Tele-Critical Care Nurse Initiative Drives Central Line Stewardship to Improve Quality of Care

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The Team

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Central Line-Associated Bloodstream Infections (CLABSIs)

- Increased hospital length of stay (LOS)
- Increased cost
  - average increase in inpatient cost for a patient who develops a hospital acquired CLABSI is $48,108
  - Increased morbidity and mortality
- Negatively impacts patient experience
- Most CLABSIs are thought to be preventable using proper techniques, surveillance, and management.
Intensive Care Units

Remain one of the most disproportionately affected nursing areas from COVID-19

Patients at higher risk due to:

• severity of illness
• require longer central line days for vasoactive medications and invasive monitoring
• repeated access by nursing
• placement under emergent situations
Increased Infection Rates

• 8 CLABSIs in first 3 quarters of 2022
• SBAR Reviews within 24-72 hours of patient safety events
• Trends that emerged
  • Central Line utilization
  • Central Line days
Critical Care Network

Deliver consistently reliable, effective and efficient Critical Care Services across all Atrium Health facilities.

Evidence-based Practice
Intensivist-managed Care
Multidisciplinary Teamwork
Care As Close to Home as Possible
Tele-Critical Care Nursing Practice Model

- **Shared Goals**: Minimizing hospital acquired infections and promoting patient safety.

- **True Collaboration**: Full partnership with onsite clinicians in continuous performance improvement.

- **Skilled Communication**: Actively engaging with onsite clinicians to provide information and/or resolve conflicts that create a barrier to care.

- **Practice Excellence**: Ensuring the delivery of evidence-based care through real-time peer review of nursing practice.

- **Adaptability** and **Optimized Technology**: Ability to modify priorities and workflows even through changing technology, patient needs, and environment.
Collaboration of Interprofessional Teams

Virtual Critical Care

• Standardizes and delivers care to 17 ICUs across the Southeast Region
• Active in most units Critical Care meetings including Atrium Health Union's CCU
• Prior successful partnerships with AH Union's CCU on quality initiatives
• The team identified opportunities to partner on CLABSI prevention processes to improve patient care
Method

PDSA
• Identified opportunities for VCC and AH Union CCU to partner on CLABSI prevention processes
• Leveraged tele-critical care technology, the collaborative relationship with bedside RNs, and the multidisciplinary rounding team
• Focused on central line necessity and decreasing the Central Line Standardized Utilization Ratio (SUR)
• The VCC nurse proactively reviewed patients with central lines (CL), evaluated necessity, and discussed during daily multidisciplinary rounds to facilitate CL removal and promote alternatives
Results

Monthly Central Line days decreased more than 20%

- SUR goal exceeded the target reduction 3 of 5 months and demonstrates a continued downward trend.
- There were zero CLABSI events Dec 2022-Mar 2023, far exceeding the 20% reduction targeted.
- With between 2-4 CLABSI per quarter in 2022 prior to this program, a conservative estimate is nearly $100,000 of cost avoidance based on AHRQ estimates.
Implication for Practice

• Practice spread to all other units covered by VCC.
  • The Greater Charlotte Market VCC facilities showed a 14% reduction in SUR YTD
• Union remains CLABSI free through September 2023 and will reach one-year CLABSI free unit on November 11, 2023.
• Culture Shift: when vasopressors are discontinued and the patient remains stable, lines are removed within 12 hours, often much sooner.
• Process implemented within the Union ICU to remove lines prior to leaving ICU.
• Similar processes being developed to support urinary catheter stewardship.
• Real time nursing practice peer review.


Tacconelli, E., Smith, G., Hieke, K., & et al. (2009). Epidemiology, medical outcomes and costs of catheter-related bloodstream infections in intensive care units of four European countries: literature- and registry-based estimates. Journal of Hospital Infections, 72, 97-103.

Thank You

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