except for Joints replacement where it should be 180C ± 20C) is maintained with corresponding relative humidity between 20 to 60%, though the ideal RH is considered to be 55%. Appropriate devices to monitor and display these conditions inside the OT is being installed.

Problems / Challenges faced:
Cost involved in renovation & installation, transition in the practices and process by the facility management. Maintaining schedules and monitoring gaps were considerable factors to overcome.

Sustenance strategies:
Implementation of Quality indicators, scheduling of inspections, awareness among operating room incharges. Process created to for prior intimation before due date and leadership involvement when needed. Regular follow up with the facility team.
**Performance:** Air Quality Checks Achieved 100% to the Operating Rooms HVAC protocols.

The Air quality – No. of Air exchanges was 26.6 for the year 2014 and was 96% for the year 2018.
OR - Temperature control and/ percentage of humidity in OR

Introduction
Proper ventilation, airflow, temperature and humidity are needed for successful surgical operations. In order to sustain and maintain the temperature control this is done to maintain an optimal level of humidity to assure sterile integrity for infection control and to suppress the potential for static electricity.

Definition
The temperature and relative humidity is to be monitored and logged daily for all Operating rooms.

Measure:
Continuous temperature and humidity monitoring is installed in all the ORs and readings are recorded on a daily basis and log is being maintained to measure the compliance.
emp - 18C-24C. Humidity % - 30% to 60%.

Problems / Challenges faced:
Cost involved in renovation & installation, transition in the practices and process by the facility management. Maintaining schedules and monitoring gaps were considerable factors to overcome

Sustenance strategies:
Implementation of Quality indicators, scheduling of inspections, awareness among operating room incharges. Process created to for prior intimation before due date and leadership involvement when needed. Regular follow up with the facility team.

Performance:

The temperature control/ % of humidity was 100% compliant as per standards.
Complaints Rectified within 24 hours – Facility

Introduction
The physical facilities that are maintained by our organization comprising of civil, electrical, maintenance departments has to ensures that the complaints received from the end user has to be rectified with in the stipulated time to ensure that the facility safety is not compromised.

Definition
Any infrastructural issues that arise within the organization to be rectified within 24 hours based on the nature of the compliant.

Measure:
This measure is calculated by Number of complaints rectified with in 24 hours as numerator and total number of complaints received as the denominator.

Problems / Challenges faced:
Most of the complaints are being rectified within 24 hours, for issues where the spares / tools/materials are not available takes time to close / rectify the issue depending upon the material.

Sustenance strategies:
When any facility / infrastructural issue are found immediately it is being found during the daily rounds or it is being escalated by the personnel working in that area. All the staffs are educated on escalating the facility issues immediately. Apart from oral compliant ward wise compliant register is being maintained and during the daily rounds the facility personnel follows up for its closure.

Performance:

The complaints rectified within 24 hrs (Dept. of Civil Maintenance) was 89% for the year 2014 and was 96% for the year 2018
The complaints rectified within 24 hrs (Dept. of Electrical Engineering) was 99% for the year 2014 and was 99% for the year 2018.

The complaints rectified within 24 hrs (Dept. of Interior Maintenance) was 99% for the year 2014 and was 99% for the year 2018.
The complaints rectified within 24 hrs (Dept. of HVAC) was 100% for the year 2014 and was 96% for the year 2018 and gradually increasing.

The complaints rectified within 24 hrs (Dept. of Electrical Room) was 99% for the year 2014 and was 99% for the year 2018.
Lift - Breakdown beyond 3 Hours

Introduction
Lifts are one of the major patient / attender transport from one floor to another. It is very important to maintain and service the lifts at regular intervals. Preventive maintenance shall also help in keeping the lift in optimum condition. When it comes to lift repair and servicing, safety should always be a top priority - followed closely by meeting the necessary standards and regulations.

Definition
Sudden uncommon problem that arises during the transit between floors because of which the work is stuck is called breakdown of lift.

Measure:
This measure is calculated by Number of times the lift has broken down for more than 3 hours is the numerator and the number of times there was breakdown of lifts as the denominator.

Problems / Challenges faced:
When the lift break down the information is given to the company personnel who may be servicing other lifts inside the campus and sometimes it takes time for him to arrive which causes some delay. Mostly the breakdown of lifts is rectified immediately, sometimes there may be delay due to non-availability of spares.

Sustenance strategies:
All the lifts are under AMC and there are routine preventive maintenance followed during the regular intervals.

Performance:

The Lifts (Breakdown beyond 3 hrs) was 16 for the year 2014 and was 12 for the year 2018.
**Introduction**

Various mock drills are being conducted as a part of training all the staff. Every year calendar is being prepared and given to the concerned stakeholders for conducting the drills on the given dates without any variation. This is basically a dry run or preparedness drill.

**Definition**

Mock drills are a simulation exercise of preparedness for any type of event. It is vital to monitor the compliance rate of all the drills that are conducted according to the scheduled calendar. Mock drill is a simulation exercise of preparedness for any type of event.

