

## **Preterm Infants – Delivery Management for Extremely Preterm Infants less than 26 Weeks Gestation**

*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.*

### **INTRODUCTION**

The complex management of the delivery of an extremely preterm infant involves keeping the infant warm, supporting breathing and stabilising the infant's general condition before transfer to the NCC.

#### **1. AIM**

- To guide staff in the preparation and management of an extremely preterm infant at delivery

#### **2. PATIENT**

- Infants born less than 26 weeks gestation or with birth weight of less than 750g

#### **3. STAFF**

- Medical and nursing staff

#### **4. EQUIPMENT**

- Resuscitaire or humidicrib from NCC
- Red resuscitation equipment trolley
- Neohelp™
- Warm cloth wrap (eg. bunny rug)
- Electronic thermometer (Welch Allyn – Sure Temp Plus)
- Curosurf pack plus surfactant
- Transpac™ mattress (only if required)
- Respiratory support equipment with humidification system

#### **5. CLINICAL PRACTICE**

##### **Medical Responsibilities (see Appendix 1)**

##### Prior to Delivery

1. Conduct an antenatal consult for the following:
    - Relevant maternal condition/s that may be a precursor to preterm labour/delivery
    - Maternal history of antenatal steroids (date and time), magnesium sulphate (date and time) and to record information in eMR admission
    - Eligibility for trials
    - Maternal COVID-19 status
  2. Develop a neonatal care plan involving NICU/maternity staff in consultation with parent/s.
  3. Notify relevant personnel: NICU Nursing Team Leader, NICU Consultant and after-hours Nursing Manager.
  4. Confirm with NCC Team Leader the allocated bed for admission and identify the admission nurse who will be receiving the infant for admission.
  5. Identify the resuscitation team attending the delivery: NICU Fellow/Consultant, NICU Registrar, NICU Nurse, Midwife and a transcriber.
- NB. Ensure senior medical and nursing staff are allocated to attend delivery.
6. Conduct a team huddle prior to attending the delivery to assign team roles and responsibilities, including an action plan.
  7. Discuss with the maternity or anaesthetic team in either Birthing Unit or Operating Theatre:
    - Adjustment of the delivery room temperature
    - Delayed cord clamping for 60 seconds

- Placing the infant in NeoHelp™ while delayed clamping is done
8. Ensure that equipment for performing resuscitation including intubation and electronic monitoring are checked and ready to receive the newborn.
  9. Switch on the resuscitaire/isolette heating system.
  10. Place the sterile packet of NeoHelp™ on the resuscitaire's mattress to be warmed while waiting for the delivery.

#### During delivery and resuscitation of the newborn

11. Resuscitate the newborn as required.
12. Adhere to trial protocols where appropriate.
13. Administer surfactant.
14. Secure lines and tubes for transfer.

### **Nursing Responsibilities (see Appendix 2)**

#### Prior to Delivery

15. Check with NCC Team Leader the allocated admission bed.
16. Check that the admission bed is equipped to receive the newborn.
17. Attend the team huddle prior to attending the delivery to accept the assigned team roles and responsibilities including the action plan.
18. Liaise and decide with NICU Fellow/Consultant whether the neonatal resuscitaire or humidicrib is required.
19. Position resuscitaire or humidicrib in the delivery room or recovery room of Operating Theatre.
20. Check that all equipment for resuscitation is operational and ready including a humidified resus circuit.
21. Preheat resuscitaire/humidicrib.
22. Bring the electronic thermometer from the infant's admission bed.
23. Place sterile packet of NeoHelp™ on resuscitaire/humidicrib mattress to warm up while waiting for the infant's delivery.
24. Set up CPAP/ventilator with humidification system for use at delivery room (if applicable).

#### During delivery and resuscitation of the newborn

25. Provide sterile NeoHelp™ to Maternity Staff delivering the infant.
26. Ensure Accoucher inserts the newborn into the NeoHelp™ correctly.
27. Check the NeoHelp™ is fastened to minimise heat loss.
28. Transfer the infant onto resuscitaire/humidicrib with the infant's head at the top end of the bed for airway management.
29. Undo the velcro of the NeoHelp™ for a small opening to apply:
  - Pulse oximeter probe to infant's right hand or wrist
  - Cardiorespiratory monitoring electrodes on infant's chest
  - Servo temperature probe (use manual mode) for continuous monitoring of infant's temperature during resuscitation
30. Assist with stabilisation of lines and tubes inserted.
31. Apply identification labels.

