CAUTI: Chasing Zero in Critical Care

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CAUTI: Chasing Zero in Critical Care
Rosy Canete-Yoham, MSN, ACNP, CCRN-CSC
Edwin Vides, BSN, RN

South Miami Hospital
BAPTIST HEALTH SOUTH FLORIDA

MARCH 9-11, 2016 LAKE BUENA VISTA, FL
www.nursingworld.org/ANAconference
South Miami Hospital (SMH) Demographics

SMH, a part of Baptist Health South Florida, is a not-for-profit, acute care hospital with 452 licensed beds. The hospital has an excellent reputation for quality care in many areas, including:

- Award-winning maternity services
- Help for infants and children with developmental delays and disabilities
- Robotic surgery
- Addiction treatment
- Weight-loss surgery
- Comprehensive cancer program
- A wide range of outpatient services
- Cardiovascular services

Awards/Certifications:

- Magnet Recognized
- Top Performing Hospital
- Exemplary Stroke Center
- Comprehensive Cancer Program
- AAGL Center of Excellence in Minimally Invasive Gynecology
Objectives:

1. Discuss methods used to identify common reasons that contribute to Catheter Associated Urinary Tract Infections (CAUTI)
2. Identify most common reasons that contribute to Catheter Associated Urinary Tract Infections (CAUTI)
3. Describe processes to reduce CAUTI rate
Background/Problem:

- Higher CAUTI rates lead to increased length of stay, cost & mortality:
  - According to CDC*, urinary tract infections (UTIs) are the 2nd most common type of healthcare-associated infection (HAI) & account for more than 15% of infections reported by hospitals.
  - CAUTI can lead to complications such as prostatitis, cystitis, pyelonephritis, bacteremia, endocarditis, and meningitis.
  - An estimated 13,000 deaths are associated with UTIs each year.
- Q4 2014, SMH Critical Care CAUTI rate was above the national mean

<table>
<thead>
<tr>
<th>Hospital</th>
<th>4Q14</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMH</td>
<td>4.8</td>
</tr>
<tr>
<td>NHSN Mean</td>
<td>2.2</td>
</tr>
</tbody>
</table>

*CAUTI Device Module, 4/2015
Goals:

1. Reduce indwelling catheter utilization ratio
2. Reduce CAUTI Rates to ZERO
Methods:

• Root Cause Analysis: 10/2014
• Gap Analysis: 11/2014
• Teams Refocus Imagine Measure (TRIM) Analysis: 12/2014 (BHSF Lean Six Sigma)
Method #1: Root Cause Analysis – CAUTI (10/2014)

Analyzed CAUTIs and identified trends:

- Location of Foley insertion:
  - 79% placed in Critical Care / ED
- Date of infection/event:
  - Median: Day 3
- Catheter type/sizes:
  - 16F Only
- Inserter:
  - ED techs
- Catheters placed during emergencies
- Bathing practices
  - Basin baths

Interventions:

<table>
<thead>
<tr>
<th>Date</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/2014</td>
<td>Removed basin baths</td>
</tr>
<tr>
<td>11/2014</td>
<td>Gap Analysis – Product Consultant</td>
</tr>
<tr>
<td>12/2014</td>
<td>Teams Refocus Imagine Measure (TRIM) Analysis</td>
</tr>
<tr>
<td>Team Members &amp; Credentials</td>
<td>Title</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Vernon Bartholomew, RN</td>
<td>Director of Nursing</td>
</tr>
<tr>
<td>Aimee Green-Blumstein, RN</td>
<td>Patient Care Manager</td>
</tr>
<tr>
<td>Edwin Vides, RN</td>
<td>Clinical RN Educator</td>
</tr>
<tr>
<td>Rosy Canete-Yoham, ARNP</td>
<td>Nurse Practitioner</td>
</tr>
<tr>
<td>Jorge Murillo, MD</td>
<td>Infectious Disease Physician</td>
</tr>
<tr>
<td>Yola Duhaney, MPH, RN</td>
<td>Manager of Infection Control</td>
</tr>
<tr>
<td>Cam Kha, RN</td>
<td>Infection Control Nurse</td>
</tr>
<tr>
<td>Andrea Bloomfield, RN</td>
<td>Infection Control Nurse</td>
</tr>
<tr>
<td>George Gordon, RN</td>
<td>Patient Care Manager ED</td>
</tr>
<tr>
<td>Katie Modzelewksa, MBA</td>
<td>Manager of Business Op</td>
</tr>
<tr>
<td>Yasmin Rivera-Hernandez, RN</td>
<td>Clinical RN Educator</td>
</tr>
<tr>
<td>Jacqueline Ruiz, PharmD</td>
<td>Antibiotic Stewardship</td>
</tr>
<tr>
<td>Debra Witherspoon, RN, MSN</td>
<td>Nursing Quality &amp; PI Coordinator</td>
</tr>
<tr>
<td>Eduardo Garcia, RN</td>
<td>Proficient RN</td>
</tr>
<tr>
<td>Luba Kinal, RN</td>
<td>Proficient RN</td>
</tr>
<tr>
<td>Sasha Topping, RN</td>
<td>Proficient RN</td>
</tr>
<tr>
<td>Yvonne Maxwell, RN</td>
<td>Proficient RN</td>
</tr>
<tr>
<td>Michelle Munro, RN</td>
<td>Proficient RN</td>
</tr>
<tr>
<td>Silvia Clark, RN</td>
<td>Proficient RN</td>
</tr>
<tr>
<td>Chloris Garcia</td>
<td>Manager Medical Tech</td>
</tr>
</tbody>
</table>
Method #2: Gap Analysis – Indwelling Catheter Placement (11/2014)

Top opportunities for improvement:

1. Identified variability in insertion and maintenance techniques.
2. Culture of errors unique to each department
3. No onboarding screening or training on foley insertions.

Interventions:

1/2015 Added new Foley Tray System
2/2015 RN Re-education; Indwelling catheter placement competency & orientation requirement
Method #3: **Teams Refocus Imagine Measure (TRIM) Analysis: 12/2014**

**TRIM Analysis:**

- Placement of indwelling catheters lacked:
  - Indication for use
  - MD order (during emergencies)
  - Securement devices
- MD orders without:
  - Criteria or timeframe to discontinue
  - UAs with reflex
- Inconsistent practice:
  - Hand washing; pericare; insertion & aseptic technique; placement of catheter bag; documentation of date, time of insertion
- Limited indwelling catheter size (only 16F)

**Interventions:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Intervention Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/2014</td>
<td>Implemented Targeted Solutions Tool to increase compliance with hand hygiene</td>
</tr>
<tr>
<td>1/2015</td>
<td>Piloted new cleansing wipes with colloidal silver</td>
</tr>
<tr>
<td>1/2015</td>
<td>Added new ARNP role in CC with focus on quality outcomes</td>
</tr>
<tr>
<td>2/2015</td>
<td>Implemented Nurse Driven Protocol (indwelling catheter removal)</td>
</tr>
<tr>
<td>2/2015</td>
<td>Revised MD orders to include UA w/Reflex</td>
</tr>
<tr>
<td>2/2015</td>
<td>RN / CP Re-education</td>
</tr>
</tbody>
</table>
SMH Nurse Driven Protocol

Insertion of indwelling catheter

Place insertion site here

RN Name: ____________________________
Department: __________________________

☐ order for UA with culture and send to the lab.

RN Initials: ____________________________

A. Indications for continuing urinary catheter
1. Acute urinary retention or bladder distention
2. Need for hourly measurements of urinary output in critically ill patients
3. Urinary urgency or catheterization of unsuccessful or continuous administration of medications
4. Catheter placed by urologists or urology specialists
5. Need in healing or staged surgery or pelvic or perineal wounds or incision patients
6. Patients requiring prolonged immobilization (e.g., postoperative or postpartum, multiple fractures or surgeries)
7. Improve comfort and ease of life