**Measure:**

Total number of variations in a mock drill.

**Problems / Challenges faced:**

Drills are conducted on time as per the schedule without any variations, at times due sudden unplanned holiday or non-availability of the concerned HOD due to emergency situation may be the reason for the postponement of the drill.

**Sustenance strategies:**

Prior remainder is given to the concerned stakeholders and follow up is done to ensure that all the drills are conducted as per the given schedule.

**Performance:**

![Compliance to Drills calendar](image)

The compliance to Drills calendar is maintained at 100%
Total Medication Errors

Introduction
Medication management is the primary responsibility of a healthcare setting. Since the usages of medications have drastically increased they are more possibilities for errors to happen. As there are more processes involved in medication management like prescribing, ordering, labeling, packaging, dispensing, administration and use, monitoring such events is very essential as a part of day to day activity.

Definition
A medication error is any preventable event that may cause or lead to inappropriate medication use or harm to a patient (USFDA) Examples include, but are not limited to Error in the prescribing, transcribing, dispensing, administering and monitoring of medication: wrong drug, wrong strength or wrong dose; wrong patient; wrong route ; wrong frequency of administration error and calculation or preparation errors of a. prescription error, b. Dispensing error

Measure:
This measure is calculated by the total number of medication errors as numerator by number of patient days as denominator*1000

Problems / Challenges faced:
Doctors were not adequately trained on Prescription writing rules, negligence to write the prescription in capital letters. New medical officers are unaware of the prescription writing rules. Doctors fail to write the route. Illegible handwriting, same action drug is being prescribed, allergic drugs is being prescribed even though doctors are aware that the patient is allergic to certain drug. Doctors write in blue ink instead of black pen.

Sustenance strategies:
Prescription Policy was educated to the doctors/ communication letters was sent for awareness. Medication safety week is being observed for a week as a part of awareness programme. Redesigning of the medication procurement and administration process & Education Monitoring through regular audits

Performance:

The total medication errors were 1108 for the year 2014 and were 866 for the year 2018
Prescription errors

Introduction
Medication management is the primary responsibility of a healthcare setting. Since the usages of medications have drastically increased they are more possibilities for errors to happen. As there are more processes involved in medication management like prescribing, ordering, labeling, packaging, dispensing, administration and use, monitoring such events is very essential as a part of day to day activity.

Definition
Clinically meaningful prescribing error occurs when there is an unintentional significant reduction in the probability of treatment being timely and effective or increase in the risk of harm when compared with generally accepted practice.

Measure:
This measure is calculated by the total number of prescriptions errors as numerator by number of patient days as denominator*1000.

Problems / Challenges faced:
Unawareness of the prescription policy by the doctors, negligence to write the prescription in capital letters. New medical officers are unaware of the prescription writing rules. Doctors fail to write the route. Illegible handwriting, etc.

Sustenance strategies:
Prescription Policy was educated to the doctors/ communication letters was sent for awareness. Medication safety week is being observed for a week as a part of awareness programme. Prescription audit team was made to work 24/7. Medication safety awareness classes conducted department wise for all medical staffs. Footer with stop order, do not use abbreviations and capital letter indicator stamped as immediate measures in the drug order sheet

Performance:

The prescription errors were 242 for the year 2014 and were 145 for the year 2018
Transcribing errors

Introduction
Medication management is the primary responsibility of a healthcare setting. Since the usages of medications have drastically increased they are more possibilities for errors to happen. As there are more processes involved in medication management like prescribing, ordering, labeling, packaging, dispensing, administration and use, monitoring such events is very essential as a part of day to day activity.

Definition
Transcription error is a specific type of medication errors and is due to data entry error that is commonly made by the human operators.

Measure:
This measure is calculated by the total number of transcription errors as numerator by number of patient days as denominator*1000

Problems / Challenges faced:
Transcribing process was selected wrongly. Without the case sheet medicines are being transcribed by the nurses. second senior nurse do not validate the transcription correctly. Junior nurse misuse the senior nurse’s password and validate by themselves to save time which causes errors. Without previewing and checking the DC as final check the nurses adds in the tool which goes to the pharmacy immediately because of which the pharmacy also issues wrong medication.

Sustenance strategies:
Prescription Policy was educated to the doctors/ communication letters was sent for awareness. Medication safety week is being observed for a week as a part of awareness programme. Prescription audit is being done for all the prescriptions. Communication is being sent to the consultant when there is any deviation in the prescription policy.

Performance:

The transcribing errors were 230 for the year 2014 and were 81 for the year 2018
Dispensing errors

Introduction
There can be many causal factors intrinsic to the process, which may lead to the delay in drug dispatch. It is essential to monitor the data to identify these factors contributing to delay in dispensing which in turn may lead to process modifications for better outcomes. A unit wise analysis of the data may lead to identification of particular focus areas in the hospital where cases of delay are more and hence opportunities for improvements may exist.

