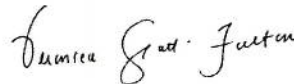


**WOLFSON CHILDREN'S HOSPITAL
POLICY AND PROCEDURE MANUAL**

No. 6255

Section: Patient Care	Subject: Peripherally Inserted Central Catheter (PICC) Insertion	
Original Date: 2/8/2005	Supersede: October, 2011	Effective Date: December, 2013
Review Date: December, 2014	Scope: Wolfson Children's Hospital	
Approved: Veronica Scott-Fulton, DNP, MPH, BSN, BA Vice President, Operations & Patient Care Services		



I. POLICY:

The following evidence-based standards will be utilized in order to ensure patient safety and comfort during PICC insertion.

An order for the placement of a PICC or Midline catheter will be on the patient's medical record.

Only licensed practitioners specifically trained in the placement of PICC or Midline Catheter may insert PICC/Midline catheters.

Wolfson Children's Hospital Policy 6010 *Procedural Sedation* should be followed for any patients requiring sedation for the procedure.

All PICC lines should be treated as a central venous access catheter.

Safety/Infection Control Measures:

- A. A newly inserted PICC may be used after correct placement has been confirmed by imaging (x-ray or fluoro)
- B. Assure that all connections are secure to minimize the risk of infection, hemorrhage, or air embolus.
- C. All PICC/Midline catheters should be capped with a sterile luer lock access port. IV fluids and medications will be administered through the sterile luer lock access port.
- D. Do not use Biopatch (chlorhexidine impregnated patch) if the patient is allergic to chlorhexidine.
- E. Luer lock access ports should be cleaned with 70% alcohol before each access. If alcohol impregnated caps are in place for greater than 5 min, the access port is considered disinfected.
- F. Hand hygiene is required before and after patient care.

II. PURPOSE:

To identify appropriate personnel for insertion of Peripherally Inserted Central Catheters (PICC).
To provide guidelines for the proper insertion of Peripherally Inserted Central Catheters (PICC).

III. DEFINITIONS:

- A. PICC- Peripherally Inserted Central Catheter that is modified to a patient-specific length.
- B. Midline Catheter- a peripherally inserted catheter measuring between 3-8 inches in length or 7.5-20 cm. In infants and small children, a midline is any catheter tip that lies in the upper arm, distal to the axilla.
- C. Specifically trained licensed practitioner- practitioner who has successfully completed an internal or external program that incorporates PICC theory and practicum, use of the skill within the last year, or

through recertification. Copies of certification should be kept in the employees personnel record and competency file.

- D. Navigator Device- Tip location device using a special stylet with a sensor inside the PICC and an external detector device, used to approximate the PICC tip position after insertion but prior to the confirmation X-ray, in order to correct malpositions.

IV. PROCEDURE:

A. Insertion of 1.9 FR PICC LINE (used for infants under 3.0 kg or per practitioner's discretion according to vein size)

1. Assemble equipment:
 - a. PICC procedure Tray, including PICC catheter and insertion checklist
 - b. introducer needle or Neonatal MST Kit
 - c. Vascular Access ultrasound machine and sterile probe cover (on those insertions where the clinician chooses this as the insertion method)
 - d. sterile luer lock access port
 - e. 3 pairs of sterile gloves
 - f. NICU prefilled Heparin syringe 1unit/mL (2)
 - g. sterile towels
 - h. sterile gown
 - i. cap and mask
 - j. tourniquet
 - k. biopatch (may be used for patients at least 1000 gms and >26 weeks OR > 2 weeks old)
2. Initiate family teaching using appropriate language and explanation.
3. Confirm that informed consent is on the patient's medical record.
4. Verify patient identity using name and DOB. (Refer to Baptist Health Policy/Procedure # 7.12.1 "Patient, Procedure, Site Verification Check List for Surgery and Invasive Procedures").
5. Perform Time-Out immediately prior to start of procedure verifying correct patient and procedure.
6. Perform hand hygiene.
7. Follow WCH Procedural Sedation Guidelines, policy 6010 for sedation and monitoring of patients.
8. Identify appropriate vein. For extremities, venous distention may be enhanced by using a tourniquet and placing the extremity in a dependent position. After selecting the vein, release the tourniquet.
9. Swaddle infant for comfort and use staff assistance or wrist restraint to stabilize extremity. Use sucrose solution with pacifier if desired.
10. Measure the distance from the insertion site to the catheter tip termination point. For arm sites, measure the upper arm circumference.
11. Open PICC tray and assemble all necessary equipment maintaining sterile technique. Have assistant hold extremity in upright position while placing sterile towel under it. Take measures to prevent heat loss in all babies less than 1000 gms and any infant who may be expected to have rapid heat loss.
12. Don cap, gown, mask and sterile gloves.
13. Thoroughly cleanse insertion site from 3 inches above to 3 inches below with either:
 - a. 30 second Chloraprep scrub (infants at least 1000 gms and > 26 weeks OR > 2wks old with intact skin) OR
 - b. A combination of a 3 swab 70% isopropyl alcohol circular prep followed by a 3 swab Betadine circular prep.
 - c. Allow to dry completely. Moist areas require 2 minute scrub
14. Drape patient from head to toe, leaving a small window at prepared area.
15. Measure and prepare catheter to pre-measured distance in the manner recommended by the manufacturer.
16. Flush catheter with heparinized saline solution until catheter primed to tip.
17. Reapply tourniquet taking care not to contaminate the sterile field. Apply new pair of sterile gloves.

