Implementation of Care Bundles to Reduce Catheter Associated Urinary Tract Infections (CAUTI) Incidences Critical Care Unit in Kenyatta National Hospital

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Background

• Majority of patients in CCU have indwelling catheter hence are at risk of CAUTI. Urinary tract infection (UTI) comprises 40% of all HAI, 80% of which are due to CAUTI (Collette et al., 2015)
• Globally, 1.7M patients are diagnosed with CAUTI annually
• Majority are in developing countries such as Africa and India (CDC, 2015)
• A baseline survey in CCU, KNH revealed a high incidence rate of CAUTI (18.0%) which further prolonged the patients stay (Inyama et al., 2011)
Definition of Terms

Catheter associated urinary infections (CAUTI): Is a urinary infection that affects and individual who is catheterized within previous 48 hours

Care Bundle: A care bundle is a group of evidence-based practices that improve the quality of care when consistently applied to all patients.

Care bundles must be implemented as a whole
Study Objective

Broad Objective
- Reduce the CAUTI incidence rate KNH-CCU using CAUTI care bundles

Specific Objectives
- Analyze the current trends of CAUTI globally, nationally and at KNH-CCU
- Adopt CAUTI care bundles as the best way to Minimize CAUTI rates
- Apply appropriate strategies to aid in proper implementation of care bundle tool
Study Justification

- Most of the critical care units have standard tools as a measure to reduce occurrence of CAUTI.
- A study conducted at KNH CCU pointed out some gaps in knowledge among nurses and there are no standard guidelines used to prevent CAUTI (Amesa, 2017).
- Implementation of care bundles allows multidisciplinary teams and individual wards/units to measure, target improvements and demonstrate their compliance against key practices, thereby improving care for all patients.
Methodology

- Literature review on CAUTI care bundles; Identification of theoretical framework
- Adoption and modification of CAUTI care bundles Tool-adopted from Institute of health care improvement (IHI, 2015)
- Discussion both structured and unstructured
- Continuous nursing education
Source Healthcare Associated Urinary Tract Infections

CAUTI

- Patient’s Own Flora
- Other Patient
- Staff Member
- Environment
- Medical Equipment
**Care Bundles Summary**

**Catheter Insertion**
- Perform hand hygiene immediately before and after insertion or any manipulation of the catheter or site.
- Ensure that only properly trained persons who know the correct technique of aseptic catheter insertion and maintenance are given this responsibility.
- Insert catheters using aseptic technique and sterile equipment.
- Properly secure indwelling catheters after insertion to prevent movement and urethral traction.
- Use the smallest bore catheter possible to minimize urethral trauma.

**Catheter Maintenance**
- Maintain a sterile, continuously closed drainage system.
- Do not disconnect the catheter and drainage system unless the catheter must be irrigated.
- Maintain unobstructed urine flow.
- Do not use complex urinary drainage systems as a routine infection prevention measure.
- Do not change indwelling catheters or bags at arbitrary fixed intervals.
- Do not use systemic antimicrobials routinely as prophylaxis for UTI in patients requiring either short or long-term catheterization.
Results

CAUTI CARE WEEKLY AUDIT REPORT

Catheterized patients

Number of weeks

<table>
<thead>
<tr>
<th>Week</th>
<th>Care Bundles Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>3</td>
</tr>
<tr>
<td>Week 2</td>
<td>5</td>
</tr>
<tr>
<td>Week 3</td>
<td>3</td>
</tr>
<tr>
<td>Week 4</td>
<td>8</td>
</tr>
<tr>
<td>Week 5</td>
<td>10</td>
</tr>
<tr>
<td>Week 6</td>
<td>12</td>
</tr>
</tbody>
</table>

03/10/2018 to 05/10/2018

Kenya Intensive Care Conference
Results

CATHETER NEED ASSESSMENT ACTION PLAN

<table>
<thead>
<tr>
<th>Weekly audit</th>
<th>Catheterized patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>4</td>
</tr>
<tr>
<td>Week 2</td>
<td>9</td>
</tr>
<tr>
<td>Week 3</td>
<td>7</td>
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<td>Week 4</td>
<td>5</td>
</tr>
<tr>
<td>Week 5</td>
<td>7</td>
</tr>
<tr>
<td>Week 6</td>
<td>8</td>
</tr>
</tbody>
</table>

- **Blue** indicates removal
- **Red** indicates leave in situ

03/10/18 to 05/10/2018
### Results

#### CAUTI RATES BEFORE CARE BUNDLES IMPLEMENTATION IN JULY 2017 TO AUGUST 2017

<table>
<thead>
<tr>
<th>WEEKS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI INFECTION</td>
<td>28%</td>
<td>20%</td>
<td>32%</td>
<td>21%</td>
<td>26%</td>
<td>18%</td>
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</tbody>
</table>

#### CAUTI RATES POST CARE BUNDLE IMPLEMENTATION IN OCTOBER – NOVEMBER 2017

<table>
<thead>
<tr>
<th>WEEKS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI INFECTION RATE</td>
<td>9.5%</td>
<td>4%</td>
<td>6%</td>
<td>3.5%</td>
<td>2%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>
Discussion

- Bundle compliance improved gradually and staffs embraced it as part of the patient care
- CAUTI incidence rate reduced with bundle implementation
- Regular CME and what's app group discussion has lead to positive attitude and lead to overall care improvement
- A Multi-disciplinary approach on CAUTI bundle was encourage through involvement of all stake holders to make the process more successful
Conclusion / Recommendations

- The hospital should consider adopting CAUTI care bundles in ICU since it has been proved to be effective in preventing CAUTI.
- The hospital should consistently provide resources like adequate urine emptying jugs among others to enhance CAUTI bundle compliance.
- A comprehensive study should be conducted in all hospital ICUs to establish and quantify the impacts of CAUTI on patients so as to inform practice.
Achievements

- Improvement in CAUTI care bundle utilization to 78.6% from 21.4%
- Incorporation of CAUTI care bundle compliance in staff appraisals which will lead to sustained compliance and hence further reduction of CAUTI and its clinical outcomes.
- The department proposing to roll over the project as part of sepsis reduction.
References


- http://www.ihi.org/Topics/CAUTI/Pages/default.aspx