Definition
The transcribed medication not dispensed within TAT viz, routine 1 hr, urgent 45 mins, TAT 20 mins to the patient care areas have been calculated as outliers of the dispensing process.

Measure:
This measure is calculated by total no. of prescriptions delivered to the ward after the time frame which depends upon the urgency in need of the drugs like routine one hour, emergency 15 minutes, ICU with fixed time 30 minutes respectively by the total number of indents received.

Problems / Challenges faced:
Shortage of staff for processing the indents for delivery. Too many indents are coming from the wards as urgent medication even though they are routine drugs. Shortage of transport personnel. Wrong drug dispensed as two medications look alike.

Sustenance strategies:
Increased the number of transport personnel. The pharmacist duty timing has been changed in order to meet the requirement during peak hours. Pharmacy space has been expanded, which will help for better storage which in turn will help to pick the drugs in a faster way. The process of raising the indents has been changed i.e. repeat order are done in every lean period. Random special audit is being done to check the compliance.

Performance:

The dispensing errors were 267 for the year 2014 and were 226 for the year 2018
**Administration errors**

**Introduction**
Medication management is the primary responsibility of a healthcare setting. Since the usages of medications have drastically increased they are more possibilities for errors to happen. As there are more processes involved in medication management like prescribing, ordering, labeling, packaging, dispensing, administration and use, monitoring such events is very essential as a part of day to day activity. A medication error is any preventable event that may cause or lead to inappropriate medication use or harm to a patient (USFDA) Examples include, but are not limited to Error in the prescribing, transcribing, dispensing, administering and monitoring of medication: wrong drug, wrong strength or wrong dose; wrong patient; wrong route ; wrong frequency of administration error and calculation or preparation errors of a. prescription error, b .Dispensing error.

**Measure:**
This measure is calculated by the total number of medications with administration errors as numerator by number of patient days as denominator*1000

**Problems / Challenges faced:**
Delay in administration due to delay in dispensing. Nurses during their busy schedule give the medication to the patient but fail to document and vice versa. Nurses accompany during the doctors rounds or may be busy with dressing so fail to administer medication on time. Without checking the case sheet sometimes low dose / high dose is administered to the patients. Often nursing patient ratio affects delay in administration.

**Sustenance strategies:**
Electrolytes dispatching has been prioritized over other medicines separate individuals are identified for dispatching the same. Electrolytes dispensing TAT have been increased from 15 minutes to 20 minutes. Audit is being done to check the compliance. Communication is being sent to the assigned nurse when any is deviation is found.

**Performance:**

The administration errors were 369 for the year 2014 and were 130 for the year 2018
**Adverse Drug Reactions**

**Introduction**
An adverse drug reaction (ADR) is an unwanted, undesirable effect of a medication that occurs during usual clinical use. A response to a drug which is noxious and unintended and which occurs at doses normally used in patients for prophylaxis, diagnosis, or therapy of disease or for the modification of physiologic function.

**Definition**
An adverse drug reaction (ADR) is an injury caused by taking medication. ADRs may occur following a single dose or prolonged administration of a drug or result from the combination of two or more drugs.

**Measure:**
This measure is calculated by number of adverse drug reactions as numerator and number of admissions as denominator *100.

**Problems / Challenges faced:**
Allergic medications are not being captured in discharge summary. Patient while coming for review do not know that he is allergic to certain drug and fail to mention. Nurses fail to document if any allergic reaction happens to patients because of their busy work load. Under reporting of allergic reaction while giving test dose by the nurses.

**Sustenance strategies:**
Allergic sticker is being stuck on top of the case sheet to identify patients with allergy. Online prescription tool has been modified with the option of pop up when allergic medications are prescribed. Patient family education is being given to the patients who are found with allergic to certain medications. Audits are being done to check whether the patient is aware and the nurse has explained about the drug that has caused allergic reaction to him.

**Performance:**

![Graph showing adverse drug reactions from 2014 to 2018](image)

The no. of Adverse Drug reactions were 125 for the year 2014 and were 90 for the year 2018.
IPSG (INTERNATIONAL PATIENT SAFETY GOAL) 1 – IDENTIFY PATIENTS CORRECTLY

Introduction
Failure to correctly identify patients leads to several errors in a healthcare industry. Patient misidentification is identified as a root cause of many errors specially during investigations, medication management, surgical intervention, etc.

Definition
Wrong patient errors occur in virtually all stages of diagnosis and treatment. The intent for this goal is two-fold: first, to reliably identify the individual as the person for whom the service or treatment is intended; second, to match the Service or treatment to that individual. Acceptable identifiers may be the individuals name, an assigned identification Number.

Measure:
This measure is calculated by Patients admitted in the medical centre who were properly identified during an event that requires proper identification during the random audit as numerator and All patients who require proper identification for an event during the random audit as denominator.

