TL3EO

Using the required empirical outcomes (EO) presentation format, provide one example of an improved patient outcome that aligns with a goal in the nursing strategic plan.

- Provide a copy of the related nursing strategic plan.

Example: Decreasing Hemodialysis Catheter Infections with ClearGuard HD Caps

Problem

WakeMed Health and Hospitals had an increase in hemodialysis (HD) central line-associated bloodstream infections (CLABSI).

Pre-Intervention

The WakeMed CLABSI Committee is an executive-sponsored, interprofessional committee that analyzes data and clinician practices and develops recommendations for evidence-based interventions to reduce CLABSIs. This committee's work supports the Nursing Strategic Plan goal of reducing hospital-acquired conditions. (Evidence TL3EO-1, WakeMed Nursing Strategic Plan)

The National Healthcare Safety Network (NHSN) standardized infection ratio (SIR) is the national benchmark measure to track healthcare-acquired infections. In 2nd Quarter FY 2022 (January-March 2022), the WakeMed Health and Hospitals SIR for hemodialysis catheter infections had increased to 1.6. The CLABSI Committee noted opportunities for improvement. SIR is calculated by dividing the number of observed infections by the number of predicted infections. The number of predicted infections is calculated using multivariable regression models from nationally aggregated data during a baseline period.

Goal Statement

Reduce the WakeMed Health and Hospitals hemodialysis catheter infections SIR.

Participants

CLABSI Committee			
Name/Credentials	**Discipline**	**Title/Role**	**Department**
Ashley Gordon, MSN, APRN, AGCNS-BC, CCRN	Nursing	Clinical Nurse Specialist	Clinical Nursing Resource Services
Caitlin Underhill, BSN, RN	Nursing	Infection Prevention Nurse	Infection Prevention
Susan Boyd, MS, APRN, AGCNS-BC	Nursing	Clinical Nurse Specialist	Clinical Nursing Resource Services
Rhodella Ramos, RN	Nursing	Supervisor/Educator	Hemodialysis

Sabrina Tyndall, MSN, RN, NEA-BC	Nursing	Executive Director, Nursing	WakeMed Cary and Hemodialysis
Samer Taj-Eldin, MD	Medical Staff	Physician	Intensive Care
Amanda Edwards, PA	Medical Staff	Advanced Practice Provider	Intensive Care
Dr. Michael Casey, MD	Medical Staff	Physician	Nephrology
Dr. Chris Ingram, MD	Medical Staff	Physician	Infectious Disease
Dr. Karen Chilton, MD	Medical Staff	Sr VP, Chief Quality Officer	Administration, Pediatrics
Peggy Lassiter, BSN, RN	Nursing	Strategic Sourcing Specialist	Strategic Sourcing

Description of the Intervention

April-June 2022

- Ashley Gordon, MSN, APRN, AGCNS-BC, CCRN, Clinical Nurse Specialist, performed a literature search and found that the practice of using an antimicrobial barrier cap for hemodialysis catheters is significantly better at reducing bloodstream infections than other products.
- Gordon; Caitlin Underhill, BSN, RN, Infection Prevention Specialist; Samer Taj-Eldin, MD, Intensivist; and Amanda Edwards, PA, Intensivist Advanced Practice Provider, conducted in-depth reviews of each CLABSI and identified areas for improvement. They found that the hemodialysis catheters did not have an antimicrobial or protective end cap such as the Curos caps used for all other vascular access lines.
- CLABSI Committee leaders evaluated three products and determined the ClearGuard HD caps were the best product based on their method of action and ease of use and implementation.
- Gordon presented to the Value Analysis Steering Team (VAST) the request for a 90-day trial of the ClearGuardHD caps.

July-September 2022

- VAST approved the request to trial ClearGuardHD caps for 90 days.
- Gordon and Susan Boyd, MS, APRN, AGCNS-BC, Clinical Nurse Specialist, facilitated the trial of ClearGuard HD caps in hemodialysis units, intensive care units (ICU), and interventional radiology (IR) departments systemwide.
- Gordon and Edwards rounded on all the units across the system to place HD caps on all current HD lines on the go-live date of the trial.
- Peggy Lassiter, BSN, RN, Strategic Sourcing Specialist, worked with the Materials Processing Department (MPD) to ensure HD caps were stocked in all hemodialysis units, ICUs, and IR departments.
- Gordon and Boyd rounded daily and then weekly on all HD lines to ensure new HD caps were present and in stock in appropriate areas.

October-December 2022

- Gordon returned to VAST to request full implementation of ClearGuard HD caps systemwide.
- At their October 2022 meeting, VAST approved the full implementation of ClearGuard HD caps systemwide.
- In November, full product purchase was completed to ensure there would be no gap in ClearGuard HD caps being stocked.
- ICU and Adult Acute Care Units' patient safety huddles included daily observation of all HD lines in their units. Each unit supervisor or manager reported compliance with HD caps present on HD lines.
- Gordon and Boyd ensured HD caps were stocked, and they removed barriers to any stocking issues.
- At the end of November 2022, the 90-day trial was successful, with zero CLABSIs related to HD lines.