18. Stabilize the vein below insertion site and perform venipuncture using a shallow angle. FOR Direct Introducer Method: When blood return is apparent, advance introducer and needle together approximately 1/8-1/4 inch to assure the needle lumen is in the vein. Have the tourniquet released while stabilizing the cannula and removing the introducer needle. For Modified Seldinger Technique (MST), see insertion procedure for 3 Fr catheters and up
19. Advance the catheter through the introducer according to manufacturer guidelines. Remove the plastic peel away from the cannula.
20. Advance the catheter for the remaining pre-measured distance. Using a 10 mL syringe, check for a blood return and establish that the catheter flushes without difficulty. Heparinize the catheter with either (1) intermittent manual flush of small amounts of heparinized saline or (2) an infusion, via syringe pump, of NS with heparin 2 units/mL at 0.5- 1 mL/hr.
21. Cleanse the site as necessary. A sterile CHG impregnated patch (Biopatch) may be applied around PICC catheter at skin exit site per neonatal guidelines listed above. Sterile gauze may be applied at the site if a Biopatch is not used.
22. Apply adhesive skin prep and transparent adhesive dressing
23. Prior to initiating therapy, radiologically confirm that catheter tip is located in the superior vena cava. If using the lower extremity approach, the optimal tip placement is the inferior vena cava, just at or above the diaphragm. Acceptance of tip locations other than the above should be determined in collaboration with health care team/ordering physician.
24. Implement PICC line orders with heparin drip or other prescribed fluids started promptly following x-ray confirmation.
25. Document:
 - a. Ad Hoc > Central Line Procedure Checklist
 - b. IVIEW > Vascular Access > Central Line Insertion
 - c. Central Line Insertion includes but is not limited to the following:
 - 1) Location, date, number of attempts
 - 2) lot number, manufacturer
 - 3) internal and external length, priming volume
 - 4) tip location, X-ray verification
 - 5) post insertion assessment, patient tolerance, complications
 - d. IVIEW > Pt Family Education > Line Placement/Care > Non-implantable CVAC Education > verbalized understanding. If parents are not present, choose "needs further teaching."

B. Insertion of 3.0 FR CATHETERS AND ABOVE (can be used for infants and neonates at the discretion of clinician according to vein size & access needs.)

1. Assemble equipment:
 - a. PICC procedure tray, including PICC catheter
 - b. Vascular Access ultrasound and sterile probe cover
 - c. Navigator Device, sterile cover, and stylet (for those insertions done at bedside or on the unit)
 - d. Micro-introducer kit
 - e. 1-22 or 24 gauge angiocath
 - f. 2-10mL normal saline syringes in sterile wrap
 - g. 1 mL syringe with 25 gauge needle for 1% buffered lidocaine
 - h. sterile luer-lock access port, 2 if dual lumen
 - i. 1% buffered lidocaine & label
 - j. 3 pairs of sterile gloves
 - k. 1-2 mL heparin (10 units/mL)
 - l. sterile towels
 - m. sterile gown
 - n. cap and mask
 - o. full body sterile drape
 - p. tourniquet
 - q. biopatch