Problems / Challenges faced:
Difficulty in achieving individual behaviour change to comply with recommendations. Process variation at different levels. Perception by the staff that relationship with the patient is compromised by repeated verification of patient identity. Increase in staff workload and time spent away from patient care. Typing and entry errors when registering patients on computerized systems. Cultural issues.

Sustenance strategies:
Reeducated the staffs regarding importance of checking two identifiers before the following the start of any procedure or medications, drawing blood, any investigations. Continuous monitoring, supervising and auditing done by nursing leaders, incharges, inservice educators and IPSG nurses.

Performance:

The compliance to IPSG -1 was 99% for the year 2014 and was 99.88% for the year 2018
**IPSG (INTERNATIONAL PATIENT SAFETY GOAL) 2 – IMPROVE EFFECTIVE COMMUNICATION**

**Introduction**
Effective communication is about more than just exchanging information. It’s about understanding the importance and intentions behind the information. Effective communication is timely, accurate, complete, unambiguous, and understood by the recipient, reduces errors and improves patient safety. Patient care circumstances that can be critically impacted by poor communication include verbal and telephone patient care orders, verbal and telephone communication of critical test results, and handover communications.

**Definition**
Effective communication and teamwork are fundamental to quality patient care. Patient safety is improved when communication is clear, accurate, complete and timely.

**Measure:**
This measure is calculated by Patients admitted in the medical centre with the critical test result that have been informed to the Doctor/Nurse with RAV as numerator and All patients who had critical results and Diagnosis as denominator

**Problems / Challenges faced:**
Critical values are not being documented in the case sheet and the nurses fail to intimate the doctors due to busy work load. Doctor to Nurse Verbal Orders are not allowed, except in emergency situation.

**Sustenance strategies:**
Staffs were strictly insisted regarding the importance of taking immediate intervention / informing the critical values and documentation. Instructed the lab personnel to strictly adhere to the critical value protocol. Read back and verify protocol is being strictly followed. All the critical values were documented from lab and audit done on daily basis by IPSG nurses.

**Performance:**

![Graph showing improvement in compliance from 99% to 99.98% over years 2014 to 2018]

The compliance to IPSG -2 was 99% for the year 2014 and was 99.98% for the year 2018
IPSG (INTERNATIONAL PATIENT SAFETY GOAL) 3 – IMPROVE THE SAFETY OF HIGH ALERT MEDICATIONS

Introduction
High-alert medications are medications that are most likely to cause significant harm to the patient, even when used as intended. Although any medication used improperly can cause harm, high-alert medications cause harm more commonly and the harm they produce is likely to be more serious and leads to patient suffering and additional costs associated with these patients.

Definition
Any medication potentially can cause harm, but high-alert medications (HAMs) carries a higher risk of patient injury.

Measure:
This measure is calculated by No of Samples that are compliant with IPSG-3 (Improve the safety of High Alert Medications) as numerator and No of samples audited per month as denominator.

Problems / Challenges faced:
High alert medications were not stored separately. Cost involvement was very high for the following putting a separate label - high alert sticker, zip lock bag, posters as a part of education material, identifying a separate storage area across all inpatient care areas and separate cupboards with double lock. As our institute is medical college hospital there are lot of mobile population like faculties, students, PGs move around may misuse without knowing the importance as training was lacking among them. Initially organization wide training was given and nurses has to remember the entire high alert medication which was very difficult for them. Doctors were reluctant to write the high alert medication in the Separate area given in the drug chart. Since there was irrational usage of high alert medications clinical pharmacist were involved.

<table>
<thead>
<tr>
<th>Area</th>
<th>FEB’18</th>
<th>MAR’18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STAT</td>
<td>Electrolytes</td>
</tr>
<tr>
<td>ER</td>
<td>39</td>
<td>2</td>
</tr>
<tr>
<td>C6</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>F6</td>
<td>-</td>
<td>42</td>
</tr>
<tr>
<td>C5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>C4</td>
<td>-</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>63</td>
</tr>
</tbody>
</table>

The process has been reviewed.

Total minutes involved from time of Prescription

<table>
<thead>
<tr>
<th>SUB PROCESS</th>
<th>DESCRIPTION</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Prescription review</td>
<td>30sec</td>
</tr>
<tr>
<td>Step 2</td>
<td>Billing</td>
<td>2mins</td>
</tr>
<tr>
<td>Step 3</td>
<td>Labeling</td>
<td>30sec</td>
</tr>
<tr>
<td>Step 4</td>
<td>Hand washing</td>
<td>22sec</td>
</tr>
<tr>
<td>Step 5</td>
<td>Admixture</td>
<td>Category I - Minimum – 1min</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Category II - Moderate – 5mins</td>
</tr>
</tbody>
</table>

The compliance to IPSG -2 was 99% for the year 2014 and was 99.98% for the year 2018.
Step 6  Transportation & Delivery  
3rd floor - 12mins
4th floor - 13mins
5th floor - 14mins
6th floor - 15mins
7th floor - 16mins

