

PICC Blood Draws: Merging Evidence-Based Practice, Protocol and Reality

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Problem: Patients requiring long-term antibiotic therapy and frequent blood draws are candidates for peripherally inserted central catheters (PICC). The technique of drawing blood samples from PICC lines has changed with advances in technology. A witnessed clinical incident involved a nurse drawing blood through a PICC for laboratory work using a positive pressure luerlock and two open syringes. Clinical practice questions posed by the Clinical Nurse Specialist student were: Is the lab accurate when drawn through a luerlock? Is it safe and necessary to have two uncapped syringes of blood at the bedside? Did the luerlock device need to be discarded after every blood draw?

Evidence: Apptec Laboratory Services performed an analysis of the positive pressure luerlock for blood draws and determined that when a vacutainer device was used the hemolysis percentage was well below the NIH limit of <5.0%. However, in this case, the nursing staff was not using a vacutainer device to draw the blood but instead a 20cc syringe for the lab sample and a 10cc syringe for waste. Additionally, the positive pressure luerlock was being discarded after each blood draw.

Strategy: The current protocol for PICC care and maintenance was reviewed, the corporation that manufactured the positive pressure device was contacted for a complete copy of all evaluation reports and the hospital ward's logistical area manager was contacted to order the blood collection device with male connector. Additionally, the hospital policy was reviewed against the Infusion Nursing Society's Standard of Practice (Revised 2006) and the Center for Disease Control's (CDC) RR-10 guidelines.

Practice Change: A product review of the device and technique used to draw blood from PICC lines was initiated to reflect the research of the positive pressure cap and the PICC manufacturer's nursing guide to "Blood withdrawal procedure: needleless adapter through injection cap (Vacuum Blood Collection System)". Additionally, the positive pressure injection cap was changed from being discarded with every lab draw to every 7 days per CDC, INS, and the manufacture's recommendation.

Evaluation: An internal product review was initiated to evaluate the effectiveness of the products utilized in PICC line blood draws and the technique used.

Results: The product review is still ongoing and will be completed the middle of April. Changing to every 7 days luerlock replacements have resulted in a savings of approximately \$330 a month for just one inpatient medical surgical floor. Additionally, the new lab draw technique decreases the number of times the port is accessed during a lab draw. The cost of using a vacutainer device rather than two syringes is an additional savings of .36 cents per lab draw.

Recommendations: The hospital protocol for blood draws through PICC lines should be revised to use the vacuum blood collection system. The vacuum blood collection system that was tested with the positive pressure luerlock improves patient and staff safety. The PICC port is accessed fewer times decreasing the chance of infection and the closed system decreases the chance of blood borne pathogen transmission.

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