

**Royal Hospital for Women (RHW)
BUSINESS RULE
COVER SHEET**



Health
South Eastern Sydney
Local Health District

T24/27910

NAME OF DOCUMENT	Arterial Line - Peripheral and Umbilical Intra-arterial Line Set Up
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EXECUTIVE SPONSOR	S Bolisetty (Medical Co-Director Newborn Care Centre); S Wise (Nursing Co-Director Newborn Care Centre)
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SUMMARY	To guide clinicians on the set up of peripheral and umbilical arterial line giving sets

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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. Using this document outside the Royal Hospital for Women or its reproduction in whole or part, is subject to acknowledgement that it is the property of NCC and is valid and applicable for use at the time of publication. NCC is not responsible for consequences that may develop from the use of this document outside NCC.

1. BACKGROUND

Peripheral and umbilical arterial lines are used for continuous blood pressure monitoring and arterial blood sampling in newborn infants in intensive care. The Safedraw arterial transducer giving set is used for both peripheral and umbilical arterial lines, however, umbilical placed arterial lines must be prepared under sterile procedure. This policy will guide staff through the appropriate infusion fluid (based on infants' weights) and the set up procedure of the Safedraw line.

2. RESPONSIBILITIES

Medical and Nursing Staff

3. PROCEDURE

3.1 Equipment

Set up needed for both procedures

- Safedraw transducer blood sampling set
- 1x 50 ml syringe
- 1x 10ml syringe
- 1x Blunt drawing-up needle
- 1x Grey needle
- 1x Extension line
- 1x 100ml bag of fluid
 - 0.9% sodium chloride (infants ≥ 34 weeks' corrected gestational age)
 - 0.45% sodium chloride (infants < 34 weeks' corrected gestational age)
- Heparinised saline 50IU in 5mls AND 1x vile of sodium acetate (if baby < 1500 g)
- 3x 2% Chlorhexidine Gluconate & 70% alcohol wipes

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Additional equipment for Umbilical arterial line (Picture 1)

The equipment above plus:

- 1x sterile drape
- 2x sterile towels
- 2x bouffant hats (for proceduralist and assistant)
- 2x masks (for proceduralist and assistant)
- 1x pair of sterile gloves

NOTE: Sodium Acetate is now added with heparin for UAC infusion for any baby <1500g (please refer to ANMF guidelines for further preparation instructions)

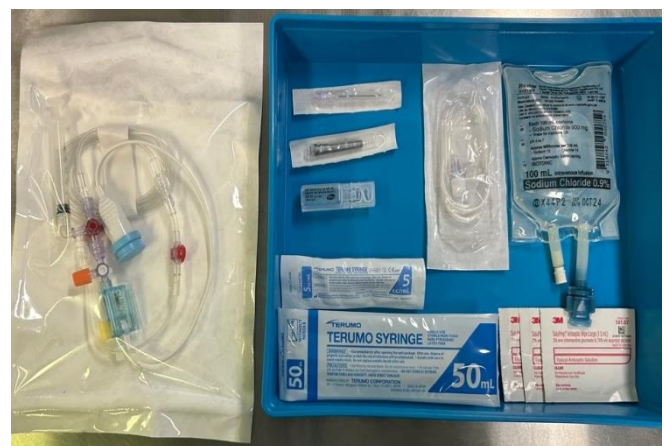
For Peripheral arterial line (Picture 2)

The above equipment plus:

- Clean disposable gloves
- Clean "blue" medication tray



Picture 1



Picture 2

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3.2 Clinical Practice

Set up for UAC (sterile procedure)

1. Don hat and mask.
2. Perform hand hygiene and prepare sterile field, opening equipment away from field and carefully dropping onto sterile field to prevent contamination.
3. Open sterile gloves and sterile paper towel leaving in their packs to prevent contamination.
4. Perform 2 minute aseptic hand wash using green chlorhexidine soap.
5. Dry hands with sterile paper towels, starting with hands and working down the arm.
6. Don sterile gloves.
7. Draw up 45 mL prescribed fluid (using ANMF guidelines) in 50ml syringe with assistance from second assistant (Picture 3).
8. Draw up 5mls of heparinised saline 50IU (if baby <1500g, draw up necessary amount of sodium acetate as per ANMF guidelines).
9. Combine the fluids together into 50ml syringe to make a final volume of 50 ml and invert to ensure mixing occurs.
10. Attach extension line to 50 mL syringe and prime (Picture 4).
11. Attach primed extension set to Safedraw transducer giving set (Picture 5).



Picture 3

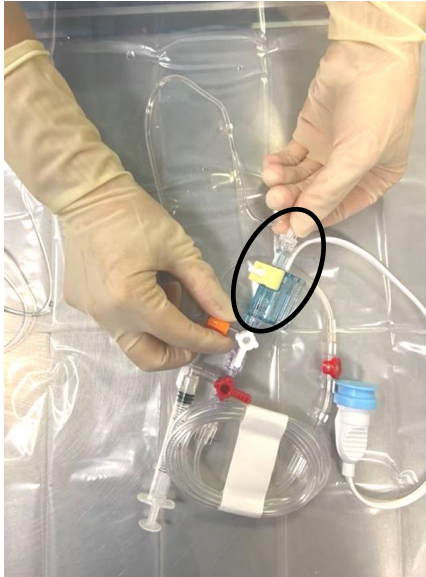


Picture 4

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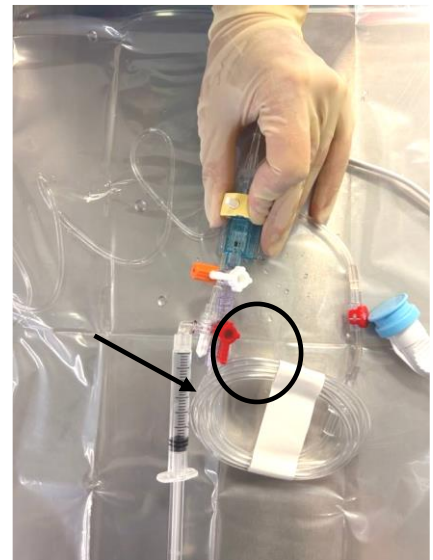
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Picture 5



Picture 6



Picture 7

12. Turn white dial "OFF" to patient end of line, open orange cap to prime fluid through ("off to patient, open to air") (Picture 5).
13. You must squeeze the yellow clamp for the entire time of priming the line (Picture 6).
14. Once air port primed, close orange cap and turn white dial off to orange cap and on to remainder of giving set.
15. Turn red dial "OFF" to patient line and "ON" to draw back syringe to prime the draw back syringe (Picture 7).
 - Prime full volume of draw back syringe to plunger is full retracted (Picture 7)



Picture 8



Picture 9



Picture 10

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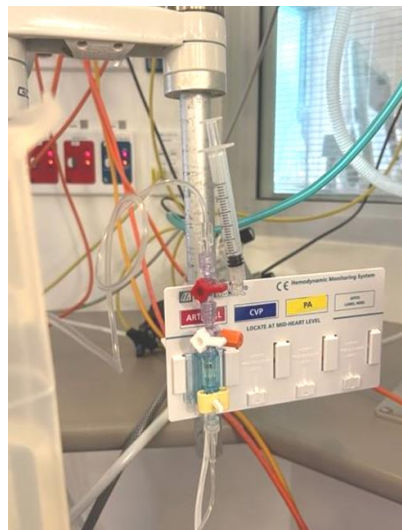
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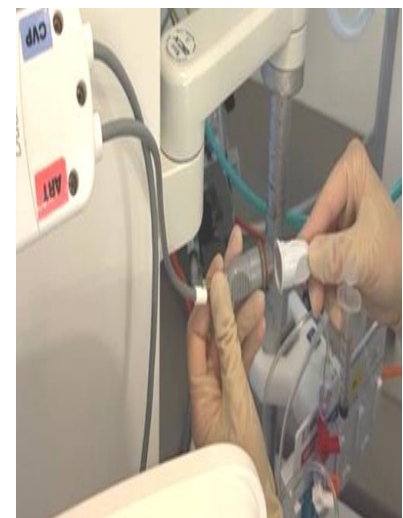
16. Flip draw back syringe upwards ensuring all air bubbles have travelled to the top to be expelled (Picture 8).
17. Turn Red dial "OFF" to orange port and yellow clamp end of giving set, prime the air and fluid out of the draw back syringe to the remainder of Safedraw giving set (Picture 9).
18. Turn the Red dial "OFF" to the small syringe and "ON" to remainder of giving set as you prime all remaining giving set with fluid, ensuring to remove all air.
19. Assistant RN performs initial clean of UAC line and connection with 1x cleaning swab for 30 seconds (Picture 10).
20. Proceduralist to take hold of UAC line with cleaning swab to prevent contamination of sterile gloves.
21. Proceduralist to perform 2 more cleans of UAC line and connection with additional 2 and allow full 30 seconds drying time; ensuring line is still held to prevent contamination (Picture 11).
22. Detach and reattach new giving set to UAC.



