

# Newborn Critical Care Center (NCCC) Clinical Guidelines

## Guidelines for PICC Placement

### INDICATIONS FOR PLACEMENT

1. IV fluids and parenteral nutrition for 5 days or greater
2. Birth weight less than 1000 grams
3. Limited peripheral access
4. Anticipated need based on diagnosis (infants with CHD or GI disorders)
5. Antibiotic course of therapy > 5 days

### CONTRAINDICATIONS FOR PLACEMENT

1. Sepsis
2. Short term access of < 5 days

### SITE SELECTION

- Arm veins, leg veins, axillary veins, scalp and neck veins
- Avoid lower extremities if there is concern for gastrointestinal compromise
- Consult cardiologist for preferred sites for infants with CHD

***Placed by NP, Fellow, Transport Team, or Attending MD only***

### PROCEDURE IN NCCC

#### [Guideline for Neonatal PICCs in PICU, 5CH, 6CH, and 7CH](#)

1. Assess infant for preferred insertion site.
2. Gather necessary equipment and supplies using designated procedure cart.
3. Assess anxiolysis<sup>2</sup> or sedation<sup>3</sup> needs.
4. Appropriately secure infant for procedure.
5. Time out performed with identification of infant and procedure. Nursing will be available during the entire procedure.
6. Measure and cut PICC to desired length prior to insertion.
7. Proceed with insertion/dressing procedure per manufacturer guidelines / N.C. Children's Hospital Policy.

### LINE PLACEMENT CONFIRMATION BY X-RAY

- Accurate placement for lines placed in the upper extremities is the upper right atrium
  - *If the PICC is placed in the upper extremity the arm needs to be flexed and adducted to the side to confirm optimal positioning and placement.*
- Accurate placement for lines placed in the lower extremities is in the inferior vena cava (T8-T10) – between right atrium and the level of the diaphragm
  - *Consider obtaining lateral radiographs in addition to the typical anterior radiographs to confirm lower extremity PICC tip placements remain within the IVC*

- If the line needs to be adjusted  $\geq 2$  cm x-ray will need to be repeated to confirm accurate placement

## **DOCUMENTATION**

- Document insertion/attempt note using electronic PICC line note
- Document daily access need in the electronic progress note including recent x-ray for placement confirmation
- Document dressing changes

## **MAINTENANCE**

- Accurate placement is confirmed by x-ray every 2 weeks while the line is in place
- Consider removal if line is no longer in central position
- Dressing changes per PICC line dressing guidelines
- Dressing changes can be performed by PICC RN, NNP, Fellow, or Attending MD

## **NURSING CONSIDERATIONS FOR LINE CARE**

- PICC line site/dressing is assessed every shift for any signs of compromise or complications
- If the line/dressing is compromised, the NP / Fellow / Attending MD / PICC RN is directly notified of needed dressing change
- If the dressing change is not urgent, RN will identify need on NCCC census board
- Access PICC line using sterile technique
- Always use heparinized fluids of (0.5 units/mL) or heparin lock per nursing guidelines

## **LINE CONTRAINDICATIONS**

- Never reinforce dressing with extra tape or tegaderm. Notify NP / Fellow / Attending MD / PICC RN of need for immediate dressing change
- Never draw blood from the PICC line except with written NP/MD orders
- Never infuse PRBCs or any blood product via PICC line
- Never use smaller than a 5 mL syringe when flushing the line
- PICC catheters  $\leq 2$  French are not safe for discharge purposes
- Never clamp a PICC line

## **DISCONTINUATION**

- Discontinue when deemed no longer needed (receiving 120 mL/kg/day of enteral feeds, completion of antimicrobial therapy etc.)
- NP/MD must place an order to discontinue the line
- Insertion length will be checked prior to removal
- If infant develops complication related to the PICC line, it should be removed
- PICC RN, NNP, or Fellow MD will discontinue the line

## Catheter Removal Procedure

1. Wash hands and apply clean gloves
2. Remove any steri-strips on the outside of the dressing
3. Stretch outside edges of tegaderm for easy removal
4. Remove tegaderm towards insertion site
5. Cleanse area around catheter using cloraprep or betadine
6. Slowly remove catheter by 0.5-1 cm increments
7. Place sterile 2 x 2 over insertion site for at least 24 hours

## VIDEO – Neonatal PICC Insertion

<http://www.nejm.org/doi/full/10.1056/NEJMvcm1101914?rss=searchAndBrowse>

## References:

Cartwright DW; [Central Venous Lines in neonates: a study of 2186 catheters](#). *Arch Dis Child Fetal Neonatal Ed*. 2004 Nov;89(6):F504-8. PMID:15499142

Kirse, A.C., Kamitsuka M.D.. (2005) [Peripherally Inserted Central Catheter Using the Saphenous Vein: Importance of Two-View Radiographs to Determine the Tip Location](#). *Journal of Perinatology* (25), 674–676. doi:10.1038/sj.jp.7211363

Sharpe E, Pettit J, Ellsbury DL. [A national survey of neonatal peripherally inserted central catheter \(PICC\) practices](#). *Adv Neonatal Care*. 2013 Feb;13(1):55-74. PMID: 23360860.

Wyckoff MM, Sharpe E. *Peripherally Inserted Central Catheters: Guidelines for Practice*, 3rd Edition. NANN 2015.