A Nurse Driven Protocol to Reduce Hospital-Acquired Pneumonia: An Evidence-Based Practice (EBP) Change

Chastity Warren, DNP, MSN/Ed, RN, CCRN
Mary Kathryn Medei, BSN, RN, CMSRN
Brooke Wood, BSN, RN, CMSRN
Debra Schutte, PhD, RN

Project Description

Pilot oral Care EBP change in a 600+ bed Level-1 trauma hospital improvement project
- Short-term kit
  - Ergonomically appropriate toothbrush
  - Alcohol free, anti-septic mouth rinse
  - Baking soda toothpaste
  - Mouth moisturizer
  - Oral care swabs with baking soda
  - 4 times daily
  - At-risk kit
  - Suction toothbrush
  - 4 times daily
  - Ventilator kit (already in use)
  - Suction toothbrush & swabs
  - 6 times daily

Process improvement
- Increased oral assessments & intervention (4-6 times daily)
- Improved swallow screen assessment
- Implementation of algorithm for kit identification
- Patient education handout inside short-term kit
- Detailed procedure list created in electronic documentation to improve workflow
- Mandatory nurse and patient care technician education fall of 2015 & spring 2016 provided to 1,438 nurse & PCT caregivers
- Rounding education in-services
- Dashboard reports created in electronic documentation for leadership to ensure adherence to protocol
- Delta Dental Foundation gift of $175,000 removed barriers & paved the way!

Clinical Question

In acute care patients (P), how would a nurse driven oral care protocol with improved products (I) compared to no protocol/current products (C) impact the incidence of HAPs and nursing compliance on oral care interventions (O)?

Aims/Objectives

- What is the impact of the EBP change on the incidence of HAP including NV-HAP and VAP?
- What is the impact of the EBP change on nursing compliance with oral care interventions

Project Methodology

- Setting: Adult inpatient units at Sparrow Lansing
- Sample: Charts reviewed for November-May of 2014/2015 & 2015/2016 for any adult patient who had an ICD 9 or 10 code for pneumonia

- Identified NV-HAP using Centers for Disease Control & Prevention (CDC) algorithm for clinically defined pneumonia
- 2 or more serial chest x-rays (one for underlying cardiac or respiratory disease)
- One of the following: fever; leukopenia; change in LOC for adults >70 years old
- 2 of the following: spumum; cough; tachypnea, dyspnea, bronchial breath sounds; increased oxygen requirements
- Information obtained from the Infection Prevention department for VAP

Project Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre</th>
<th>Post</th>
<th>Chi-square Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>NV-HAP events</td>
<td>52</td>
<td>26</td>
<td>p = .000354</td>
</tr>
<tr>
<td>NV-HAP cost ($28,008)</td>
<td>$1,456,416</td>
<td>$1,728,208</td>
<td></td>
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<tr>
<td>Deaths in NV-HAP events</td>
<td>20</td>
<td>4</td>
<td>p = .037373</td>
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<tr>
<td>NV-HAP rate per 1000 patient days</td>
<td>0.683</td>
<td>0.325</td>
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<tr>
<td>NV-HAP events per 1000 patient days</td>
<td>2.84</td>
<td>1.41</td>
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<tr>
<td>VAE/VAP events</td>
<td>56/12</td>
<td>49/3</td>
<td></td>
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<tr>
<td>VAP Cost ($40,144)</td>
<td>$481,728</td>
<td>$120,432</td>
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<tr>
<td>VAE rate per 1000 vent days</td>
<td>12.53</td>
<td>14.29</td>
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<tr>
<td>VAE rate per 1000 vent days</td>
<td>2.87</td>
<td>1.26</td>
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<tr>
<td>Protocol compliance by caregivers 76% Range 36-100% on units</td>
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</tbody>
</table>

*Calculated from document vs. product use vs. patient days

Nursing and Healthcare Implications

Nurses improved pneumonia outcomes by providing oral health interventions for all adult patients admitted to the hospital which reduced overall hospital costs, length of stay, and patient mortality

References: