

PERIPHERALLY INSERTED CENTRAL CATHETER (PICC) – INSERTION

This Local Operating Procedure is developed to guide safe clinical practice in Newborn Care Centre (NCC) at The Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this Local Operating Procedure.

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INTRODUCTION

A PICC line is a long catheter inserted into a large vein with the tip positioned in a central vein. The line is used for long-term intravenous nutrition and medication.

1. AIM

- To correctly insert a PICC line aseptically and safely

2. PATIENT

- Newborns

3. STAFF

- Medical and nursing staff

4. EQUIPMENT

- Surgical hat and mask
- Sterile gown, gloves x 2 sets and eye goggles
- CVC Pack (Picture 1)
- Sterile green drape x 1 and plastic drape (large) x 1
- Comfeel Coloplast (wafer thin Duoderm)
- Broad steristrips x 1 pack
- Normal saline ampoules (5 or 10 mLs) x3
- 24g cannula (yellow)
- Chlorhexidine Acetate Aqueous Solution 0.05% w/v (Blue Solution)
- Vygon Premicath 28g or 24g Nutraline with trocar
- Blue Inco-pad
- NSW Health Central Line Insertion Record Form (Surveillance Form)
- Neutral detergent
- For assistant: Surgical hat, mask and sterile gloves



Picture 1

Table 1. PICC insertion sites and measurements.

Preferred Veins for PICC Lines	Basilic; Cephalic; Long Saphenous; Scalp NB. Femoral veins are not recommended because of increased risk of sepsis and necrosis of femoral head.
Measurement of PICC Lines	Arm Veins From the insertion site along the arm to the shoulder joint, then to the sternal notch at the second intercostal space. This is the approximate location of the superior vena cava. The line should be at or below this position and at least 1cm proximal to the right atrium.
	Leg Veins Measure from insertion site to the xiphisternum. Aim is for catheter to be above L4/5 and at least 1cm proximal to the right atrium.
	Scalp Veins (not preferred; use if unable to gain access via other sites) From the insertion site to the clavicular head (on the same side as the entry site) and then to the right second intercostal space.

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Approved by Quality & Patient Care Committee
July 2018

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5. CLINICAL PRACTICE

Procedure:

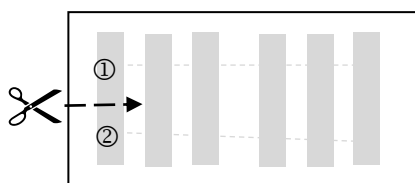
1. Seek parental consent. Explain the procedure to parents.
2. Ensure medical officer performs a "Time Out" on the infant.
3. Perform hand hygiene.
4. Examine the infant and identify a vein to access.
5. Measure the insertion length (see Table 1).
6. Discuss/consult the catheter length and site with a fellow or consultant.
7. Wrap and position the infant in a comfortable posture.
8. Insert the infant's limb through a blue inco-pad.
9. Ensure the infant is monitored.
10. Ensure supplemental oxygen is available for infants who are not on respiratory support.
11. Administer oral sucrose.
12. Collect equipment.
13. Clean the work-surface with neutral detergent.
14. Request for assistance. Assistant is to monitor aseptic technique.
15. Put hat, mask and goggles on.
16. Open sterile gown pack on a bench near wash basin. Add sterile gloves to the sterile field.
17. Scrub hands and lower arms to elbow for 2 minutes.
18. Dry hands and lower arms with the sterile paper towel in the pack.
19. Put sterile gown on.
20. Put sterile gloves on (x 2 pairs) using "closed-gloving" technique (See LOP – Scrubbing, gowning-up and closed gloving for a sterile procedure).
21. Request assistant to open sterile plastic sheet pack.
22. Drape the work-surface with the sterile plastic sheet. Avoid contaminating the field.
23. Open remaining packets of equipment away from the sterile field. Put on the trolley.
24. Proceduralist to prepare:

Dressing

- Cut a rectangular piece of Comfeel (approx.. 1.5 x 2.5 cm)
- Cut 1 steristrip into 2 sections (Picture 2)
- Cut the clear section of the steristrip packet into a small square (approx. 2.5 x 2.5 cm)
- Stick the small square onto the tegaderm (Picture 3)

NOTE:

- The catheter **MUST NOT** be handled by the gloved hand
- Use a pair of forceps to handle and manoeuvre the catheter
- **DO NOT** apply a firm grip with the forceps to the catheter



Picture 2



Picture 3

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Preparing equipment

- Draw up normal saline in the 10 mL syringes and re-cap needle
- Draw up normal saline in the 2nd 10 mL syringe
- Attach to the catheter
- Prime the catheter until fluid is visible at the tip (Picture 4)

25. Use the green drape to contain instruments and catheter (Picture 5).
26. Request assistant (assistant must scrub and put sterile gloves on) to hold the infant's limb with non-dominant gloved hand for cleaning. Repeat cleaning action (Picture 6).
27. Apply a sterile gauze to hold the cleaned part of the limb with the dominant hand.
28. Clean the lower part of the limb. Repeat cleaning.



Picture 4



Picture 5



Picture 6

29. Hold the limb with the sterile gauze for the proceduralist to apply the fenestrated blue drape.
30. Remove the 1st set of sterile gloves.
31. Transfer the green drape containing the catheter and instruments onto the sterile blue drape.
32. Apply tourniquet and commence intravenous cannulation.
33. Remove the cannula trocar when blood flashback is cited in the cannula hub.
34. Remove tourniquet.
35. Insert and advance the catheter in 0.5-1 cm increments into the cannula to the premeasured insertion length (Picture 7). Flush the cannula hub with normal saline to remove the blood pooling in the cannula hub (Picture 8).
36. Remove the cannula gradually when the required catheter distance is inserted (Picture 8).
37. Apply pressure with a gauze at the insertion site to stop bleeding.
38. Secure the catheter with 2 short steristrips near the insertion site (Picture 9).
39. Secure the yellow cannula onto the white "winged" connection of the catheter with steristrips (Picture 10).



Picture 7



Picture 8



Picture 9



Picture 10

NOTE:

- Secure the 24g catheter with a trocar insitu on the infant's skin for x-ray.
- Remove the steristrips then the trocar after confirmation of catheter tip position.

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40. Apply the Comfeel on infant's skin and secure the yellow cannula on it (Picture 11).
41. Secure the remaining part of the catheter.
42. Avoid making a tight coil of the catheter and **DO NOT** apply excessive steristrips.
43. Apply the tegaderm with the plastic square sitting on top of the insertion site.
44. Apply the 2nd tegaderm onto the remaining catheter.
45. Ensure all the steristrips are covered by the tegaderm.
46. Organise for an x-ray of the catheter.
47. Flush the catheter intermittently while waiting for x-ray to be performed.
48. X-ray result must be reviewed by a fellow or consultant.
49. Apply large steristrips around the border of the dressing after catheter tip confirmation (Picture 12).
50. Remove all disposable equipment and drapes from the infant.
51. Dispose all sharps and disposable equipment in the yellow *BD Sharps Collector*.
52. Remove sterile gown and gloves correctly. Dispose correctly.



Picture 11



Picture 12

53. Perform hand hygiene.
54. Clean the work-surface of the procedure trolley.
55. Complete relevant sections of the Surveillance Form (Appendix 1) and enter details of the procedure into the NICUS database.
56. Enter into the infant's eMR the following information:
 - Infant's tolerance to the procedure
 - Additional respiratory support during the procedure eg. supplemental oxygen
 - The proceduralist's name
 - State of PICC dressing

NOTE: Use of Omnipaque (x-ray contrast)

This is sometimes required for x-ray to identify the catheter tip position.

- Draw up 1 mL of Omnipaque in a 10 mL syringe
- Inject (pulsatile action – push pause action x 6) the contrast into the catheter
- Flush (pulsatile action – push pause action x 6) with normal saline in a 10 mL syringe post administration

6. DOCUMENTATION

- eMR
- Daily Care Plan
- Neonatal Observation Chart
- Central Line Surveillance Form
- NICUS database

7. RELATED POLICIES/PROCEDURES/CLINICAL PRACTICE LOP

- Extravasation and infiltration injuries prevention and management
- Intravenous Cannula - Intravenous Cannula Insertion
- PICC – Dressing change
- PICC - Removal

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8. RISK RATING

- Low

9. NATIONAL STANDARD

- Standard 1 Governance for Safety and quality in Health Service Organisation
- Standard 3 Preventing and Controlling Healthcare Associated Infections
- Standard 5 Patient Identification and Procedure Matching
- Standard 8 Preventing and Managing Pressure Injuries

10. ABBREVIATIONS AND DEFINITIONS OF TERMS

PICC	Peripherally Inserted Central Catheter	CVC	Central Venous Catheter
NCC	Newborn Care Centre	LOP	Local Operating Procedure

11. REFERENCES

- Ainsworth S, McGuire W. Percutaneous central venous catheters versus peripheral cannulae for delivery of parenteral nutrition in neonates. Cochrane Database of Systematic Reviews 2015, Issue 10. Art. No.: CD004219.