NURSE DRIVEN STANDARD OF CARE FOR REMOVAL OF INDWELLING URINARY CATHETER

Removal of indwelling catheter

A. Post Catheter Removal Instructions
1. Document date and time of catheter removal
2. Assess for spontaneous voiding without difficulty.
3. Assess need for bladder drainage:
   - Patient is continent or incontinent
   - Patient voided in greater than 8 hours or output less than 30 ml in 6 hours
   - Patient is continent at any time
4. Contact Physician to obtain order for a straight catheter if:
   - Patient voided in less than 250 ml or bladder scan
   - Patient voided in greater than 400 ml, all retained urine on bladder scan
5. Document output volume and the time of next void or reinsert
6. Discuss with physician the need for an indwelling catheter for patients who require a 3rd straight catheterization in the SUCD period

NURSE DRIVEN STANDARD OF CARE FOR REMOVAL OF INDWELLING URINARY CATHETER
Outcomes: Goal #1 Reduce indwelling catheter device days

South Miami Hospital Critical Care Foley Utilization Ratio (4Q13-3Q15)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Foley Utilization Ratio</td>
<td>0.54</td>
<td>0.51</td>
<td>0.56</td>
<td>0.52</td>
<td>0.45</td>
<td>0.45</td>
<td>0.40</td>
<td>0.40</td>
</tr>
<tr>
<td># Foley Days</td>
<td>976</td>
<td>968</td>
<td>998</td>
<td>808</td>
<td>734</td>
<td>814</td>
<td>703</td>
<td>679</td>
</tr>
<tr>
<td># Patient Days</td>
<td>1797</td>
<td>1909</td>
<td>1781</td>
<td>1567</td>
<td>1627</td>
<td>1791</td>
<td>1772</td>
<td>1681</td>
</tr>
</tbody>
</table>

4Q14: CAUTI Analysis
1Q15: CAUTI Interventions Initiated

Pre Data 1Q14-3Q14
Post Data 2Q15-3Q15
Outcomes: Goal #2 Reduce CAUTI Rate to Zero

### South Miami Hospital: Critical Care CAUTI Rate Q3 2013 - Q3 2015

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Incidence/1000 Device Days</th>
<th>NHSN Mean</th>
<th># CAUTI</th>
<th># Foley Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3-2013</td>
<td>0.0</td>
<td>1.9</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>Q4-2013</td>
<td>3.2</td>
<td>1.9</td>
<td>0</td>
<td>312</td>
</tr>
<tr>
<td>Q1-2014</td>
<td>0.0</td>
<td>2.2</td>
<td>0</td>
<td>271</td>
</tr>
<tr>
<td>Q2-2014</td>
<td>0.0</td>
<td>2.2</td>
<td>0</td>
<td>223</td>
</tr>
<tr>
<td>Q3-2014</td>
<td>0.0</td>
<td>2.2</td>
<td>0</td>
<td>184</td>
</tr>
<tr>
<td>Q4-2014</td>
<td>4.8</td>
<td>2.2</td>
<td>1</td>
<td>208</td>
</tr>
<tr>
<td>Q1-2015</td>
<td>0.0</td>
<td>2.2</td>
<td>0</td>
<td>131</td>
</tr>
<tr>
<td>Q2-2015</td>
<td>0.0</td>
<td>2.2</td>
<td>0</td>
<td>156</td>
</tr>
<tr>
<td>Q3-2015</td>
<td>0.0</td>
<td>2.2</td>
<td>0</td>
<td>166</td>
</tr>
</tbody>
</table>

**4Q14:**
- Root Cause Analysis
- Gap Analysis Indwelling Catheter Insertion
- CAUTI TRIM
- Cleansing wipes with colloidal silver
- Targeted Solutions Tool

**1Q15:**
- New ARNP role focus on "Quality Outcome"
- Nurse Driven Protocol Indwelling Catheter
- Re-educated staff UA w/reflex
- New Foley Tray Kit
Conclusion:

- Reduce indwelling catheter utilization ratio from 0.45 to 0.40
- Reduced CAUTI Rate = “ZERO” for over a year
- Estimated annual cost savings between $13,182 and $32,955 due to the measures implemented
Questions?

Don’t forget to exfoley-ate daily!

Contacts:
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RosyC@baptisthealth.net