What is the Impact of a Hand Hygiene Initiative on CLABSI Rates

Roshan Scaria MSN, APRN AGACNP-BC
DNP Student
Ron & Kathy Assaf College of Nursing, Nova Southeastern University

NSU Florida
Ron and Kathy Assaf College of Nursing
NOVA SOUTHEASTERN UNIVERSITY

BACKGROUND

In addressing the impact of a Hand Hygiene Initiative on Central Line - Associated Bloodstream Infections (CLABSIs), it is crucial to highlight certain concepts and terms for clarity. The "Five Moments for Hand Hygiene" framework, endorsed by the World Health Organization (WHO), may be unfamiliar to some readers. This evidence-based approach outlines specific instances for hand hygiene in healthcare settings, providing a structured guideline for practitioners (Papay, 2020).

Furthermore, understanding the historical context of nosocomial infections and the emergence of CLABSIs is vital. Historical data reveals a persistent challenge in preventing healthcare-associated infections, necessitating ongoing research and initiatives. This background aids in comprehending why the current issue of CLABSIs remains a significant concern in healthcare.

The interdisciplinary nature of this study involves borrowing concepts from infection control practices and healthcare management. For instance, the term "nosocomial infections" might require clarification, as it refers to infections acquired in a healthcare setting. Integrating insights from diverse disciplines enriches our understanding of the multifaceted challenges in infection prevention (Chi et al., 2020).

OBJECTIVES

Assess the impact of promoting hand hygiene on CLABSI incidence in healthcare settings.
Secondary Objectives: Identify factors influencing adherence, evaluate compliance rates, explore barriers, correlate compliance with CLABSIs, and provide evidence-based recommendations for improvement.

MATERIALS AND METHODS

This study utilizes a quantitative pre-post-post interventional design to evaluate enhanced hand hygiene's impact on reducing CLABSIs among SICU nurses. Facilitators include clinical relevance, resource accessibility, and in-unit education sessions. Challenges encompass unpredictable schedules and voluntary participation bias. Outcomes aim for increased hand hygiene knowledge (90-100%) and a significant CLABSI rate reduction, ideally to zero. Validated instruments like the WHO Hand Hygiene Knowledge Questionnaire and statistical analyses ensure comprehensive data collection and analysis. This multifaceted approach, targeting a diverse sample of n=30 RNs, seeks to provide valuable insights for sustaining improved infection prevention practices in critical care settings.

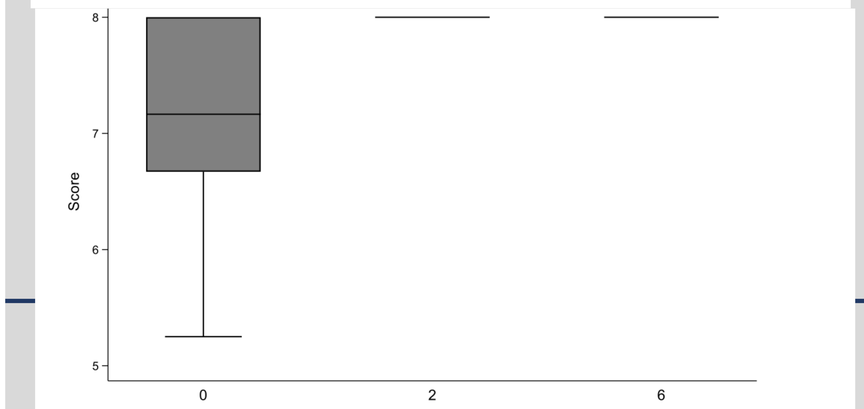
RESULTS

Thirty nurses participated in the intervention, showcasing a noteworthy increase in hand hygiene knowledge scores. The one-way repeated measures ANOVA revealed a substantial rise from baseline (mean = 7.1) to two weeks post-intervention (mean = 8), sustained at six weeks post-intervention (mean = 8; $p < .001$; $F = 33.88$). Box plots (Figure 1) illustrate the score change, while Figure 2 depicts the mean change over time. CLABSI incidence, initially at four per month pre-intervention, dramatically decreased to one in the first post-intervention month and zero in the second ($p < .00001$). Figure 3 visually compares CLABSI incidence pre and post-intervention.
Notably, demographic information for the 30 registered nurses was omitted due to confidentiality concerns, hindering detailed analysis. Despite this limitation, the observed positive outcomes in hand hygiene knowledge scores and reduced CLABSI rates emphasize the effectiveness of the intervention.

Table 1. Baseline and Post-intervention Measure Comparisons

Measure	N	Baseline Mean (SD)	Week 2 Mean (SD)	Week 6 Mean (SD)	F	P-value
Score	30	7.1 (0.8)	8 (0)	8 (0)	33.88	< .001

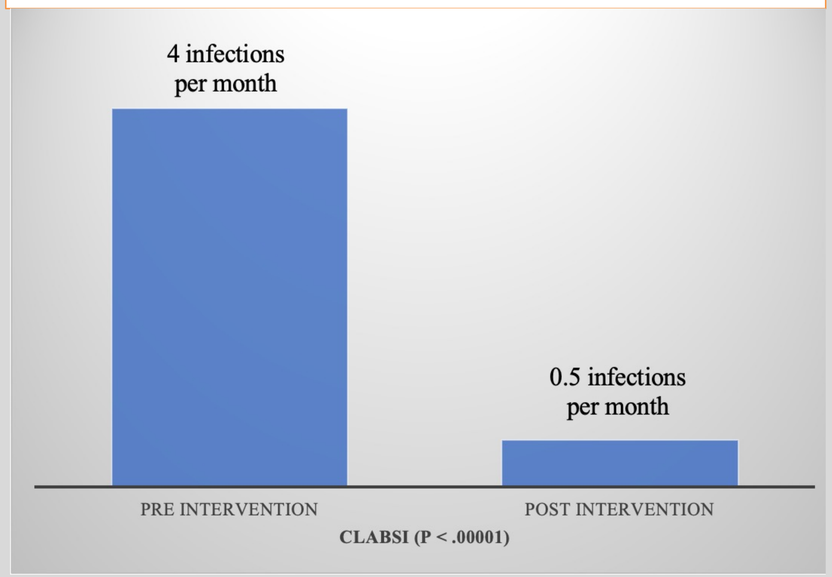
Figure 1. Box plots showing baseline and post-intervention scores.



DISCUSSION

The hand hygiene intervention significantly improved nurse performance and reduced CLABSI rates in the healthcare setting, showcasing its impact on patient safety. The unexpected rapid decline in CLABSI rates post-intervention suggests the effectiveness of a multifaceted approach. Understanding varied participation rates highlights the importance of tailored strategies and ongoing education to ensure sustained improvements in healthcare practices. The unexpected decline in CLABSI rates emphasizes the intricate nature of healthcare interventions, warranting continuous monitoring and detailed assessments for future improvements.

COMPARISON OF CLASBI INCIDENCE PRE-INTERVENTION AND POST INTERVENTION



REFERENCES

Acharya, R., Bedanta Mishra, S., Ipsita, S., & Azim, A. (2019). Impact of Nursing Education on CLABSI Rates: An Experience from a Tertiary Care Hospital in Eastern India. *Indian journal of critical care medicine : peer-reviewed, official publication of Indian Society of Critical Care Medicine*, *23*(7), 316–319. https://doi.org/10.5005/jp-journals-10071-23205

Agency for Healthcare Research and Quality (2017). *Estimating the additional hospital inpatient cost and mortality associated with selected hospital-acquired conditions*. https://www.ahrq.gov/hai/pfp/haccost2017-results.html

Badparva, B., Ghanbari, A., Karkhah, S., Osuji, J., Kazemnejad Leyli, E., & Jafaraghaee, F. (2023). Prevention of central line-associated bloodstream infections: ICU nurses' knowledge and barriers. *Nursing in critical care*, *28*(3), 419–426. https://doi.org/10.1111/nicc.12757

Chi, X., Guo, J., Niu, X., He, R., Wu, L., & Xu, H. (2020). Prevention of central line-associated bloodstream infections: a survey of ICU nurses' knowledge and practice in China. *Antimicrobial resistance and infection control*, *9*(1), 186. https://doi.org/10.1186/s13756-020-00833-3

Papay, N. M. 2020*Improving central line-associated bloodstream infection rates with supplemental hand hygiene education*. Dissertation Abstracts International: Section B: The Sciences and Engineering. https://pesquisa.bvsalud.org/global-literature-on- novel-coronavirus-2019-ncov/resource/pt/covidwho-1050946

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