

Zeroing in on Zero Central Line Infections

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Problem and Significance

- ❖ Development of a central line associated bloodstream infection (CLABSI) increases morbidity, mortality (12–25%), and accounts for one third of all deaths related to hospital acquired infections. (CDC, 2011a).
- ❖ It is estimated organizational costs related to a single CLABSI event is between \$40,412.00 and \$100,980.00 (AHRQ, 2013).
- ❖ If a patient survives a CLABSI they may experience unnecessary interruption in needed therapy, delay in timely care progression, longer lengths of stay, and increased costs in care (Hadaway, 2011).
- ❖ Central line infections are considered preventable when proper insertion and maintenance practices are followed (CDC, 2011b).
- ❖ Researchers have identified non-compliance to disinfection guidelines as a contributing factor to CLABSI. Daily monitoring of adherence to line care is recommend for continuous CLABSI prevention (Moureau, & Flynn, 2015).
- ❖ When used correctly, disinfectant barrier caps are effective in reducing CLABSIs (Voor et al., 2017).
- ❖ A large teaching hospital was able to decreased their CLABSI rate after initiation of daily process monitoring and report back to staff (O'Neil et al., 2016).
- ❖ The purpose of this DNP project was to educate staff on daily care and maintenance of central lines to improve adherence to best practice and decrease CLABSI rates to zero.

Evidence Based Project Design

- ❖ **Setting:**
 - The quality improvement project took place at Good Samaritan Hospital, Unit 14CD, a 22-bed medical oncology unit with 2 remote telemetry beds.
- ❖ **Participants:**
 - All adult patients, excluding hospice, that were admitted with a central line in place were included in daily audits.

Interventions

- ❖ Audit tool was adapted from Joint Commission Central Line Checklist. (Joint Commission, 2018).
- ❖ Daily central line audits completed for 30 days to measure current level of adherence and total breaches in daily central line care (N=186).
- ❖ A nursing educational intervention was completed with a pre-, post-, and 30 day post-education knowledge survey. Eighteen nurses completed all three surveys.
- ❖ Audits were completed for 30 days after the educational intervention to evaluate for improved adherence to central line care and total number of breaches (N=149).

Daily Central Line Maintenance Checklist – 14CD

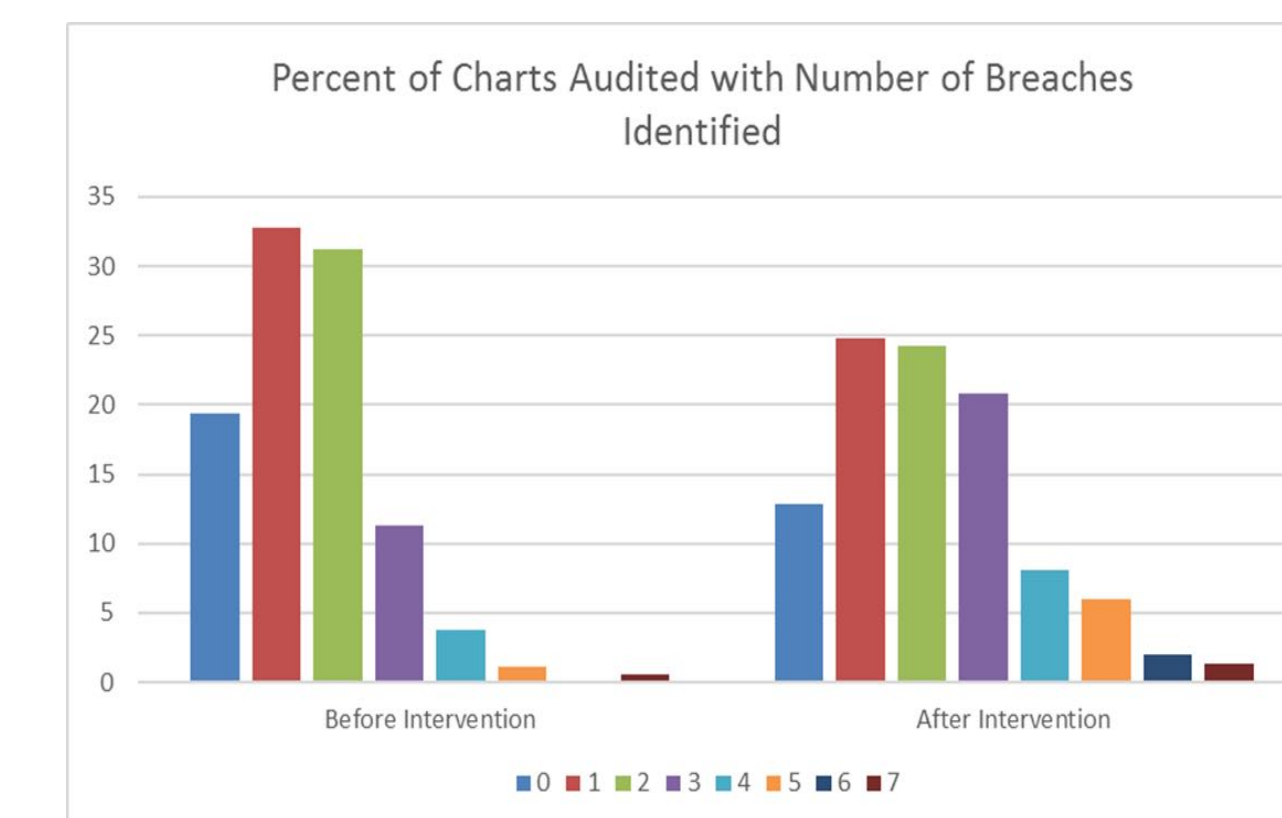
Patient Initials/MRN#: _____ Room/Bed: _____ Date: _____
 Type of line: _____ Date of initial line placement: _____
 Date implanted port accessed: _____ Date reaccess due: _____
 Date needless caps last changed: _____ Cap change due: _____
 Date administration set and add-on devices last changed: _____ Change due: _____
 Set used for: Continuous Infusion Intermittent Infusion Saline/Heparin Lock
 Date dressing last changed: _____ Dressing type: Gauze Clear
 Date dressing change due: _____

