Oral Care Protocol for the Prevention of Hospital-Acquired Pneumonia

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**INTRODUCTION**

- Bacteria that colonize in the oral cavity can lead to respiratory infection.
- Hospital-acquired pneumonia (HAP) accounts for 15% of nosocomial infections, ranked second to urinary tract infections.
- Centers for Medicare and Medicaid Services deny payment for hospital-acquired infections.
- Each case of HAP costs $5,800-$20,000.
- Oral health protocol at Vanderbilt University Medical Center (VUMC) is focused on ventilated patients and does not include the general patient population.
- Standard oral care with chlorhexidine (CHX) rinse estimated to avoid over $700,000 in annual costs and prevent 1 case of HAP for every 15 patients.

**SEARCH FOR EVIDENCE**

Electronic Searches

Group members searched PubMed, the Cochrane Collaborative, CINAHL, and the National Guideline Clearinghouse. The key words used for the search included “oral care,” “oral hygiene,” “pneumonia,” and “hospitalization.”

Selection and Assessment of Studies

Articles were chosen based on different criteria including:

- Randomized controlled trials or quasi-experimental studies (level I and II evidence)
- Studies taking place within a hospital or nursing home
- Generalizable to academic medical center
- Search was focused on studies published within last 5 years

Five studies met all inclusion criteria. Group members analyzed the abstracts and then the full studies. An evidence summary table was completed for reference throughout the development of the implementation plan.

**IMPLICATIONS**

Studies have shown that a standardized oral care protocol with CHX rinse reduces HAP by killing oral pathogens which invade the lungs.

**Barriers**

- Cost of CHX
- Cost of hospital-wide implementation
- Staff compliance
  - Increased time at bedside to implement new oral care protocol

**Stakeholders**

- Patients, especially those who are:
  - High acuity
  - Immobile
  - Ventilated
- Nursing staff and care partners
- Hospital administration
- Hospital department of finance
- Insurance companies
- Hospital information technology department

**REVIEW OF EVIDENCE**

- Electronic Searches
- Selection and Assessment of Studies
- Five studies met all inclusion criteria. Group members analyzed the abstracts and then the full studies. An evidence summary table was completed for reference throughout the development of the implementation plan.

**IMPLEMENTATION TIMELINE**

<table>
<thead>
<tr>
<th>Week</th>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-20</td>
<td>I: Initiation</td>
<td>Protocol submission to IRB and Chief Nursing Officer of VUMC</td>
</tr>
<tr>
<td>21-24</td>
<td>II: Pilot Rollout</td>
<td>Pilot intervention on the three VUMC units with the highest rates of HAP</td>
</tr>
<tr>
<td>24-32</td>
<td>III: Hospital-Wide Rollout</td>
<td>Standardization and modification</td>
</tr>
<tr>
<td>32-44</td>
<td>IV: Post-Rollout</td>
<td>Compare data from baseline to intervention period</td>
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</tbody>
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**EVALUATION**

In order to determine protocol success and compliance, data will be collected before, during, and 1 month after implementation.

- Baseline demographic data (age, sex, race, admitting diagnosis)
- Rates of HAP
- Average cost per patient admission
- HAP-associated costs
- HAP-associated readmissions
- Staff compliance (chart audits)

**ORAL HEALTH ASSESSMENT TOOL**

**PROTOCOL**

**Existing VUMC Protocol (2011)**

- Applies to patients with artificial airways
- Patients screened every shift using the Brief Oral Health Status Examination Tool (OHAT).
- Score 0 (low risk) - 12 (high risk)
- Screening documented in VUMC electronic charting (new module will be similar to Braden or Fall Risk assessment modules)

- Teeth brushed every shift
- No change

- Mouth swab and suction every 2 hours and pm for unconscious patients or patients with artificial airway
- OHAT score = 0
  - No change
- OHAT score > 1
  - Add 15-30 second CHX rinse once in morning, once in evening
- OHAT score > 4
  - Add 15-30 second CHX rinse every 6 hours while awake

- No change to suction protocol for patients with artificial airways.

- Mouth moisturizer and lip balm
- PRN
- No change

**Revised Protocol**

- All patients screened every shift using the Brief Oral Health Status Examination Tool (OHAT).
- Score 0 (low risk) - 12 (high risk)
- Screening documented in VUMC electronic charting (new module will be similar to Braden or Fall Risk assessment modules)

- Teeth brushed every shift
- No change

- Mouth swab and suction every 2 hours and pm for unconscious patients or patients with artificial airway
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