Practical Implementation of Nursing Science

Reduction of Central Line-Associated Bloodstream Infections Through a Multifaceted Hands-on Approach

PUBLISHED ABSTRACT

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Problem Statement: Central line-associated bloodstream infections (CLABSIs) are serious safety events, which can lead to prolonged hospitalization and increased morbidity and mortality. From 2021 to 2022, our 1,100-bed urban academic tertiary/quaternary-care hospital saw a significant increase in the rate of CLABSI.

Purpose: In an effort to reverse this trend, a group of nurses, physicians, educators, and infection preventionists collaborated to create a multifaceted approach to increase awareness of the issue and improve central line care and maintenance.

Approach: In December 2022, nurses, physicians, educators, and infection preventionists began rounding on all lines within the facility. Teams of two to three staff members met on an assigned unit with a task to assess eight to ten central or peripheral access lines per week. Teams recorded the following data for each observed line into a secure electronic database: line maintenance (e.g., dressing integrity and labeling), patients' hygiene (e.g., bathing and use of chlorhexidine gluconate), and medication administration route (e.g., changing intravenous to oral route or discontinuing medications when appropriate). In conjunction with rounding, unit-specific education with a focus on care and maintenance was provided to units with increased CLABSI incidence. Those units collaborated with their nursing leaders and educators, as well as infection prevention, to bring awareness to CLABSI prevention. Concurrently, the vascular access team began rounding on high-rate units providing real-time education on line care and maintenance. We compared rates of CLABSI between 2022 and the first two quarters of 2023 to determine whether this approach was effective in improving the CLABSI rate in conjunction with improved central line care and maintenance.

Findings: In 2022, prior to the intervention, there were 83 non-Mucosal Barrier Injury (MBI) CLABSIs, a rate of 1.63 infections per 1000 central line days. The standardized infection ratio (SIR) was 1.42, 42% higher than expected. For the first two quarters of 2023, there were 25 non-MBI CLABSIs, a rate of 0.97 infections per 1000 central line days. The SIR for Quarter 1 and Quarter 2 of 2023 was 0.83, 17% lower than expected. Overall, there was a 60% reduction in non-MBI CLABSIs in the first half of 2023 when compared to 2022.

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Conclusions: The multifaceted hands-on approach to CLABSI prevention has demonstrated a reduction of CLABSIs and improvement in the care and maintenance of all lines.

COMPETING INTERESTS

The authors have no competing interests to declare.

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