#### Prior to transfer of the newborn to NCC

32. Check **TAGS** before transporting the newborn:
  - T** **Temp** within target range (36.5-37.5 °C) – Check the newborn's body temperature with thermometer
  - A** **Airway** secured
  - G** **Gas** supply – Check gas cylinders for transporting the infant
  - S** **Secure** all lines and tubes
33. Proceed to transfer the infant if body temperature is more than 36.5 °C.
  - If body temperature is less than 36.5 °C, place the infant on a Transpac™ Warmer mattress (on fabric side of mattress) and ensure heated mattress is turned off before transferring  
NB. The Transpac™ mattress is not for routine use
34. Reduce heat application if infant's body temp is >37.5 °C
35. Cover the infant with a warm blanket while transporting to NCC.
36. If using humidicrib, lower the hood while it is connected to electrical power prior to moving.
37. If using resuscitaire, lower the height while it is connected to electrical power prior to moving.

## **6. DOCUMENTATION**

- eMR nursing notes
- NSW Health Newborn Resuscitation Record
- NICUS database

## 7. RELATED POLICIES/PROCEDURES/CLINICAL PRACTICE LOP

- RHW NCC Medical LOP – Neonatal Resuscitation at Delivery
- RHW NCC Nursing LOP – NeoHelp™

## 8. RISK RATING

- Medium

## 9. NATIONAL STANDARD

- Standard 1 Clinical Governance
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety
- Standard 8 Recognising and Responding to Acute Deterioration

## 10. ABBREVIATIONS AND DEFINITIONS OF TERMS

NCC	Newborn Care Centre	NICU	Neonatal Intensive Care Unit
COVID-19	Coronavirus Disease 2019	CPAP	Continuous Positive Airway Pressure

## 11. AUTHORS

Primary	19.1.2022	KB Lindrea (CNC), S Binoy (NP), S Neale (NE), A Sidhu (ACNE), R Prasad (Neonatal Fellow), M Kottackal (RN)
---------	-----------	--

## LOP DEVELOPMENT (DELETE PRIOR TO PUBLICATION)

Date identified	Identifier	Reason for LOP	Meeting approved	Allocation
5.12.2021	S Bolisetty (Medical Co-Director), KB Lindrea (CNC)	Hypothermic extreme preterm infant	20.1.2022	4.2.2022

## REVISION & APPROVAL HISTORY

February 2022 Primary Document Reviewed and Approved NCC LOPs Committee

**FOR REVIEW: 2025**

Appendix 2 – Medical responsibilities checklist

<p style="text-align: center;"><b>Neonatal Team</b></p>	<ul style="list-style-type: none"> <li>• Check that a neonatal care plan is developed by NICU/Maternity in consultation with parent/s             <ul style="list-style-type: none"> <li>○ Conduct an antenatal consult for the following:</li> <li>○ Relevant maternal condition/s that may be a precursor to preterm labour/delivery</li> <li>○ Maternal history of antenatal steroids (date and time), magnesium sulphate (date and time) and to record information in eMR admission</li> <li>○ Eligibility for trials</li> <li>○ Maternal COVID-19 status</li> </ul> </li> <li>• Develop a neonatal care plan involving NICU/maternity staff in consultation with parent/s</li> <li>• Notify relevant personnel: NICU Nursing Team Leader, NICU Consultant and after-hours Nursing Manager</li> <li>• Confirm with NCC Team Leader the allocated bed for admission and identify the admission nurse who will be receiving the infant for admission</li> <li>• Identify the resuscitation team attending the delivery: NICU Fellow/Consultant, NICU Registrar, NICU Nurse, Midwife and a transcriber NB. Ensure senior medical and nursing staff are allocated to attend delivery</li> <li>• Conduct a team huddle prior to attending the delivery to assign team roles and responsibilities, including an action plan</li> </ul>
<p style="text-align: center;"><b>OT Environment</b></p>	<ul style="list-style-type: none"> <li>• Discuss with the maternity or anaesthetic team in either Birthing Unit or Operating Theatre:             <ul style="list-style-type: none"> <li>○ Adjustment of the delivery room temperature</li> <li>○ Delayed cord clamping for 60 seconds</li> <li>○ Placing the infant in NeoHelp™ while delayed clamping is done</li> </ul> </li> </ul>
<p style="text-align: center;"><b>Resuscitation Team</b></p>	<ul style="list-style-type: none"> <li>• Ensure that equipment for performing resuscitation including intubation and electronic monitoring are checked and ready to receive the newborn</li> <li>• Switch on the resuscitaire/isolette heating system</li> <li>• Place the sterile packet of NeoHELP™ on the resuscitaire's mattress to be warmed while waiting for the delivery</li> <li>• Resuscitate the newborn as required</li> <li>• Adhere to trial protocols where appropriate</li> <li>• Administer surfactant</li> <li>• Secure lines and tubes for transfer</li> </ul>
<p style="text-align: center;"><b>Prior to Transfer</b></p>	<ul style="list-style-type: none"> <li>• Check TAGS before transporting the newborn:             <ul style="list-style-type: none"> <li><b>T</b>emp within target range (36.5-37.5 °C) – Check the newborn's body temperature with thermometer</li> <li><b>A</b>irway secured</li> <li><b>G</b>as supply – Check gas cylinders for transporting the infant</li> <li><b>S</b>ecure all lines and tubes</li> </ul> </li> <li>• Transfer infant when:             <ul style="list-style-type: none"> <li>○ temperature is more than 36.5 °C</li> <li>○ condition is stabilised</li> </ul> </li> <li>• Cover the infant with a warm blanket while transporting to NCC</li> <li>• If using humidicrib, lower the hood while it is connected to electrical power prior to moving</li> <li>• If using resuscitaire, lower the height while it is connected to electrical power prior to moving</li> </ul>
<p style="text-align: center;"><b>Maintain body temperature</b></p>	<ul style="list-style-type: none"> <li>• If body temperature is less than 36.5 °C, place the infant on a Transpac™ Warmer mattress (on fabric side of mattress) and ensure heated mattress is turned off before transferring NB. The Transpac™ mattress is not for routine use</li> <li>• Reduce heat application if infant's body temp is &gt;37.5 °C</li> </ul>