12. AUTHOR

Primary	4/11/2005	KB Lindrea (CNC)
Revised	12/1/2010	KB Lindrea (CNC), S Gan (RN)
	24/9/2014	J Blaeck (CNS)
	31/7/2018	KB Lindrea (CNC)

REVISION & APPROVAL HISTORY

July 2018 Revised and Approved NCC LOPs Committee
September 2014 Revised and Approved NCC Policy/Procedure Working Group
January 2010 Revised and Approved NCC Policy/Procedure Working Group
November 2005 Primary

FOR REVIEW: 2023

Appendix 1



Health

FAMILY NAME		MRN
GIVEN NAME		<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE
D.O.B. ____/____/____		M.O.
ADDRESS		
LOCATION / Ward		
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE		

Facility: _____

CENTRAL VENOUS LINE INSERTION RECORD

Date ____/____/____ Time ____:____ Elective Emergency Rewiring

Patient: Consent <input type="checkbox"/> Time Out <input type="checkbox"/> Coags <input type="checkbox"/> Pacemaker <input type="checkbox"/> ICU/HDU <input type="checkbox"/> OT <input type="checkbox"/> ED <input type="checkbox"/> Radiology <input type="checkbox"/> Other: _____ Local <input type="checkbox"/> Sedation <input type="checkbox"/> GA <input type="checkbox"/> Monitoring: ECG <input type="checkbox"/> SpO ₂ <input type="checkbox"/> BP <input type="checkbox"/> CO ₂ <input type="checkbox"/>	Neonate: Weight: _____ Gestational age: _____
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Asepsis: Hat, mask, protective eyewear <input type="checkbox"/> Hands washed 2 min <input type="checkbox"/> Sterile gloves and gown <input type="checkbox"/> Prep: alcoholic chlorhex / _____ <input type="checkbox"/> Full sterile draping <input type="checkbox"/> Asepsis maintained throughout <input type="checkbox"/>	INSERTION SHOULD STOP IF ASEPSIS IS BREACHED
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Catheter:

Right Left Subclavian IJ EJ Femoral Basilic Cephalic Umbilical Long Saph

Lumens: _____ CVC PICC Vascath Other type / site: _____

Brand: _____ Coating: Antibiotic Antiseptic Gauge: _____ Catheter Length: _____ cm

No. of passes: _____ Image Int Ultrasound Depth inserted from skin: _____ cm

Venous placement confirmed: Manometry Ultrasound Transducer Other _____ Before Dilatation

Guidewire removed intact Independently Confirmed All open lumens capped

Complications: Nil Art Puncture Haematoma Pneumothorax Re-position

Notes:

PICCs only: Stiffener removed intact Independently Confirmed: Mid-upper limb circumference _____ cm

Final Tip position: _____

Confirmed by: CXR Image Int Name _____ Pager _____

Proceduralist: (name)

Sign: _____ Date: _____

Specialist / Fell / Reg / RMO / NP / RN

Removal: Date: ____/____/20____

Authorised by: _____

Reason: _____

Local sepsis? Yes No Tip Cultured: Yes No

Assistant: (name)

Sign: _____ Date: _____

Specialist / Fell / Reg / RMO / NP / RN / EN / Technician

Removed By: (name)

Sign: _____ Date: _____

Specialist / Fell / Reg / RMO / NP / RN

Supervisor: (name)

Sign: _____ Date: _____

Specialist / Fell / Reg / RMO / NP / RN

CLAB Detected: Yes No

If Yes, date of positive blood culture: ____/____/20____

Isolate _____



Holes Punched as per AS2828.1: 2012
BINDING MARGIN - NO WRITING

44-802015-003515

CENTRAL VENOUS LINE INSERTION RECORD

SMR090.200