

Cuff Management: Existing Problems and Solutions

Two major problems associated with cuff management practice - which must be addressed.

1. Cuff Pressure (CP) that is too low cannot protect against secretion aspiration and VAP.¹
2. CP that is too high does not protect against tracheal damage.²
 - American Thoracic Society, Infectious Diseases Society,³ CDC, and JCAHO recommend maintaining Cuff Pressure (CP) > 20 cm H₂O as a VAP prevention strategy.
 - Even with manual intervention, CP does not remain stable.
 - Patients with normal blood pressure: after 15 minutes of CP exceeding 30 cm H₂O, tracheal damage begins.

Current practices using intermittent cuff checks contribute to these problems:

- **MOV or MLT** – ⁴
 - Initial action is to deflate the cuff. Secretions above the cuff contaminate the lower airways – the primary cause of VAP.
 - When re-inflating safe CP (20-30 cm H₂O) is a skill that cannot be estimated without measurement⁵
- **Posey Cuff Inflator** or **standard pressure gauge** for intermittent cuff checks:
 - When attaching to pilot balloon, about 10 cm H₂O of CP is lost.
 - CP falls below 20 cm H₂O and this loss in CP breaks the seal of the cuff and trachea. This allows secretions above the cuff to flow below it - which contaminates the lower airways.
 - Use of Posey Cuff Inflator or similar device on multiple patients contributes to cross contamination concerns for infection control and risk management.
- **Syringe inflation** with **pilot balloon palpation** to estimate CP ^{6, 7}
 - Highly unreliable and most often CP exceeds recommended 30 cm H₂O maximum^{8,9}
- **Pressure Easy™**
 - Unreliable indicator of CP
 - According to manufacturer, each Pressure Easy™ device applies 20, 25, **or** 30 cm H₂O; it is not predictable.
 - Peak airway pressure requirements higher than 30 cm H₂O is outside of the operational range of Pressure Easy™.
 - Pressure Easy™ does not protect the patient's trachea when the cuff is compressed (e.g. when the patient is turned on their side)
- **CuffSentry™**¹⁰
 - Eliminates intermittent cuff checks!
 - Cuff Pressure remains at the same value that the clinician has set.
 - If the cuff is compressed, **CuffSentry™** compensates to maintain the same set CP.
 - **CuffSentry™** automatically adjusts to the patient's activity to maintain the same CP.
 - Accurate CP display
 - Continuously displays applied CP which increases clinician awareness.
 - Eliminates unintentional CP that is too high or too low when used by a trained clinician.

Bibliography of References/Papers

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References assembled by William Howard MBA, RRT

Those with interest to continue this dialogue from a clinical perspective can contact Bill at (508) 930-7679 Cell or BillHoward@CuffSentry.com . We welcome your input.