YOUR PARTNER IN REDUCING VENTILATOR ASSOCIATED PNEUMONIA

Shiley™ Evac Oral Endotracheal Tube with TaperGuard™ Cuff Technology

Shiley™ Flexible Tracheostomy Tube with Evac Technology
Hospital acquired infections (HAIs) — including ventilator associated pneumonia (VAP) — are a global problem.

Using care bundles to reduce the incidence of these infections has been studied and documented — yet the issue persists.

Subglottic secretion drainage (SSD) when bundled with other preventative recommendations is instrumental in the fight against acute respiratory failure.

“VAP prevention bundles, including the utilization of endotracheal tube secretion drainage (ETT-SD), monitoring cuff pressure, and oral care with chlorhexidine were efficient in reducing the rate of VAP.”

The Prevalence of Hospital Acquired Infections

VAP PREVALENCE

GLOBALLY: 15.6%
UNITED STATES: 13.5%
EUROPE: 19.4%
LATAM: 13.8%
APAC: 16.0%
We all must work to reduce these numbers. The movement toward a bundled approach has saved lives.\textsuperscript{3,4}

We know aspiration of oral and/or gastric secretions is directly linked to the development of nosocomial infections such as ventilator-associated pneumonia (VAP).\textsuperscript{5-7}

Subglottic secretion drainage removes oral and/or gastric secretions from above the endotracheal tube or tracheostomy cuff — before they can be aspirated.

Using Shiley™ Evac Technology to Help Reduce VAP

With its integral suction lumen and evacuation port, Shiley™ evac technology provides a safe, convenient way to suction the subglottic area above the cuff.

Both the Shiley™ evac oral endotracheal tube with TaperGuard™ cuff and the Shiley™ evac flexible tracheostomy tube with TaperGuard™ cuff incorporate integrated evac technology.\textsuperscript{8} This technology, when used in conjunction with a VAP bundle, has been demonstrated to reduce VAP by an average of 50 percent over the last decade.\textsuperscript{9}

Partnering to Reduce Hospital Acquired Infections

VAP can be dramatically reduced and ventilator days shortened by removing the secretions from the subglottic space.

— Walaszek, 2017\textsuperscript{23}
Advantages of TaperGuard™ Cuff Technology

TaperGuard™ cuff technology may help reduce the tracheal impact of intubation. It is available on basic and specialty endotracheal tubes as well as the Shiley™ flexible tracheostomy family of products. The unique taper-shaped cuff design provides a smaller area of contact with the patient’s airway than traditional barrel-shaped cuffs.¹⁰

The TaperGuard™ cuff design:

- Exerts an average of 29 percent less pressure on the trachea¹¹†
- Reduces microaspiration compared to the barrel-shaped cuff on the Hi-Lo endotracheal tube.¹²
- Provides more uniform pressure distribution than Shiley™ hi-lo cuffs at equivalent intracuff pressures¹³
- Reduces microaspiration compared to Shiley™ hi-lo cuffs¹⁴

Recommend Use of SSD to Reduce VAP

Based on clinical evidence, the following organizations recommend use of SSD to reduce the incidence of VAP:

- American Thoracic Society/Infectious Diseases Society of America (ATS/IDSA), Level I¹⁵
- Centers for Disease Control and Prevention (CDC), Category II¹⁶
- American Association of Critical-Care Nurses (AACN)¹⁷
- Agency for Healthcare Research and quality (AHRQ)¹⁸

†Compared to Shiley™ hi-lo endotracheal tube. Testing conducted on Shiley™ TaperGuard™ and Shiley™ TaperGuard™ evac endotracheal tubes.

The use of an endotracheal tube with subglottic access and intermittent suctioning decreased the incidence of VAP for critically ill patients.

— Mahmoodpoor, 2017¹⁹
<table>
<thead>
<tr>
<th>Author and publish date</th>
<th>Patient profile</th>
<th>Percent VAP rate study</th>
<th>Percent VAP rate control</th>
<th>Relative risk reduction</th>
<th>VAP interventions already in place during study</th>
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<tbody>
<tr>
<td>Mahmoodpoor, 2017¹⁹</td>
<td>276 mechanically ventilated patients for more than 72 hours</td>
<td>VAP rate per 1000 vent day 21.7%; early onset 10.1%; late onset 11.6%</td>
<td>VAP rate per 1000 vent day 33.3%; early onset 12.3%; late onset 21%</td>
<td>VAP rate per 1000 vent day P = 0.15; early onset P = .15; late onset P = 0.21</td>
<td>All patients received routine care including VAP prevention measures during ICU stay.</td>
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<td>Madhavan, 2016²⁰</td>
<td>VAP data per 1000 ventilator days for 2009 and 2010. 2011 – 2014 VAP data per 1000 ventilator days per quarter.</td>
<td>2011 4th quarter and 1st quarter in 2012 the VAP rate/1000 ventilator days was 1.7 in the 4th quarter of 2011. Since the 1st quarter of 2012 the VAP rate/1000 ventilator days and stayed consistent until 4th quarter of 2014. The trend was observed to continue until 2nd quarter of 2015.</td>
<td>2009 – 2010 the VAP rate was 2.3 per 1000 ventilator days and 1.2 per 100 ventilator days respectively. The VAP rate/1000 ventilator days in the 1st, 2nd, and 3rd quarter of 2011 were 2.1, 4.3, 3.1 respectively.</td>
<td>VAP rate per 1000 vent days 1st quarter of 2012 and continued until 2nd quarter of 2015</td>
<td>VAP interventions already in place during study: Standard care of head of bed elevation, hand hygiene, maintenance of closed respiratory circuit with inline suctioning, patient mobility, protocol-based liberation and sedation. Four-hour oral care provided by a nurse for all intubated patients upon admission to the ICU until the day of liberation.</td>
</tr>
</tbody>
</table>
| Hudson 2014²¹          | Cardiac ICU patients requiring mechanical ventilation | 1.9% | 5.6% | 66.1% | ▪ Semirecumbent positioning  
▪ Daily evaluation of readiness for extubation  
▪ Oral care and decontamination with chlorhexidine  
▪ Initiation of safe enteral nutrition within 24 to 48 hours of ICU admission |
| Perez Granda 2013²²     | Cardiac ICU patients requiring mechanical ventilation | 16.46% | 23.92% | 31.2% | |

Studies referenced in the table above were conducted comparing Shiley™ evac oral endotracheal tube with TaperGuard™ cuff technology vs. the Shiley™ hi-lo evac endotracheal tube. The Shiley™ evac oral endotracheal tube with TaperGuard™ cuff technology incorporates the same subglottic secretion drainage technology as the Shiley™ hi-lo evac endotracheal tube.⁸
## Specifications

**Shiley™ Evac Oral Endotracheal Tube with TaperGuard™ Cuff Technology**

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- Cuff inflation valve
- Magill curve
- Integrated suction lumen
- Low-impact, low-pressure TaperGuard™ cuff
- Hooded tip with Murphy eye
- Evacuation port
Specifications

Shiley™ Adult Flexible Evac Tracheostomy Tube with TaperGuard™ Cuff

<table>
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<tr>
<th>Disposable inner cannula</th>
<th>Reusable inner cannula</th>
<th>Single cannula</th>
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8. Based on internal benchtop test report #090352. Mallinckrodt™ TaperGuard™ Evac endotracheal tube 510(k).