For Example

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DESCRIPTION</th>
<th>PREPARATION (TAT)</th>
<th>AVERAGE DISPENSING (TAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I</td>
<td>Inj.NS 3%</td>
<td>4mins 30sec</td>
<td>16mins 30sec</td>
</tr>
<tr>
<td>Category II</td>
<td>Inj.Magnesium Sulphate</td>
<td>8mins 30sec</td>
<td>20mins 30sec</td>
</tr>
<tr>
<td>Category III</td>
<td>Inj.Potassium Chloride</td>
<td>11mins 30sec</td>
<td>24mins 30sec</td>
</tr>
</tbody>
</table>

Floorwise (TAT)  

<table>
<thead>
<tr>
<th></th>
<th>Category I</th>
<th>Category II</th>
<th>Category III</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd</td>
<td>16mins 30sec</td>
<td>20mins 30sec</td>
<td>23mins 30sec</td>
</tr>
<tr>
<td>4th</td>
<td>17mins 30sec</td>
<td>21mins 30sec</td>
<td>24mins 30sec</td>
</tr>
<tr>
<td>5th</td>
<td>18mins 30sec</td>
<td>22mins 30sec</td>
<td>25mins 30sec</td>
</tr>
<tr>
<td>6th</td>
<td>19mins 30sec</td>
<td>23mins 30sec</td>
<td>26mins 30sec</td>
</tr>
<tr>
<td>7th</td>
<td>20mins 30sec</td>
<td>24mins 30sec</td>
<td>27mins 30sec</td>
</tr>
</tbody>
</table>

Based on the above findings, it will be unrealistic to dispense electrolytes within 15mins, as a solution we request for laminar hood and posting of Clinical Pharmacist 24 x 7 would help to minimize the delays and on time delivery of medicine at 6th floor (C6/F6). Waiting time for lift. Unable to hold trained contract staff from stopping to work. Change of contract staff. Under staffed clinical pharmacist so handlers prescription review as well electrolytes preparations. Bulk prescriptions at once.

Sustenance strategies:

High alert medications were stored in a separate high alert medication cupboard with double lock and the cupboard is given to all patient care areas. Separate high alert sticker is being stuck on the medication with a zip lock bag. Unit wise high alert medications were identified and nurses felt easy to remember. Concentrated electrolytes are being prepared by the clinical pharmacist. New indicators was initiated to monitor the high alert medications Regular audits have improved the medical staff prescribe the high alert medications in the assigned area of the drug chart.

Performance:

The compliance to IPSG -3 was 93% for the year 2014 and was 98.15% for the year 2018.
Introduction
The world health organisation (WHO) has published guidelines identifying multiple recommended practices to ensure the safety of surgical patients. On the basis of these guidelines a checklist in created and process in place which is associated with change in culture effectively contributed to reduce significant patient injury and adverse sentinel events resulting from wrong site, wrong procedure and wrong patient surgery.

Definition
Timeout is held immediately before the start of the procedure with all team members present. During the timeout the team agrees on the following component - Correct patient identity, correct procedure to be done, agreement on procedure, antibiotic if necessary and correct surgical / invasive site. The time out allows any unanswered questions or confusions to be resolved. Completion of the timeout is documented and includes the data and time was completed.

Measure:
This measure is calculated by total number of patients on whom time out was done as numerator and total no. of bedside procedures or procedures done in OR as denominator.

Problems / Challenges faced:
Cultural change, without timeout induction cannot be done so there is delay in procedure. Doctors were not writing the complications in the consent. They just sign the consent form and abbreviations were being used. Deviation in the name of surgery from anesthesia consent and surgical consent. Documentation is being done in the ward but site marking is done in OT. Causes are not being mentioned in the high risk consent form. Sometimes timeout is performed but documentation is found incomplete.

Sustenance strategies:
Spot education and continuous education done for all nurses. Quality improvement project done for site marking time out. Timeout audit done before induction and before insertion. Site marking pen issued all the procedural areas. System process change was done involving the patient. Daily audit is being done on site marking done in OR. Random audit is being done in wards. Communication letters are being sent to the concerned HOCS and the consultants in case of any deviation in the process.

Performance:

The compliance to IPSG -4 was 99% for the year 2014 and was 99.92% for the year 2018
Introduction:
IPSG – 5 is to reduce the risk of health care associated infections. Health care Associated Infections are infections that patients get while receiving treatment for medical or surgical conditions, and many HAIs are preventable. Infections common to many health care settings include catheter-associated urinary tract infections, bloodstream infections, and pneumonia (often associated with mechanical ventilation). HAIs are a significant source of complications across the continuum of care and can be transmitted between different health care facilities.

Definition:
Hand hygiene is a pillar of infection control and simple yet effective way to prevent infections. As a part of IPSG – 5, a number of studies have demonstrated the effect of hand hygiene on health care associated infection rates and reduction in cross transmission of antimicrobial resistance pathogens.