Picture 11



Picture 12



Picture 13

23. Place giving set into transducer, ensuring transducer is attached to crib and at the level of the apex of the heart (Picture 12).
24. Remove blue cap from grey cable and attach into blood pressure Drager monitor limb (Picture 13).
25. Ensure that arterial monitoring appears on main Drager monitor and is labelled as "ART" on monitor.

Set up for peripheral arterial line (aseptic non-touch procedure)

1. Clean and prepare blue tray, wash hands and don clean gloves.
2. Prepare the fluids as per UAC line (above) depending on infant's gestation or weight.

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- Follow the remaining steps as per UAC line set up, remembering peripheral arterial line must adhere to aseptic non-touch technique.

NOTE:

Giving sets and fluid lines needs to be changed every 48 hours when using standard heparinised saline and sodium chloride.

When using Sodium acetate solutions, fluids need to be changed 24 hourly, and Safedraw giving set needs to be changed every 48 hours.

Perform Line “Zeroing” (Both UAC and peripheral)

- Turn white dial “OFF” to patient end of giving set and “ON” to orange cap port.
- Take off orange cap after turning “OFF” to patient.
- Select arterial line on patient monitor and select >ZERO<.
- Wait for systolic, diastolic and MAP values to read “0” on the screen.
- Close off orange cap tightly (“OFF” to air).
- Turn white dial back “OFF” to orange cap (air) port and “ON” to patient giving set.

NOTE: Arterial Lines must be “zeroed” each time a line change occurs to ensure accurate monitoring, at the beginning of every shift and after every patient movement.

3.3 Abbreviations

NCC	Newborn Care Centre	ANMF	Australasian Neonatal Medicines Formulary
UAC	Umbilical Arterial Catheter	MAP	Mean Arterial Pressure

3.4 References

- The Association for Safe Aseptic Practice (2021). Available at: <https://www.antt.org/resources.html>.

4. RELATED BUSINESS RULES AND POLICY DOCUMENTS

- RHW NCC Medical CBR – Umbilical Catheterisation

5. CULTURAL SUPPORT

- When clinical risks are identified for an Aboriginal family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services.
- For a Culturally and Linguistically Diverse CALD family, notify the nominated cross-cultural health worker during Monday to Friday business hours.

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- If the family is from a non-English speaking background, call the interpreter service: NSW Ministry of Health Policy Directive PD2017_044-Interpreters Standard Procedures for Working with Health Care Interpreters.

6. IMPLEMENTATION PLAN

This (revised) CBR will be distributed to all medical, nursing and midwifery staff via @health email. The CBR will be discussed at ward meetings, education and patient quality and safety meetings. Education will occur through in-services, open forum and local ward implementation strategies to address changes to practice. The staff are asked to respond to an email or sign an audit sheet in their clinical area to acknowledge they have read and understood the revised CBR. The CBR will be uploaded to the CBR tab on the intranet and staff are informed how to access.

7. RISK RATING

- Low

8. NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 3 Preventing and Controlling Infections
- Standard 5 Comprehensive Care
- Standard 7 Blood Management
- Standard 8 Recognising and Responding to Acute Deterioration

9. REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
15/7/2013	1	KB Lindrea (CNC), J Sheils (NE)
30/9/2014	2	D Cooper (RN)
20/7/2018	3	KB Lindrea (CNC); Approved NCC LOPs Committee
21/12/2023	4	G. Barnett (RN), C Walter (CNE); Approved NCC CBR Committee
14/03/2024	5	G Barnett (RN), C Walter (CNE),
21.3.24		Endorsed at RHW Safety and Quality Committee