

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

Procedure Responsibilities and Authorisation

Department Responsible for Procedure	NICU
Document Facilitator Name	Jennifer Richards
Document Facilitator Title	ACNM
Document Owner Name	Chantelle Hill
Document Owner Title	CNM
Target Audience	Nurses
<p>Disclaimer: This document has been developed by Waikato District Health Board specifically for its own use. Use of this document and any reliance on the information contained therein by any third party is at their own risk and Waikato District Health Board assumes no responsibility whatsoever.</p>	

Procedure Review History

Version	Updated by	Date Updated	Summary of Changes
2	Tricia Ho	Aug 2009	Due for review
4	Joyce Mok	April 2013	Due for review and update on equipment
5	Jennifer Richards & Joyce Mok	August 2018	Equipment change ELBW Baby Care & NICU IVH Bundle (For Infants with Expected Birth Weight < 1000g and/or GA < 28 Weeks)

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

Contents

1	Overview	3
1.1	Purpose.....	3
1.2	Scope.....	3
1.3	Patient / client group	3
1.4	Admission Criteria:.....	3
1.5	Definitions	3
2	Clinical Management	4
2.1	Competency required	4
2.2	Equipment.....	4
2.3	Procedure	5
3	Evidence base	8
3.1	References.....	8
3.2	Associated Waikato DHB documents.....	9

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

1 Overview

1.1 Purpose

To ensure effective admission process for baby who requires intensive care provided by qualified and specifically trained nursing and medical staff.

1.2 Scope

Waikato DHB staff working in NICU

1.3 Patient / client group

Neonates and infant

1.4 Admission Criteria:

- < 32 weeks gestation
- Low birth weight <1500g
- Complex medical and surgical conditions regardless of gestational age
- Respiratory support
- Seizures
- Congenital abnormalities
- Surgical conditions
- Circulatory support
- Conditions requiring intensive care: e.g. pneumothorax with chest drain, requiring peritoneal dialysis, exchange transfusion.

1.5 Definitions

CPAP	Continuous positive airway pressure
CVL	Central Venous Line is an intravenous catheter placed via a blood vessel into a great vein (in NICU these are most commonly peripherally inserted central catheter (PICC) lines).
ELBW	Extreme low birth weight
Giraffe™ incubator	Enclosed neonatal intensive care microenvironment
IVH	Intraventricular haemorrhage
L3	Intensive care or Level 3 nursery
Neopuff™	Lightweight T-piece stand-alone resuscitator

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

NeoWrap™	Medical grade polyethylene occlusive wrap for reducing postnatal temperature decline and evaporative heat loss in very low birth weight and premature infants (<28 weeks).
UAC	Umbilical arterial catheter
UVC	Umbilical venous catheter

2 Clinical Management

2.1 Competency required

Registered nurse who has completed level 3 Continuous Positive Airway Pressure (CPAP) and/or ventilation orientation

2.2 Equipment

- **Equipment for infants with Expected Birth Weight < 1000g and/or gestational age (GA) < 28 Weeks – refer to ELBW Baby Care & NICU IVH Bundle**
- Admission bed: pre-warmed with nesting and neck roll (available if required)
 - Omnibed for baby <29 weeks gestation + 1 litre of sterile water for humidification
 - Giraffe incubator 33-34°C for baby requiring CPAP if 32-36 weeks gestational
 - Radiant warmer for term baby
 - Weighing scale + pre-warmed linen
 - Servo temperature probe and probe cover for Omnibed, or radiant warmer
 - Weighed nappies
 - Tape measure
- Respiratory equipment
 - Ventilator and/or CPAP system
 - Neopuff + mask (tubing's & mask from Delivery Suite can be used for the same baby)
 - Bag of 1 litre sterile water
 - Bottle of sterile water for irrigation
- Cardio-respiratory monitor
 - Electrocardiography (ECG) lead or limb band for ELBW baby who needs ECG monitoring
 - O₂ saturation probe and posy wrap
 - Blood pressure (BP) cable for arterial BP or cuff BP + appropriate sized cuff (stored in pendant drawer)
 - Temperature probe + cable for peripheral temperature
- Emergency equipment
 - Suction equipment set at ≤100mm Hg
 - Suction catheters of appropriate sizes