Measure:
The hand hygiene compliance is measured as total no. of hand hygiene missed opportunities*100 as the numerator and the total no. of hand hygiene opportunities as the denominator.

Problems/ Challenges faced:
Due to the busy schedule of the healthcare providers, the compliance of hand hygiene protocol is not followed religiously.

Sustenance strategies:
Awareness created through Hand Hygiene posters and by observing global hand washing day and hand hygiene day. UV Lamp screening done for self analysis of hand hygiene in all wards/ICUs. Continuous education/re-education regarding hand washing compliance.

Performance:

The compliance to IPSG -5 was 78% for the year 2014 and was 85.23% for the year 2018.
The compliance to IPSG -5 for Doctors was 76.81% for the year 2014 and was 81.86% for the year 2018.

The compliance to IPSG -5 for Nurses was 83.09% for the year 2014 and was 91% for the year 2018.

The compliance to IPSG -5 for other staffs was 68.54% for the year 2014 and was 78.08% for the year 2018.
Introduction:
IPSG – 6 is to reduce the risk of patient harm resulting from patient Fall. A patient fall is defined as an unplanned descent to the floor with or without injury to the patient. A fall may result in fractures, lacerations, or internal bleeding, leading to increased health care utilization.

Definition:
A patient fall is defined as an unplanned descent to the floor with or without injury to the patient. A fall may result in fractures, lacerations, or internal bleeding, leading to increased health care utilization.

Measure:
IPSG – 6: Number of patient falls is measured as all patients admitted in the medical centre that had a fall.

Problems/ Challenges faced:
Patients receiving At-risk medication which induces giddiness and contribute to patient fall.
Patients Imbalance Gait, Over estimate of self-ability, Not getting help from the nurses or attendant, New attenders are not aware on Safety first program, Wet surfaces.

Sustenance strategies:
- Vulnerable patients are identified at the time of admission and Yellow id band is provided.
- Morse Fall risk scale for adult and Schmidt’s fall assessment scale for pediatrics was used to identify high risk patient group.
- Fall leaf is displayed in front of the cot for all vulnerable patients for easy identification.
- For all patients safety first education is given on the usage of brakes in cots, side rails.
- Insisted the use of grab bars, call bells for support in restroom, usage of assistive devices like bedpan, urinal, and commodes for all high risk and vulnerable patients.
- Ensured Safety belts are used for all patients shifted in wheel chair and stretchers.
- All in- patients/ attenders are educated on the fall prevention methods and the consequences of patient fall.
- Assessment of toileting needs was done every 3rd hourly.
- Side rails were fitted to cots in all wards/ ICU’s.
- Quilt mattress were used for all alpha beds patients to prevent falls.
- Antiskid strip was stuck in front of the rest room and stairs to prevent fall.
- Vulnerable and High risk patients are encouraged to use Commodes to prevent patient FALLs in restroom.
- Bed Side ECHO & X-ray was done for patients who are at high risk for FALL.
- Height adjustable couches were installed in ECHO room for preventing fall.
Performance:

The no. of Patient Falls for IPSG -6 were 43 in 2009 and was 25 for the year 2014 and 20 for the year 2018.
The reporting of risks and incidents are done through the Incident Reports. All incident reports need to be submitted to the Quality Office through appropriate authority. The incidents are analyzed and findings are shared to the department and staffs to prevent recurrences.

Analysis of events are done through the following process:
- Risk Assessment
- Involvement of departments and analysis processes
- Identification of Root Causes
- Suggested action

The analysis of Sentinel Events or serious adverse events is done through proper root cause analysis.

Process Flow:
INCIDENT REPORT CLOSURE MEETINGS

**PURPOSE**

- Bi-monthly meetings to facilitate quick closure of incidents.
- To identify/understand the loopholes or flaws in the existing process due to which incidents are raised.
- To inculcate best practices by streamlining the existing system processes which leads to better patient care.

**METHODOLOGY**

- Concerned department heads are called for incident closure which enable awareness across departments.
- Confidentiality of the incidents maintained with in a specialty/department.

**INCIDENT REPORT CLOSURE MEETINGS**

Average incidents of 250/month, 10/day are reviewed involving concerned departments and members.

- Patient centric discussion
- Non punitive approach
- Freedom of expression - their challenges/ issues
- Ensure patient safety culture
- Responsible staff at floor level are being involved.
- Improved nursing leadership qualities across all specialties
- Nurture critical thinking among nurses
- Identifying human controls to replace with technology
- Initiation of new audits/Tracers/QI projects
- Conducting Failure Mode Effect Analysis when ever need
- Creation of new brochures for Neurological investigations
- With reflection of incidents creating of new patient education materials (Foley’s catheter and tubes tube care)
Annual Data:

- Shortage in staffing with required skill set
- Postponement of closure meetings
  - Non-availability of involved staff/
  - Presiding authority
  - More no. of incidents
- Follow up on action items
- Defensive nature from HOD’s
- All speciality nurses are not trained enough/ knowledgeable for analysing their area
- Administrative limitations to ensure effective closure.

