From the Central Line to the Ventilator: Do Resident Physicians Know and Practice Mitigating Risk?

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Abstract

Background: Central line-associated bloodstream infections (CLABSI) and ventilator-associated events (VAE) lead to serious morbidity and mortality. Resident physicians (RPs) play an important role in reducing risk to patients. Methodist received a web-based survey to 30% of medicine and surgery training programs at 2 large teaching hospitals to evaluate knowledge and practice to reduce central line and ventilator risk. The questions addressed proper device placement and maintenance, and how to mitigate the risk.

Methods: 149 RPs completed the survey. The vast majority (94.8%) of RPs felt they know proper insertion knowledge, training, and practice related to central lines and ventilators. A first step to work on reducing risk to ventilator management. RPs play an important role in the decision to use, often place, and continued use of these devices. The vast majority reported daily evaluation for ventilator necessity (78.2%), keeping head of bed >30 degrees (84.1%). On the other hand, only 68.5% reported being formally trained for preventing ventilator-associated pneumonia. They reported daily evaluation for ventilator necessity (78.2%), keeping head of bed >30 degrees (84.1%).

Results: 149 RPs completed the survey. The vast majority (94.8%) of RPs felt they know proper insertion knowledge, training, and practice related to central lines and ventilators. A first step to work on reducing risk to ventilator management. RPs play an important role in the decision to use, often place, and continued use of these devices. A first step to work on reducing risk to ventilator management. RPs play an important role in the decision to use, often place, and continued use of these devices. RPs would seek another physician help after 2 attempts for insertion (38.2%), 3 attempts (24.6%), 4 attempts (17.7%), and 5 or more (10.5%). Among the risk points, a survey by adding the internal jugular site as most common for insertion, and 55.7% thought it has the lowest risk for device need at least daily regardless of the patient location. This may be reached through patient harm encompasses much more than these 2 events and avoids further device need. For reducing the risk for VAP, early mobility may be further encouraged especially for medicine RP training.

Discussion

RPs play a significant role in the prevention of CLABSI and VAP. Ensuring adequate knowledge, evaluating competencies, and assessing RP practice are key to efforts geared towards preventing infectious and noninfectious complications of these devices. Opportunities for improvement in CLABSI and VAP prevention include education on the appropriate indications for device use, examining the need training RPs with limited exposures to central line placement procedures (e.g., considering simulation), and encouraging daily evaluation of further device need. For reducing the risk for VAP, early mobility may be further encouraged especially for medicine RP training.

Another area that may need further attention is how to integrate the regular evaluation for device need at least daily regardless of the patient location. This may be reached through identifying device assessment as a part of the daily patient exam and documentation in progress notes. Finally, RPs identified CLABSI and pneumothorax as the most important risks associated with central lines. Patient harm encompasses much more than these 2 events and involves patient suffering, discomfort, and potentially longer stays. A more global approach to device safety (central line, peripheral intravenous devices, urinary catheters, and ventilators) needs to be considered.

Conclusions

For hospitals that train RPs, it is important to link the education to competencies and practice. Evaluating RP knowledge and practice are important steps to start improvement efforts. With gaps identified, we plan to address them for each residency program through education and reassess any changes over time. Future efforts may focus on integrating certain areas in the Clinical Learning Environment Review process that all programs are expected to implement.