Table 1
Synopsis of reviewed studies on ventilator associated pneumonia and subglottic secretion aspiration

<table>
<thead>
<tr>
<th>Reference, journal, and date</th>
<th>Sample</th>
<th>Variables</th>
<th>Outcome Measurements</th>
<th>Findings</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mahul et al Intensive Care Medicine 1992</td>
<td>145 medical surgical ICU patients</td>
<td>Control Group - Standard ETT care. Treatment Group -Hourly manual subglottic secretion aspiration with a 10 mL syringe. Additional randomization to a stress ulcer prophylaxis treatment group.</td>
<td>-VAP incidence -Time to VAP onset -Colonization of tracheal aspirate</td>
<td>-Incidence: Control: 29.1 % vs. Treatment 13 % -Time to onset: Control 8.3 days vs. Treatment 16.2 days</td>
<td>-Intracuff pressure measured every eight hours. Maintained at 30 mmHG. -If no drainage aspirated, air bolus injected.</td>
</tr>
<tr>
<td>Valles et al Annals of Internal Medicine 1995</td>
<td>190 medical surgical ICU patients</td>
<td>Control group -Standard ETT care Treatment Group -Continuous subglottic secretion aspiration</td>
<td>-VAP incidence -Time to VAP onset -ICU LOS -Duration of mechanical ventilation -Mortality -Amount of subglottic drainage</td>
<td>-Incidence: Control: 32.5 % vs. Treatment 18.4 % -Time to onset: Control 12 days vs. Treatment 5.9 days -Reduction in incidence of Haemophilus influenza in treatment group.</td>
<td>-Both groups received stress ulcer prophylaxis</td>
</tr>
<tr>
<td>Kollef et al Chest 1999</td>
<td>343 cardiac postoperative surgical patients.</td>
<td>Control group -Standard ETT postoperative care Treatment group</td>
<td>-VAP incidence -Time to VAP onset -Duration of</td>
<td>-Incidence: Control 8.2 % vs. Treatment 5 %. -Time to onset:</td>
<td></td>
</tr>
</tbody>
</table>

Inclusion criteria:
- Expected length of intubation > 72 hours.
- Not specified.

Exclusion criteria:
- Intubation occurred outside of ER or ICU, diagnosis of VAP or death within 72 hours of intubation.
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<tr>
<th>Study</th>
<th>Study Design</th>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
<th>Control Group</th>
<th>Treatment Group</th>
<th>Outcome Measures</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smulders et al 7 Chest 2002</td>
<td>150 general ICU patients.</td>
<td>Expected length of intubation &gt; 72 hours.</td>
<td>Not specified</td>
<td>Standard ETT care</td>
<td>Intermittent subglottic secretion suction in twenty-second intervals with 8 seconds of suction applied.</td>
<td></td>
<td>VAP Incidence:</td>
</tr>
<tr>
<td>Lorente et al 8 American Journal of Respiratory Critical Care Medicine 2007</td>
<td>280 medical surgical ICU patients.</td>
<td>Expected length of mechanical ventilation &gt; 24 hours. Greater than 18 years of age</td>
<td>Pregnancy, patients diagnosed with HIV or neoplasm, leukocyte count less than 1,000 cell/mm3, or patients receiving immunosuppressant.</td>
<td>Standard ETT care</td>
<td>Polyurethane cuff</td>
<td>VAP incidence classified according to early and late onset.</td>
<td>Incidence: Control 22.1% vs. Treatment 7.9%</td>
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</tbody>
</table>
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<th>Bouza et al. ⁹</th>
<th>714 cardiac postoperative surgical patients.</th>
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<tr>
<td>Inclusion criteria</td>
<td>Mechanical ventilation after major heart surgery.</td>
</tr>
<tr>
<td>Exclusion criteria</td>
<td>Death during or shortly after surgery. Violation of protocol.</td>
</tr>
</tbody>
</table>

Control group
- Standard ETT care
- ICU LOS
- Hospital LOS
- Incidence of non-VAP nosocomial infection
- Use of antimicrobial therapy

Treatment group
- Continuous aspiration of subglottic secretion via suction 100-150 mmHg.
- VAP incidence
- ICU LOS
- Hospital LOS
- Incidence of non-VAP nosocomial infection
- Use of antimicrobial therapy

Incidence: Control 5.1 % vs. Treatment 3.8 %.
- No statistical significant difference in secondary outcome measurements.
- Included patients with tracheotomy tubes.
- Both groups received stress ulcer prophylaxis.
- Intracuff cuff pressure measured hourly. Maintained between 20-30 mmHg.
- Hourly instillation of 10 mL of sterile water through subglottic port.
- If no drainage aspirated, air bolus injected.
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