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MASSACHUSETTS GENERAL HOSPITAL CANCER CENTER

INCREASING NURSES' KNOWLEDGE AND CONFIDENCE IN CARING FOR CENTRAL LINES IN IMMUNOCOMPROMISED PATIENTS

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BACKGROUND AND SIGNIFICANCE

- Central line associated blood stream infections (CLABSI)
  - Occur in 80,000 patients in the US annually
  - Cause up to 30,000 deaths
  - Cost as much as $37,000 per admission
- Immunocompromised patients with Leukemia or undergoing Bone Marrow transplant require central lines for
  - treatment and supportive care
  - extended periods of time
- Little in the literature about use of simulation for training oncology nurses on care of central lines in immunocompromised patients

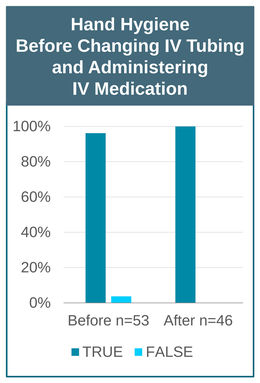
OBJECTIVES

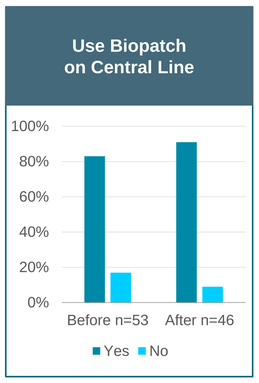
- Increase nurses' knowledge and confidence in providing central line care using simulation training.
- Obtain preliminary evidence of improvement of central line care, which would translate into the reduction of CLABSI in the immuno-compromised patient population

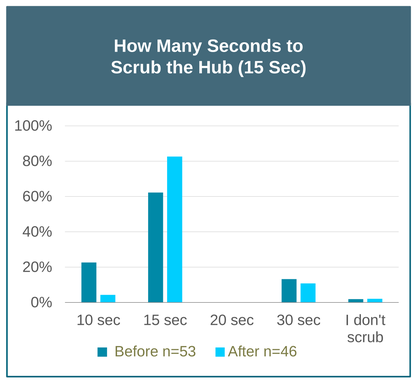
IMPLEMENTATION

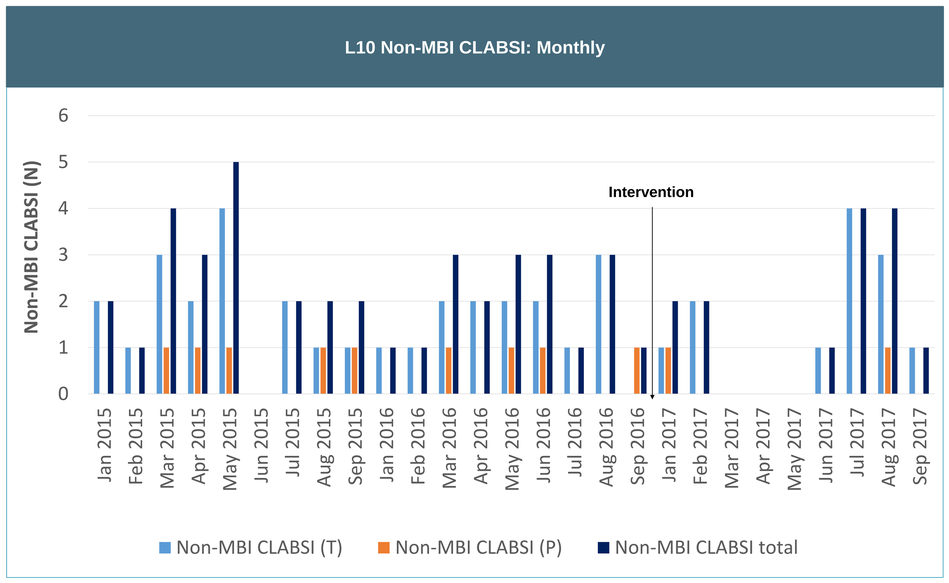
- Pretest assessing baseline knowledge of central line care
- 1.5 hour training classes using low fidelity simulation mannequin Chester Chest
- Training classes provided for all shifts
- 96% of full and part time nurses attended at least once
- Hands on practice of skills
- Review and discussion of evidence based central line care procedures
- Weekly chart audits
- Post-test assessment
- Monthly central line infection data for first three quarters of 2017 compared to same period in 2015 and 2016

RESULTS









PERFORMANCE IMPROVEMENT/OUTCOME

- Post-test results demonstrated
  - ✓ High rate of compliance in performing hand hygiene
  - ✓ Improvement of knowledge regarding many aspects of line care
    - Frequency of IV tubing change
    - Use of Biopatch
    - Scrub the hub for 15 seconds
    - Cap change before drawing blood cultures
  - ✓ Confusion about frequency of routine cap change persisted
- Chart audits demonstrated improvement in tasks and documentation
  - ✓ Daily cap change with TPN
  - ✓ Daily flushing of all lumens of central line
- The monthly mean number of total CLABSI
  - ✓ Pre-intervention (2.2)
  - ✓ Post-intervention (1.6) (p-value+0.17)
  - ✓ Although not statistically significant, the monthly mean number of CLABSI post intervention is promising

IMPLICATIONS FOR NURSING PRACTICE AND/OR FUTURE RESEARCH

- Data show promise in the reduction of CLABSI
- Literature shows annual retraining of best practices should be considered

This project was undertaken as a Quality Improvement Initiative at Massachusetts General Hospital, and as such was not formally supervised by the Institutional Review Board per their policies.