

## 348: ELIMINATING CATHETER-RELATED BLOODSTREAM INFECTIONS IN CRITICAL CARE

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### Objective:

To determine if a safety intervention could eliminate catheter-related bloodstream infections (CR-BSIs) in the surgical intensive care unit (SICU) at Johns Hopkins Hospital.

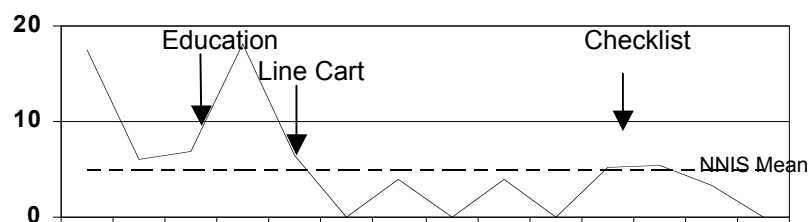
### Methods:

As part of an institutional commitment to safety, a team was created to eliminate CR-BSIs in the SICU at Johns Hopkins. The team identified evidence-based interventions and tracked run charts of CR-BSIs per 1000 catheter days through three plan-do-study-act (PDSA) cycles: educating staff, creating a line insertion cart, and using a check list to ensure adherence to evidence-based guidelines for preventing CR-BSIs. For education, in collaboration with our Department of Hospital Epidemiology and Infection Control, we developed an institutional vascular access device policy and web-based educational program to increase provider awareness of evidence-based infection control practices including hand hygiene, chlorhexidine prep, maximal barrier precautions, maintaining a sterile field, and subclavian vein placement as the preferred site. Providers were required to complete the web-based program, including a 10-question test prior to central line insertion. In addition, sixteen lectures for nurses and five for doctors were provided to reinforce these evidence-based practices. A line insertion cart was created containing the equipment needed for central line insertion and to facilitate compliance with evidence-based practice. A requirement for nursing presence at each line placement was established and nurses were required to complete a checklist for each line placement recording whether providers complied with the evidence-based therapies. For non-emergent line placement, nurses were empowered to stop the procedure if they observed a violation in compliance.

### Results:

Bloodstream infections in the SICU were reduced from 17/1000 catheter days in February 2001 to 2/1000 catheter days in March 2002. There has not been a CR-BSI in the SICU during the last 7 months. Given the morbidity, mortality and costs of care for CR-BSIs, we

### Rate of CR-BSI in SICU



estimate that this intervention may have prevented 57 CR-BSIs, 11 deaths, 798 additional hospital days and \$855,000 in additional costs per year.

### Conclusions:

A continuous quality improvement PDSA-based intervention that established a line insertion cart and a checklist for central line placement eliminated CR-BSIs in the SICU at Johns Hopkins. This intervention can be implemented in other ICUs and in many acute care sites to reduce nosocomial complications, length of stay and costs of hospital care.