2. Initiate family teaching using appropriate language and explanation.
3. Confirm that informed consent is on the patient's medical record.
4. Consult child life, if appropriate, for patient and family education.
5. Verify patient identity using name and DOB. (Refer to Baptist Health Policy/Procedure # 7.12.1 "Patient, Procedure, Site Verification Check List for Surgery and Invasive Procedures").
6. Perform Time-out immediately prior to start of procedure verifying correct patient and procedure.
7. Perform hand hygiene.
8. Follow WCH Procedural Sedation Guidelines for sedation and monitoring patients.
9. To enhance venous distention apply tourniquet and identify appropriate vein. After selecting the vein, release tourniquet.
10. Measure the distance from the insertion site to the catheter tip termination point. For arm sites, measure the upper arm circumference.
11. Open PICC tray and assemble all necessary equipment maintaining sterile technique. For insertions utilizing the Navigator Device, replace the catheter stylet with the Navigator stylet and place a tape "flag" on the wire at the hub to prevent migration. Utilize a sterile sleeve to cover the detector portion of the device. Alternately, an assistant can perform the scan without a sterile cover on the device.
12. Utilize sufficient staff to maintain patient safety and ease insertion. Others in the immediate insertion/procedure area should wear caps and masks.
13. Have assistant hold extremity in upright position while placing sterile towel beneath it. If necessary, have assistant hold the hand of the extremity to maintain stability and provide comfort to the patient.
14. Thoroughly cleanse insertion site from 3 inches above to 3 inches below with either:
15. 2-minute Chloraprep scrub OR
16. A combination of a 3 swab 70% isopropyl alcohol circular prep followed by a 3 swab Betadine circular prep.
17. Drape patient from head to toe, leaving a small window at prepared area.
18. Flush catheter with sterile saline or heparinized saline solution until catheter primed to tip.
19. Pull back guidewire to desired point and prepare catheter to pre-measured distance in the manner recommended by manufacturer.
20. Prepare ultrasound equipment, placing sterile cover filled with gel over ultrasound probe using manufacturer's labeled use and directions.
21. Reapply tourniquet taking care not to contaminate the sterile field. Apply new sterile gloves.
22. Apply additional sterile gel to intended venipuncture site and locate desired vein on ultrasound monitor.
23. If desired, administer local anesthetic subcutaneously or intradermally.
24. May administer 0.2mL 1% buffered lidocaine SQ via j-tip injector prior to insertions, up to 3 times in 24hrs, for patients 12 months and over.
25. Perform venipuncture with Microintroducer 21g. needle or 20-24 gauge angiocath. (needle determined by depth of vein and desired angle).
26. Observe for brisk blood return. For angiocath, remove the needle, leaving the plastic cannula in place.
27. Insert guidewire into lumen of introducer needle or angiocath and gently advance 10-20 cm into vein lumen, or approximately to the axilla area.
28. Release tourniquet aseptically.
29. Remove needle or angiocath over the guidewire, taking caution not to remove the guidewire.
30. Inject 0.1-0.2mL buffered lidocaine intradermally at venipuncture site.
31. Make small dermatotomy at puncture site along the guidewire, taking caution no to allow scalpel blade to enter the vein.
32. Pass the dilator/introducer over the guidewire and into the vein, gently sliding all the way to the hub of introducer. (guidewire must remain in control of the clinician at all times)
33. Remove the guidewire and dilator in one piece with only introducer remaining in the vein. Cover the introducer lumen with finger to prevent air embolus or excessive blood loss.
34. Advance catheter, through introducer, to the desire pre-measured tip location.

35. Gently pull the T-peel (external portion of the introducer) out a few centimeters. Snap T-peel apart and peel away from the catheter and discard.
36. Advance remaining catheter into the vein lumen.
37. Remove stylet within catheter and aspirate with attached 10mL saline syringe for brisk blood return, then flush. Repeat procedure for both lumens, if dual lumen. If using the Navigator device, follow the manufacturer IFU to scan the chest with the detector device prior to removing the stylet with sensor, and reposition the PICC if necessary.
38. Prior to securement and prior to initiating therapy, radiologically confirm that catheter tip is located in the superior vena cava. If using the lower extremity approach, the optimal tip placement is the inferior vena cava at or just above the diaphragm. Acceptance of tip locations other than the above should be determined in collaboration with healthcare team/ordering physician.
39. Cleanse the site as necessary and stabilize PICC with manufactured adhesive securement device.
40. Apply anti-microbial patch and cover with sterile transparent dressing, unless site is bleeding, then place sterile gauze at site and cover with transparent dressing.
41. Flush line(s) with Heparin 10 units/mL, 1-2 mL.
42. Document:
 - a. Ad Hoc > Central Line Procedure Checklist
 - b. IVIEW > Vascular Access > Central Line Insertion
 - c. Central Line Insertion includes but is not limited to the following:
 - 1) Location, date, number of attempts
 - 2) lot number, manufacturer
 - 3) internal and external length, priming volume
 - 4) tip location, X-ray verification
 - 5) post insertion assessment, patient tolerance, complications
 - d. IVIEW > Pt Family Education > Line Placement/Care > Non-implantable CVAC Education > verbalized understanding. If parents are not present, choose “needs further teaching.”

V. RELATED POLICIES:

- A. 5021 *IV Maintenance*
- B. 6523 *Central Venous Access Catheter (CVAC) Care: Blood collection, flushing, heparinization and dressing change*
- C. 7.12.1 *Patient, Procedure, Site Verification Check List for Surgery and Invasive Procedures*
- D. 6010 *Procedural Sedation*

VI. REFERENCES:

This policy/procedure is only intended to serve as a general guideline to assist staff in the delivery of patient care; it does not create standard(s) of care or standard(s) of practice. The final decision(s) as to patient management shall be based on the professional judgment of the health care provider(s) involved with the patient, taking into account the circumstances at that time. Any references are to sources, some parts of which were reviewed in connection with formulation of the policy/procedure. The references are not adopted in whole or in part by the hospital(s).

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