UAMS MEDICAL CENTER UNIVERSITY OF ARKANSAS POR MEDICAL SCIENCES

Examining the Benefits of Less Frequent In-line Suction Catheter Changes

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PURPOSE

To examine the practices related to the frequency of changing in-line suction catheters on ventilated patients with a focus on patient safety and cost effectiveness



BACKGROUND

According to the American Association of Critical Care Nurses (AACN) mechanically ventilated patients are 6 to 21 times more susceptible to ventilator associated pneumonia (VAP)

In-line suction catheters provide a means to suction the mechanically ventilated, intubated patient with a closed, sterile catheter; therefore preventing increased colonization in the lower respiratory tract reducing the risk of ventilator associated pneumonia (VAP)

Historically, UAMS Medical Center VAP rates are benchmarked with the National Database of Nursing Quality Indicators (NDNQI). UAMS ranked at approximately the 60th percentile for VAP in 2009.

Prior to the study, UAMS' practice was daily in-line suction catheter changes at an average cost of \$23,000 per month

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METHODS

Literature Review

Three studies and guidelines set forth by the AACN were reviewed by front line intensive care nurses and the Infection Control Committee. This evidence revealed that less frequent catheter changes provides safe patient care, while reducing overall patient and hospital costs.
In addition, less frequent catheter changes have been shown to decrease the avenue for bacterial transmission.

Pre-Trial

- Study findings and guidelines were reviewed by the UAMS ICU committee
- A three month trial of changing in-line suction catheters weekly as opposed to daily was proposed and approved
- Education was provided to staff via email, flyers, and face to face instruction
- No changes to data collection methods or infection criteria were made

Trial Period

- Trial spanned 3 months, March 2009 through May 2009
- Included all intubated and mechanically ventilated patients from two critical care units
- Infection criteria consisted of signs and symptoms of infection during mechanical ventilation that prompted sputum culture collection

<u>Post-Trial</u>

Routine quality data was collected and then compared to the three months prior to the study where daily suction catheter changes had occurred

RESULTS

Three months prior to trial period included 1,801 ventilator days; 2,618 ventilator days were documented during the trial period (3/09-5/09)

Quality data revealed that three (3) patients had acquired VAP during the trial period; whereas during the previous three months (pre-trial), four (4) cases of VAP were reported

Cost effectiveness was validated by comparing pre-trial and post-trial usage and associated supply costs; weekly catheter changes = \$6K/month versus daily catheter changes = \$23K/month

RESULTS

HEALING



Results of this trial indicate that less frequent changes of in-line suction catheters are not only cost effective, but a safe alternative

- UAMS policy has changed from daily suction catheter changes to weekly resulting in a cost savings of \$17,000 per month
- Less frequent in-line suction catheter changes may prove to reduce the number of ventilator associated pneumonia cases
- Future research is necessary to provide evidence to support this hypothesis