Critical Steps	Yes	No	N/A	Interventions	Notes/Comments
Appropriate Hand Hygiene observed					
Aseptic technique observed					
Necessity assessed/documentated today					
Insertion site without evidence of infection					
Dressing clean, dry, intact					
Dressing labeled properly (date/time/initials)					

Outcomes

Total Breaches

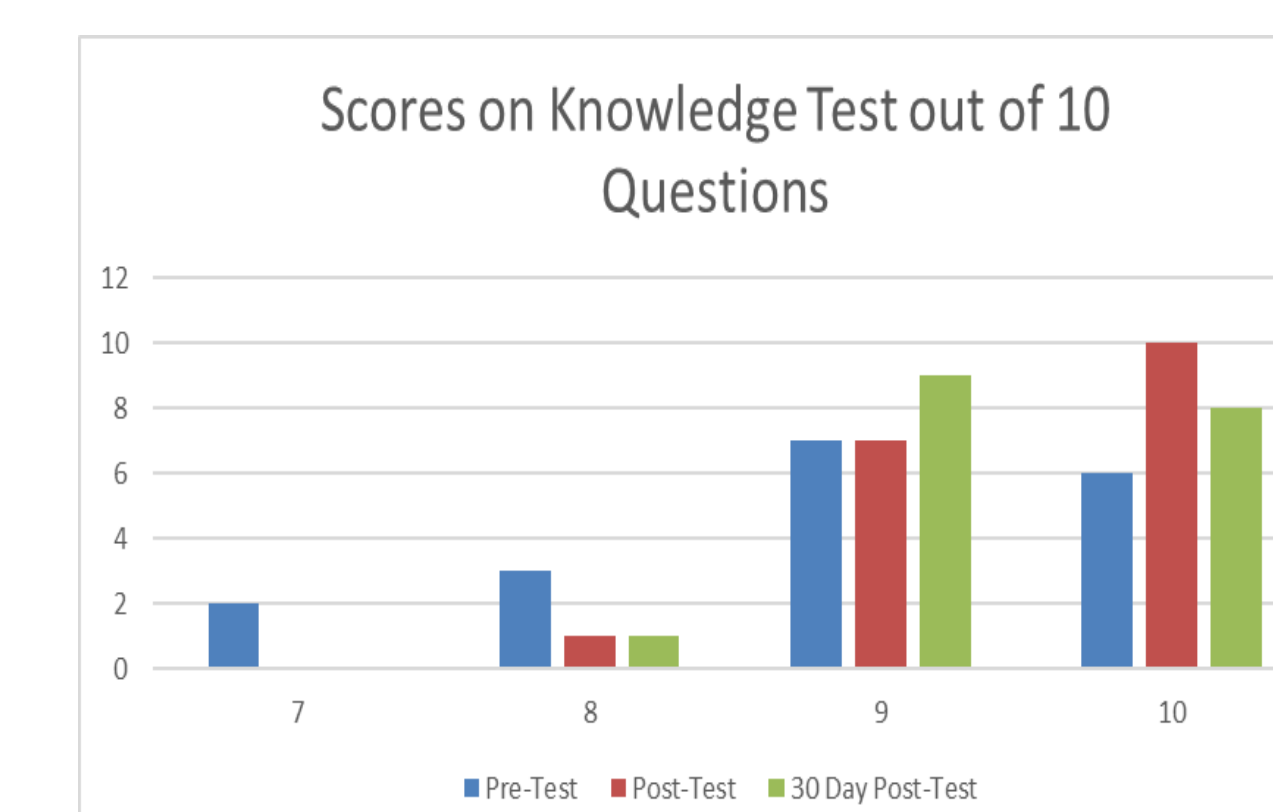
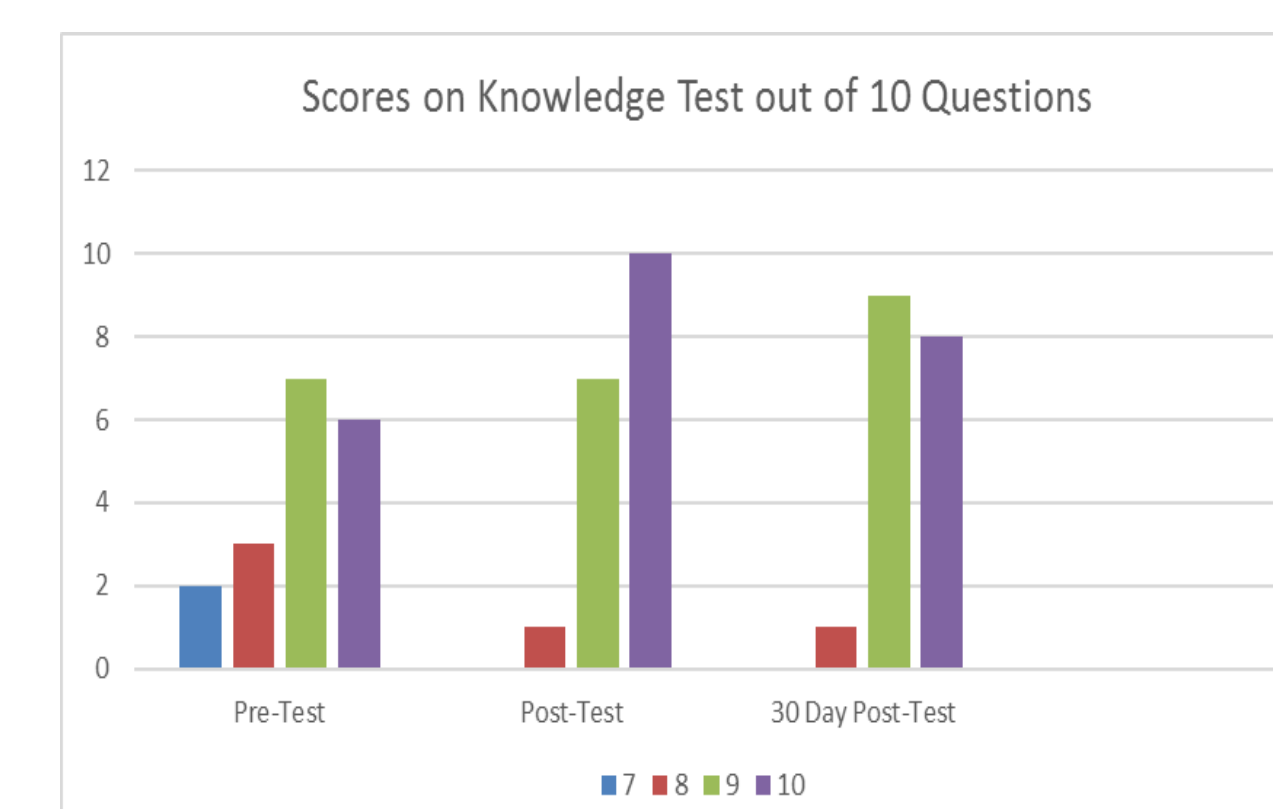
- ❖ Pre-intervention there were an average of 1.53 breaches identified per audit ($SD=1.177$). Median number of breaches identified was 1, and values range from 0 to 7.



- ❖ Post-intervention there were an average of 2.19 breaches identified per audit ($SD=1.571$). Median number of breaches were identified was 2, and values ranged from 0 to 7.

Nursing Knowledge Retention

- ❖ Follow up comparisons in nursing knowledge indicated that knowledge scores were significantly higher in Post-Test periods. There was no statistical difference between post-test and 30 day post-test scores.



Recommendations

- ❖ The unit should routinely monitor central lines on the unit for continual adherence to evidence-based practice guidelines.
- ❖ Real time coaching and mentoring to staff when breaches in central line care are identified.
- ❖ Expand central line audits system wide to measure organizational baseline.
- ❖ Promotion of a just culture to facilitate accountability and improvement in care delivery.
- ❖ Educate float pool staff on central line care and expectations of adherence.

Conclusion

- ❖ Having evidence based clinical practice guidelines in place is not a guarantee of adherence.
- ❖ Average daily census was consistent with 20 patients per day during pre-audits, and 20.1, post-audits.
- ❖ During pre-audit period float pool accounted for 14% of total staff compared to 31% during post-audits.
- ❖ The recommending census staffing grid was short 19 shifts pre-audit phase compared to 24 shifts during post-audit phase.

References

Available Upon Request