

Improving Maintenance of a Clean, Dry, and Intact Central Line Dressing to Reduce Risk of Central Line Associated Blood Stream Infection With Use of a Topical Hemostatic Product and Liquid Gum Mastic Adhesive in the Acute Care Setting

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Background

Increase in central line-associated bloodstream infections (CLABSI) in a 603-bed level 1 trauma tertiary acute care facility

Findings from root cause analyses (RCA) identified disruption in central line dressings due to peeling and/or bleeding at the insertion site as the root cause for CLABSI events

Central line dressing disruption increases risk for CLABSI

Objectives and Methods

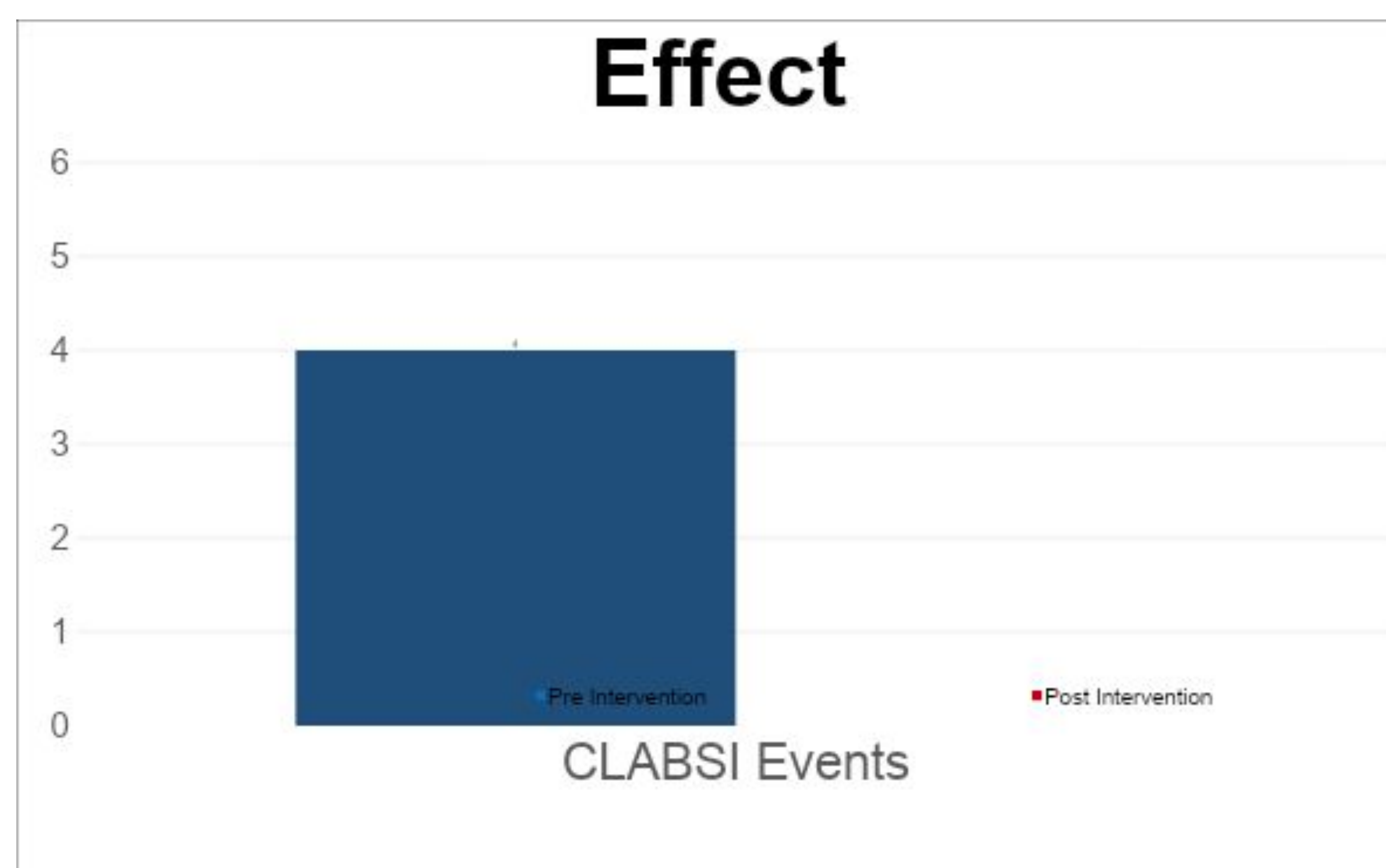
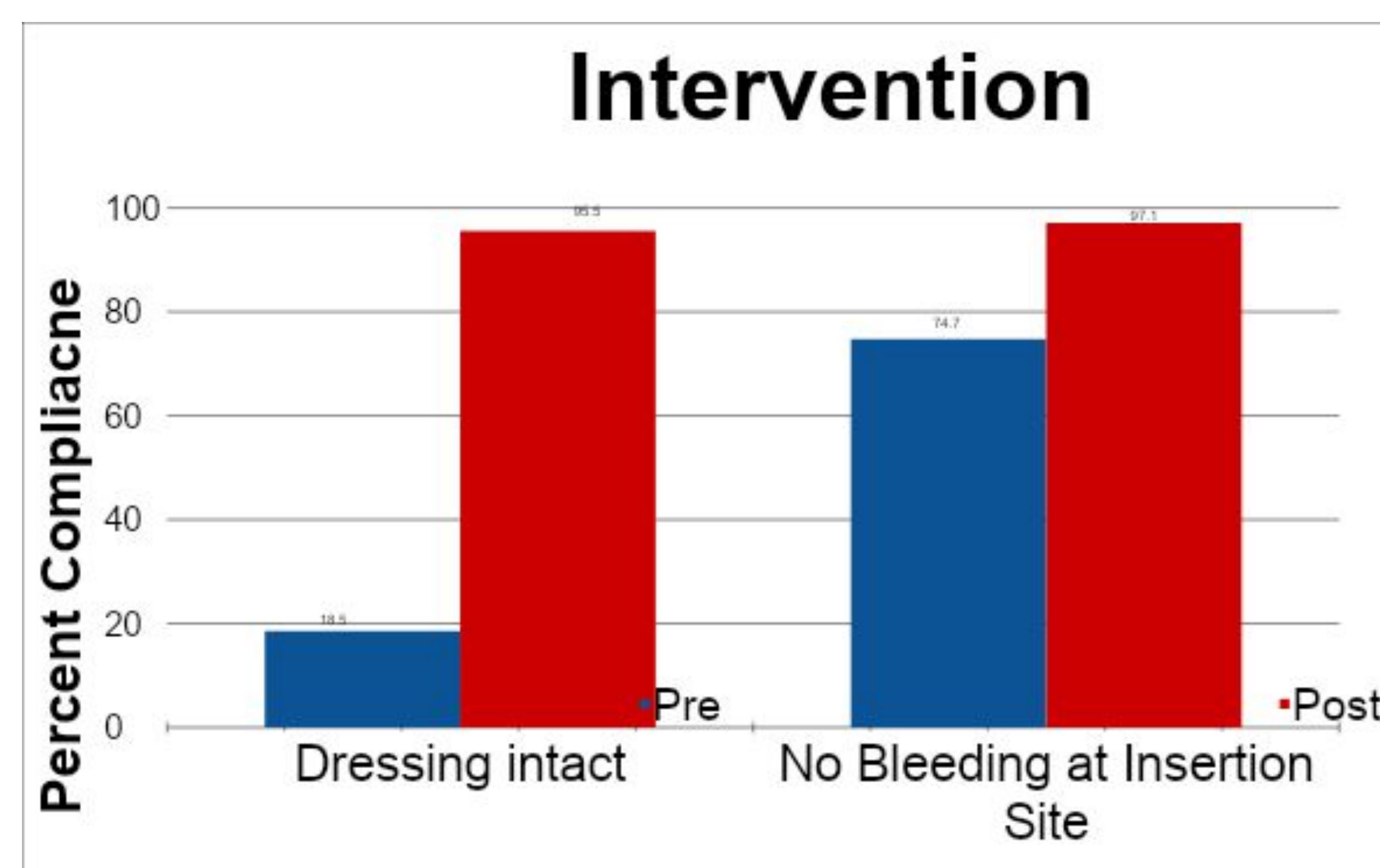
Aim 1: Improve Dressing Disruptions By Implementing a Topical Hemostatic Powder and Gum Mastic Adhesive