The no. of sentinel events were 0 in 2014 and 2 in 2017 and 0 in the year 2018
The no. of near misses were 113 in 2014 and 15 in the year 2018.

The % of near misses was 5% in 2014 and 0% in the year 2018.
The no. of critical incidents were 272 in 2014 and 250 in the year 2018.

The no. of non critical incidents were 1473 in 2014 and 1791 in the year 2018.
INCIDENT REPORTING ANALYSIS - 2012-2018

TOTAL NUMBER OF INCIDENT REPORTS

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Number of Incident Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>3510</td>
</tr>
<tr>
<td>2013</td>
<td>3268</td>
</tr>
<tr>
<td>2014</td>
<td>2875</td>
</tr>
<tr>
<td>2015</td>
<td>2475</td>
</tr>
<tr>
<td>2016</td>
<td>1963</td>
</tr>
<tr>
<td>2017</td>
<td>2610</td>
</tr>
<tr>
<td>2018</td>
<td>2509</td>
</tr>
</tbody>
</table>

Areas of Improvement 2018
- Decrease in the number of incidents reported on delay in repeat orders from 19% to 0.94%
- Decrease in the number of incidents reported on doctors' orders not followed from 8% to 2%
- Down trend observed in the year 2015 in non-compliance of critical values not reported
- The shortage of ventilators has been addressed by transferring from one area to another ensuring sufficient to the needed area.
- Vacuum pressure failure addressed during the renovation of ER
- All the mistakes are taken as incident report for efficient action taken & better improvement.

PERCENTAGE OF INCIDENT REPORTS RAISED BY THE DIFFERENT CATEGORIES OF WORK FORCE - 2013-2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Nurses</th>
<th>Pharmacists</th>
<th>Administrations</th>
<th>Doctors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>40%</td>
<td>7%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>2014</td>
<td>71%</td>
<td>7%</td>
<td>4%</td>
<td>15%</td>
</tr>
<tr>
<td>2015</td>
<td>70%</td>
<td>8%</td>
<td>4%</td>
<td>10%</td>
</tr>
<tr>
<td>2016</td>
<td>70%</td>
<td>9%</td>
<td>8%</td>
<td>13%</td>
</tr>
<tr>
<td>2017</td>
<td>61%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>2018</td>
<td>70%</td>
<td>8%</td>
<td>6%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Evident here that doctors and administrators become aware about incident reporting which is obvious from the increased percentage.

Most of the incidents were due to Electrolytes delays (Minimum 3 incidents were raised on daily)
Repeated incidents like due to wrong drug formulation/ dose unapproved abbreviation
Repeated critical incidents were wrong nationality filled in admission form
Most of the incidents were ADR
PERCENTAGE OF INCIDENTS 2013-2018

Each incident is scored for risk, analyzed, identified for opportunities for corrective action is taken and closed by providing feedback to the person who raises the incident.

3 steps in progress:
1. Appreciation letters for the person who reports an incident. Total appreciation letters sent from Chairman Quality > 146
2. No punitive action
3. Trainings, effective communication (ESC), introduction of floor educators (workshop - SMS campaign > 100, 900 numbers)

<table>
<thead>
<tr>
<th>Year</th>
<th>Patient Safety Incidents</th>
<th>Medication Related Incidents</th>
<th>ADR</th>
<th>Infection control</th>
<th>Facility Incidents</th>
<th>Admin Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>59.5%</td>
<td>24.0%</td>
<td>6.0%</td>
<td>2.2%</td>
<td>1.4%</td>
<td>5.5%</td>
</tr>
<tr>
<td>2014</td>
<td>31.5%</td>
<td>51.7%</td>
<td>5.3%</td>
<td>3.2%</td>
<td>2.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>2015</td>
<td>46.7%</td>
<td>35.3%</td>
<td>6.7%</td>
<td>2.8%</td>
<td>2.5%</td>
<td>8.5%</td>
</tr>
<tr>
<td>2016</td>
<td>48.7%</td>
<td>18.0%</td>
<td>5.7%</td>
<td>3.8%</td>
<td>10.3%</td>
<td>4.4%</td>
</tr>
<tr>
<td>2017</td>
<td>47.0%</td>
<td>41.0%</td>
<td>4.0%</td>
<td>2.0%</td>
<td>3.0%</td>
<td>3.6%</td>
</tr>
<tr>
<td>2018 (Yr)</td>
<td>45.0%</td>
<td>57.3%</td>
<td>5.2%</td>
<td>2.5%</td>
<td>3.4%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

% of PATIENT SAFETY INCIDENTS 2013-2018

Initiatives to reduce fall:
1. Tilted beds are assessed 360 hourly.
2. Antilist strip is placed in front of toilet rooms in F0s labour room.
3. Automatic height adjustable couch replaced in 31 ECHO rooms.
4. Quilt mattress is placed in all ICU and Wards for patients on alpha bed.
5. Multipurpose Commodes are used in wards for high risk falls patients.
6. New fall assessment scale initiated in all wards and ICU to assess the fall score in each shift.
7. The adjustable clip of fall risk rail is changed from head end side to foot end side.