<p><b>Check Resuscitation Equipment</b></p>	<ul style="list-style-type: none"> <li>• Liaise and decide with NICU Fellow/Consultant whether the neonatal resuscitaire or humidicrib is required</li> <li>• Position resuscitaire or humidicrib in the delivery room or recovery room of Operating Theatre</li> <li>• All equipment for resuscitation is operational and ready including a humidified resus circuit and NeoHelp™</li> <li>• Preheat resuscitaire/humidicrib</li> <li>• Bring the electronic thermometer from the infant's admission bed</li> <li>• Set up CPAP/ventilator with humidification for use at delivery room (if applicable)</li> </ul>
<p><b>Delivery of Infant</b></p>	<ul style="list-style-type: none"> <li>• Provide sterile Neohelp™ to maternity staff delivering the infant</li> <li>• Ensure the Accoucher inserts the newborn into the NeoHelp™ correctly</li> <li>• Check the NeoHelp™ is fastened to minimise heat loss</li> <li>• Transfer the infant onto resuscitaire/humidicrib with the infant's head at the top end of the bed for airway management</li> </ul>
<p><b>Nurse assisting with resuscitation</b></p>	<ul style="list-style-type: none"> <li>• Undo the velcro of the NeoHelp™ for a small opening to apply:             <ul style="list-style-type: none"> <li>○ Pulse oximeter probe to infant's right hand or wrist</li> <li>○ Cardiorespiratory monitoring electrodes on infant's chest</li> <li>○ Servo temperature probe (use manual mode) for continuous monitoring of infant's temperature during resuscitation</li> </ul> </li> </ul>
<p><b>Prior to Transfer</b></p>	<ul style="list-style-type: none"> <li>• Check TAGS before transporting the newborn:             <ul style="list-style-type: none"> <li><b>T</b>emp within target range (36.5-37.5 °C) – Check the newborn's body temperature with thermometer</li> <li><b>A</b>irway secured</li> <li><b>G</b>as supply – Check gas cylinders for transporting the infant</li> <li><b>S</b>ecure all lines and tubes</li> </ul> </li> <li>• Transfer infant when:             <ul style="list-style-type: none"> <li>○ temperature is more than 36.5 °C</li> <li>○ condition is stabilised</li> </ul> </li> <li>• Cover the infant with a warm blanket while transporting to NCC</li> <li>• If using humidicrib, lower the hood while it is connected to electrical power prior to moving</li> <li>• If using resuscitaire, lower the height while it is connected to electrical power prior to moving</li> </ul>
<p><b>Maintain body temperature</b></p>	<ul style="list-style-type: none"> <li>• If body temperature is less than 36.5 °C, place the infant on a Transpac™ Warmer mattress (on fabric side of mattress) and ensure heated mattress is turned off before transferring NB. The Transpac™ mattress is not for routine use</li> <li>• Reduce heat application if infant's body temp is &gt;37.5 °C</li> </ul>