Successful Central Line Associated Bloodstream Infection (CLABSI) Reduction Using a Multi-Disciplinary Approach

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Background
- Central Line Associated Bloodstream Infections (CLABSI) are a significant source of morbidity and mortality for hospitalized patients.
- Most CLABSI prevention initiatives focus on insertion technique and are often limited to higher risk settings such as Intensive Care Units¹.
- We aimed to reduce CLABSI by at least 10% as part of an enterprise-wide annual goal for FY2012.
- A multi-disciplinary task force identified and implemented sequential interventions focusing on central line accessing/maintenance and standardized practices in all patient-care areas.

Methods
- The CLABSI task force included departmental leaders from nursing, infection prevention, risk management and patient safety, supply chain, faculty, and housestaff.
- Standardized nursing practices for accessing and maintaining central lines were taught via computer based training (CBT) and reinforced with return demonstration for all 1400 nurses. This included a “Scrub the Hub” technique and are often limited to higher risk settings such as Intensive Care Units¹.
- Clinicians were educated on proper line placement technique via CBT, including a pre- and post-test, requiring both an observer and inserter to participate in the demonstration for all 1400 nurses. This included a “Scrub the Hub” protocol to ensure proper chlorhexidine application and drying time.
- An electronic central line insertion checklist tool requiring both an observer and inserter to document portions of the procedure using a standardized checklist.
- Standardized kits for dressing and changing were stocked for use.
- Monthly CLABSI rates were calculated and tested for significance using the student t-test (STATA).

Results
- CLABSI rates decreased from 1.06 per 1000 central line days in FY11 to 0.6 per 1000 central line days in FY12 (p = 0.027).
- CLABSI rates have ranged from 0.2 to 0.9 per 1000 central line days over the past twelve months.
- Notable decreases in the monthly rate were temporally associated with certain interventions:
  - 50% completion of the line access and maintenance CBT
  - 50% completion of the return demonstration
  - 50% completion of the insertion CBT and simulation training

Conclusions
- Practitioner education coupled with institution-wide standardization of supplies and procedures led to a statistically significant decrease in CLABSI from FY11 to FY12 and reduced CLABSI by 40%, surpassing our goal.
- The unique focus on standardized accessing and maintenance protocols early in the intervention period helped drive success and was critical to CLABSI reduction.
- This approach offers an opportunity for improvement above and beyond insertion best practices and could be utilized in future quality improvement initiatives.

References: