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**Recommended Citation**

Rogers, Karis N. and Harris, Robin, "Implementation and Evaluation of a Central Line Associated Bloodstream Infection Bundle in the Pediatric Emergency Room: An Evidence-Based Quality Improvement Project" (2024). *Graduate Publications and Other Selected Works - Doctor of Nursing Practice (DNP).*  
https://trace.tennessee.edu/dnp/125

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Implementation and Evaluation of a Central Line Associated Bloodstream Infection Bundle in the Pediatric Emergency Room: An Evidence-Based Quality Improvement Project

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BACKGROUND

- Central line-associated bloodstream infections (CLABSI) pose a significant risk to pediatric patients in acute care settings.
- They are associated with longer lengths of stay, increased hospital dollars spent, and increased mortality and morbidity.
- Implementing CLABSI bundles has correlated with a decrease in patients diagnosed with an infection.

LOCAL PROBLEM

- CLABSI bundle protocols were unknown and not implemented in the pediatric ER.
- Implementing this DNP project will help decrease pediatric patients diagnosed with CLABSIs during their hospital stay.
- 7% of CLABSI in the children’s hospital were from the ER in the months leading up to project implementation.

METHODS

- The Evidence-Based Practice Improvement (EBPI) model was used as the framework used to guide the project.
- A thorough literature search and critical appraisal was performed to determine education methods and benefits of CLABSI education. Evidence was good and consistent or reasonably consistent to support implementing a CLABSI bundle in the pediatric ER.
- The purpose of this initiative was to implement the CLABSI bundle in the ER with the aim of increasing nurse competency by 80% and an outcome measure of decreasing ER related CLABSI infections.

INTERVENTIONS

- 75% of nurses in the ER received CLABSI education.
- Pre and post tests were used to evaluate nurse competency.
- All nurses were expected to adhere to the CLABSI bundle protocols.
- Audit tools were performed to monitor adherence to CLABSI bundle protocols and ensure infection prevention strategies were followed.

RESULTS

- Nine months leading up to project implementation, there were 7% CLABSIs from ER. In the three months of project implementation, there were 0% CLABSIs from ER.
- After education and during the post-implementation phase, 0% of nurses indicated they were not competent, 30% indicated they were somewhat competent, and 70% indicated they were extremely competent. The change from extremely competent pre and post-test was 64.7%, compared to the 80% goal but was statistically significant at p<0.001

CONCLUSIONS

- Nurses increased their knowledge and competency in implementing the CLABSI bundle in the pediatric ER.
- This project improved patient care and decreased CLABSIs in patients from the pediatric ER.
- For sustainability, project results will be provided to hospital leadership for the use of the CLABSI bundle in all hospital departments and provider use in ER trauma situations.

ACKNOWLEDGEMENTS/FUNDING DISCLOSURE:
The authors wish to thank the project site for their dedication and commitment to this practice change. The student would like to extend thanks to the graduate faculty of the College of Nursing, University of Tennessee, Knoxville.

No funding was received for this project.