To Thirty and Beyond: Raising the Head of Bed (HOB) to Reduce Incidence of Ventilator-Associated Pneumonia (VAP)

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Ventilator-associated pneumonia (VAP) is a common and costly outcome among patients receiving mechanical ventilation in intensive care settings. A ventilated patient is 6.21% more likely to develop a nosocomial pneumonia than an non-ventilated patient and their mortality rate increases by 20.41% upon clinical diagnosis. Additionally, caring for a patient with VAP can drive up hospital costs by as much as $260,000-$40,000 per patient per visit1,3.

Ventilator-associated pneumonia is initiated by bacterial colonization of the aero- digestive tract and is preventable. Several strategies for decreasing VAP incidence are well documented and evidence-based, yet remain poorly implemented in most intensive care units (ICUs). 1-5. In the absence of contraindications, semi-recumbent patient positioning with the head of bed (HOB) at 30° or above is one of the recommendations endorsed by both the American Association of Critical Care Nurses and Centers for Disease Control as an effective intervention to reduce the incidence of VAP,4.

"To Thirty and Beyond" created a computer-assisted, educational tool for intensive care providers through a stepwise process of data collection and intervention design. An initial literature review was conducted to document evidence-based clinical practice guidelines. HOB angle for mechanically ventilated patients in university hospital ICU beds was continuously monitored via inclinometers attached to the undersides of beds with very poor results6. The low percentage of time ventilated patients spent at 30° or above (3% of a 24 hour day) prompted a survey of ICU providers to determine knowledge level and perceived barriers preventing them from attaining appropriate patient positioning. Results of the provider interviews guided the design and creation of an educational intervention based on a computer-assisted competency module with ICU providers as its target audience. The intervention blueprint included creation of a memorable title, a complete visual design of the computer module, providing solutions to perceived contraindications, scripting and a quality improvement (QI) roll-out within the university hospital ICUs.

Testing of "To Thirty and Beyond" is in progress and includes several related ICU policy changes to decrease the incidence of VAP. Post intervention conclusions and implications will determine the efficacy of the computer module as well as the need for further improvement in committing ICU providers to decreasing the impact of VAP.

References
3. AACN Practice Alert: Ventilator Associated Pneumonia. AACN NEWS 2004; Feb 21(2).