Central Line Associated Blood Stream Infection Prevention by Early Vascular Assessment

Daniele Lakin, RN

Overview

Despite the implementation of a peripheral inserted central catheter (PICC) team, dissemination of practice guidelines on vascular access care and education about proper vascular access dressing changes, central line associated blood stream infections (CLABSI) persists. The Penrose-St. Francis PICC nurses established an Early Vascular Access Trial Team and took place from September 6, 2011 to December 6, 2011 in the Penrose Hospital Critical Care Unit. During the trial a Vascular Access Team (VAT) monitored the access of each patient Monday through Saturday and made recommendations for discontinuation, site modification and PICC line insertion based on CDC and APIC national evidence based practice guidelines for the care of central lines.

Purpose:

To implement an Early Vascular Access Team to ensure that each patient receives venous access that is appropriate to the patients’ plan of care and to implement evidence-based interventions to reduce the risk for CLABSI’s and other vascular access associated complications.

Objectives:

Reduce the number of CLABSI’s
Prevent multiple needle sticks, infiltrates and extravasations
Decrease delays in treatments and missed doses
Improve quality patient outcomes and patient satisfaction
Reduce cost associated with CLABSI and vascular access associated complications

What was critical to success

The Early Vascular Access Team is accountable for:

•Monitoring all IV sites, Central Lines & PICC Lines for infections and complications.
•Changing all Central Line and PICC Line dressings weekly and as needed to ensure protocol was followed.
•Request nursing staff attempt no more than 2 peripheral IV sticks during the hours of 0800-1800 M-F.
•Educate staff on CDC and APIC guidelines, care of central lines and the devastating aspect of CLABSI’s.

Facility Profile/Fast Facts

Penrose Hospital

Penrose Hospital is the anchor hospital of Penrose-St. Francis Health Services. With 364 licensed beds, PSFHS has been recognized as the only Colorado recipient of Healthgrades America’s 50 Best Hospitals for 2 consecutive years, placing us in the top 1% of hospitals in the nation.

The Critical Care Unit is comprised of 27 private beds and is housed on the 2nd Floor of the E Tower at Penrose Hospital. Our Critical Care Unit is proud to have been the recipient of The HealthGrades Critical Care Excellence Award and to be Ranked among the Top 5% in the Nation for Critical Care both for 8 years in a row.

The PICC team has been in existence for 8 years. During this time it has grown from one nurse to 4 nurses who cover both hospitals in the PSFHS system.

Process and Methodology: How we did it

Chief Nursing Officer, Chief Medical Officer and Critical Care Nurse Manager endorsement of an Early Vascular Access Team Trial.

Development of the VAT pre-assessment evaluation for all patients on the Critical Care Unit designed to identify patients who are at risk for CLABSI.

Outlined the process for monitoring vascular access line placement and management.

Shifted the responsibility of Central Line maintenance from a routine nursing care responsibility to an collaborative interdepartmental approach of shared responsibility between staff nurses and PICC nurses.

Established accountability to the Central Line Committee and the PSFHS Quality and Patient Safety Committee.

Provided staff education through flyers, presentations at staff meetings and individual education.

During the Trial Period:

•There were ZERO CLABSI’s in the Critical Care Unit.
•The number of Internal jugular, subclavian and femoral line insertions in the Critical Care Unit decreased.
•The number of PICC lines inserted in the Critical Care Unit increased.
•The pre-assessment criteria and central line maintenance criteria outlined in the trial resulted in patients receiving the most appropriate line based on the CDC recommendations.
•The PICC team was utilized for 24 difficult peripheral IV starts.

Outcomes/Measures of Success

Next Steps

Initiate Phase Two which will involve monitoring and maintaining central line and PICC dressing care/site care on Penrose 5, 8, 11, Cardiovascular Unit and St. Francis Medical Center ICU, 5N, 5S and Mom Baby.

Propose an Early Vascular Assessment be completed on all new admissions and as needed by the nursing staff.

Design an electronic medical record intervention for documentation of early vascular assessment based on evidence based practice.

Request a pharmacy print out for all patients on Vancomycin, Dopamine and Amiodorone to improve tracking and workflow.

Continue staff education and facilitate a change in the current environment from a ‘reactive’ to a ‘proactive’ approach to safe vascular access.

Meet the Team (Subject Matter Experts)

Primary Contact: Regina (Jeanie) Fox RN, PSFHS PICC Services reginafox@centura.org

Team:

Rita Ellison, RN, PICC Services
Jeri Bari, RN, PICC Services
Deb Avery, RN, BSA, CEN, Health Learning Center (formerly with the PICC Services)
Kathy Guy BSN, MSNA, RN, NE-BC, Director of Professional Resources
Rochelle Salmore, MSN, RN, NE-BC, Clinical Manager, Wound Care

Lessons Learned

Central Line dressings, particularly the Internal Jugular sites soiled and needed to be changed more frequently than anticipated.

Multi-disciplinary rounds proved to be advantageous in providing a comprehensive understanding of the patients’ care plan and identifying the correct type of venous access to meet the patients needs.

Providing adequate, quality PICC coverage in addition to implementing Early Vascular Access requires more than two dedicated PICC nurses; additional qualified staff would be beneficial to the success of the program.

References/Citations