<table>
<thead>
<tr>
<th>Year</th>
<th>Skin Care</th>
<th>NI Complications</th>
<th>Nursing related incidents</th>
<th>ADR</th>
<th>VEGD</th>
<th>VEGD</th>
<th>IC/IV</th>
<th>Consultation</th>
<th>Nursing</th>
<th>DVT</th>
<th>Fall</th>
<th>Radiology</th>
<th>Physical therapy</th>
<th>Medical/Other</th>
<th>Diet</th>
<th>Other related incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>35.62%</td>
<td>10.00%</td>
<td>8.14%</td>
<td>5.83%</td>
<td>1.70%</td>
<td>2.87%</td>
<td>3.02%</td>
<td>0.41%</td>
<td>0.03%</td>
<td>0.02%</td>
<td>0.02%</td>
<td>0.02%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.01%</td>
<td>0.01%</td>
</tr>
<tr>
<td>2014</td>
<td>41.19%</td>
<td>10.00%</td>
<td>11.49%</td>
<td>7.00%</td>
<td>5.77%</td>
<td>1.84%</td>
<td>5.53%</td>
<td>0.29%</td>
<td>0.05%</td>
<td>0.02%</td>
<td>2.58%</td>
<td>1.53%</td>
<td>0.15%</td>
<td>0.00%</td>
<td>0.25%</td>
<td>0.25%</td>
</tr>
<tr>
<td>2015</td>
<td>56.90%</td>
<td>10.12%</td>
<td>14.25%</td>
<td>8.90%</td>
<td>1.70%</td>
<td>5.65%</td>
<td>8.50%</td>
<td>2.93%</td>
<td>0.12%</td>
<td>0.05%</td>
<td>0.20%</td>
<td>0.10%</td>
<td>0.51%</td>
<td>0.00%</td>
<td>0.05%</td>
<td>0.05%</td>
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<tr>
<td>2016</td>
<td>65.33%</td>
<td>8.80%</td>
<td>11.58%</td>
<td>8.60%</td>
<td>4.80%</td>
<td>6.70%</td>
<td>10.00%</td>
<td>3.30%</td>
<td>0.07%</td>
<td>0.00%</td>
<td>1.50%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.10%</td>
<td>0.00%</td>
</tr>
<tr>
<td>2017</td>
<td>75.09%</td>
<td>7.00%</td>
<td>15.00%</td>
<td>7.00%</td>
<td>8.60%</td>
<td>6.00%</td>
<td>10.00%</td>
<td>5.00%</td>
<td>1.66%</td>
<td>3.05%</td>
<td>1.50%</td>
<td>1.10%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.10%</td>
<td>0.10%</td>
</tr>
<tr>
<td>2018 (Yr)</td>
<td>68.78%</td>
<td>15.10%</td>
<td>18.12%</td>
<td>5.83%</td>
<td>3.17%</td>
<td>1.95%</td>
<td>11.00%</td>
<td>2.05%</td>
<td>0.55%</td>
<td>1.95%</td>
<td>0.77%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Description</td>
<td>Actions taken</td>
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</tr>
<tr>
<td>Reference not seen within TAT</td>
<td>Concerned Consultants were communicated in writing as well linked to annual appraisal. To ensure that the referral patients are seen within the stipulated time as per our hospital policy.</td>
<td></td>
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</tr>
<tr>
<td>Medical Officers not responding to calls</td>
<td>Conducted discussions / enquiries HR involved monitored closely with the incharge Medical Officers and with the concerned MDs and insisted the MDs to ensure such incidents are not repeated in future.</td>
<td></td>
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</tr>
<tr>
<td>History &amp; physical examination not been filled</td>
<td>Reviews done to the concerned doctors to ensure that the review of History and physical examination is done after every 30th day of admission according to our hospital policy.</td>
<td></td>
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</tr>
</tbody>
</table>

### NO. OF CONSULTANT ISSUES

<table>
<thead>
<tr>
<th>Year</th>
<th>Critical</th>
<th>New Critical</th>
<th>New Minor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>10</td>
<td>30</td>
<td>2</td>
<td>42</td>
</tr>
<tr>
<td>2017</td>
<td>11</td>
<td>35</td>
<td>0</td>
<td>46</td>
</tr>
<tr>
<td>2018</td>
<td>45</td>
<td>87</td>
<td>84</td>
<td>216</td>
</tr>
<tr>
<td>2019</td>
<td>53</td>
<td>84</td>
<td>220</td>
<td>357</td>
</tr>
</tbody>
</table>

Increased as the patient feedbacks are raised as incident reports and are analyzed.