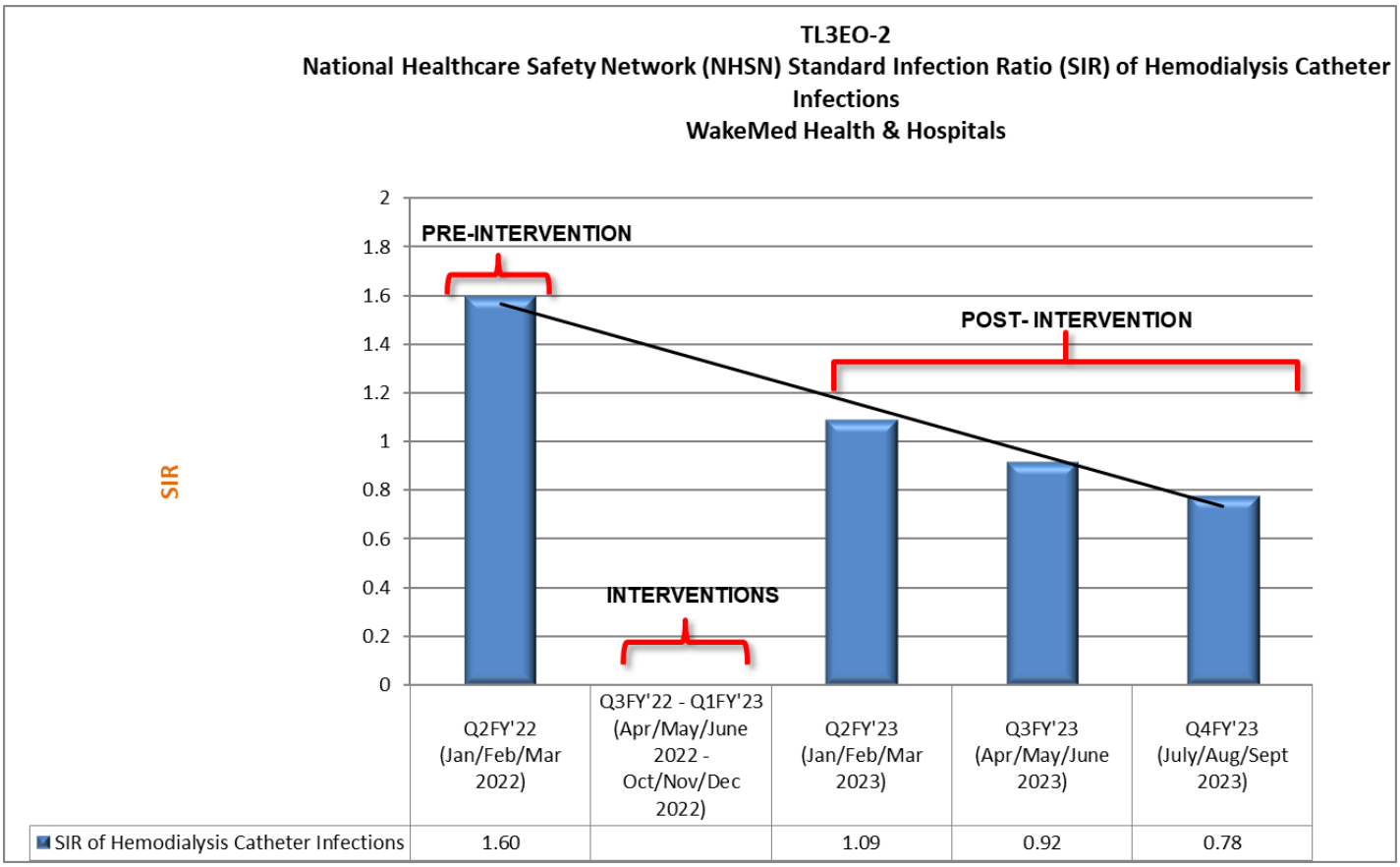
Gordon, Boyd, and Underhill implemented the evidence-based intervention of HD caps to reduce the HD catheter infection SIR. This aligned with the Nursing Strategic Plan goal of reducing hospital-acquired conditions.

The interventions were fully implemented by the end of December 2022.

References:

- Brunelli, S. M., VanWyck, D. B., Njord, L., Ziebol, R., J., Lynch, L. E., & Killion, D. P. (2018). Cluster-randomized trial of devices to prevent catheter-related bloodstream infection. *Journal of the American Society of Nephrology, 29*(4), 1336-1343. http://doi.org.10.1681/ASN.2017080870
- Gordon, A. (2024, January). Knocking out hemodialysis catheter infections with ClearGuard HD Caps. *Global Business Media.* Reducing Catheter Related Bloodstream Infections in Haemodialysis Patients by Global Business Media - Issuu
- Hymes, J. L., Mooney, A., VanZandt, C., Lynch, L., Ziebol, R., & Killion, D. (2017). Dialysis catheter-related bloodstream infections: A cluster-randomized trial of the ClearGuard HD antimicrobial barrier cap. *The American Journal of Kidney Diseases, 69*(2), 220-227. https://doi.org/10.1053/j.ajkd.2016.09.014

Outcome



(Evidence TL3EO-2, National Healthcare Safety Network [NHSN] Standard Infection Ratio [SIR] of Hemodialysis Catheter Infections, WakeMed Health and Hospitals)