- Topical hemostatic powder and gum mastic adhesive sourced by facility supply chain and placed in supply rooms on 3 inpatient units identified for trial and interventional radiology for patients identified as high risk
- Hands-on and supplemental education provided by a multi-disciplinary team of infection prevention, quality, nursing, and vascular access personnel
- To assess progress toward dressing integrity goal of 90%, all central line dressings on the 3 trial units were audited daily
- House-wide implementation at the end of 2023

Aim 2: Effect of topical hemostatic powder and gum mastic adhesive on outcomes

- Reduction in CLABSI in high-risk patient populations utilizing NHSN surveillance criteria
- Rapid Cycle Plan-Do-Study-Act methodology implemented for continuous feedback of intervention

Results



Bleeding at the central line insertion site was improved to (74.7% to 97.1% equals 23.6%) with use of a hemostatic powder and central line dressing integrity was improved from (18.5% to 95.5% equals 77.0%) with use of a liquid gum mastic adhesive. Additionally, CLABSIs were reduced from n=4 (2023Q1-Q2) to n=0 CLABSIs (2023Q3-2024Q1 YTD), and zero medical adhesive-related skin injuries were reported on the 3 trial units since the implementation of the bundle 2023Q1 to 2023Q3.

Lessons Learned

- Consistent reinforcement of education is required due to staff turnover, contract staff, and other challenges
- Buy-in is critical in all departments involved to support initiatives and sustain improvement
- Continue CLABSI prevention bundle rounding to ensure consistent practice
- Peer-to-peer accountability in handoff is key to maintaining a clean, dry, and intact dressing

Conclusion

Topical hemostatic powder, as well as the liquid gum mastic adhesive paired with the adhesive remover for safe removal, was shown to be effective in improving cleanliness and integrity in central line dressings for the prevention of CLABSIs. In Q42023, the dressing integrity bundle has been standardized in all units within the facility

References

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