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

- Emergency trolley checked and ready for use
- Infusion pumps and syringe pumps
- Stethoscope
- Gloves
- Gastric tube and syringe of appropriate size
- Red folder with NICU L3 charts
- Tamariki Ora Health book (can be stored in pendant drawer ready for use once admission complete)

2.3 Procedure

1. Specific preparations of set up for ELBW infant

- Refer ELBW Baby Care & NICU IVH Bundle (for Infants with expected birth weight < 1000g and/or GA < 28 Weeks)

2. Preparation of bed for other babies

- Turn radiant warmer/incubator on to warm up bed, and set temperature appropriate for the baby's gestational age or condition.
- Refer to Waikato DHB Clinical Management - NICU Nursing Procedures: *Giraffe and Omnibed incubators: humidification, servo control and weighing (1485)* and *Temperature Control of Infants in Newborn Intensive Care Unit (1476)*.
- Raise the cover of omnibed to ensure heater is functioning.

3. Preparation for equipment

- Set Ventilator according to medical instructions,
- Or prepare CPAP circuit according to Waikato DHB Clinical Management NICU Nursing Procedure: *Continuous Positive Airway Pressure (CPAP) - Management in NICU (4939)*
- Ensure emergency trolley and CPAP trolley handy to set up.
- Check Neopuff is working.
- Scales appropriately positioned for easy transfer of baby and zeroed with pre-warmed linen ready for use.

Rationale:

- To reduce conductive heat loss.

Doc ID:	4571	Version:	05	Issue Date:	8 SEP 2018	Review Date:	8 SEP 2021
Facilitator Title:	ACNM			Department:	NICU		
IF THIS DOCUMENT IS PRINTED, IT IS VALID ONLY FOR THE DAY OF PRINTING							Page 5 of 9

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

4. Care of baby

- Perform hand hygiene and put on gloves.
- Weighing: Place pre-warmed linen on scales and place the baby gently on scale.
- Transfer baby onto warmer or into incubator.
- If baby is in NeoWrap™, avoid completely opening wrap until the neonate's temperature has been stable. NeoWrap™ may be discarded if baby lying in pool of fluid; as the fluid cools it will reduce the baby's temperature.
- If saturation probe is not already attached to baby in Delivery Suite, and baby's condition permits, attach saturation probe on right hand and obtain a SpO₂ reading while assistant maintains CPAP with Neopuff™.
- Measure and document head circumference.

5. Respiratory support

- Continue to provide respiratory support via Neopuff™ if there is a delay, to minimise risk of decruitment of alveoli and worsening respiratory distress.
- Connect baby to ventilator or CPAP.
- Assist with re-intubation or re-tape if necessary to ensure placement and proper fixation of endotracheal tube (ETT).

6. Monitoring and documenting observations

- Take and document axillary temperature as soon as possible on admission.

Rationale: Core temperature on admission is one of the vital parameters for outcome measure.

- Apply servo skin probe and switch radiant warmer /incubator to skin servo control.
- Set skin servo control at 36.5° – 37°C or comfort zone if using Giraffe™ incubator depending on baby's gestational age and weight to provide neutral thermal environment.
- Attach ECG lead: Babies <1000g do not apply ECG leads to minimise trauma to skin and reduce risk of infection. Heart rate can be obtained from arterial line or pulse rate from SpO₂ probe,
- Or use limb band if arterial line is unavailable or for observing baby's PQR wave on ECG tracing.

7. Lines insertions

- Assist with UAC & UVC insertion or CVL insertions
- Set up BP transducer and fluid for UAC as per Waikato DHB Clinical Management NICU Nursing Procedures: *Arterial line: Catheterisation and set up (1637)* so equipment is ready for BP monitoring when arterial line in situ.

Doc ID:	4571	Version:	05	Issue Date:	8 SEP 2018	Review Date:	8 SEP 2021
Facilitator Title:	ACNM			Department:	NICU		
IF THIS DOCUMENT IS PRINTED, IT IS VALID ONLY FOR THE DAY OF PRINTING							Page 6 of 9

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

- Obtain sample for blood gas and blood sugar analysis when UAC in situ to assess baby's respiratory status, effectiveness of ventilation, and blood sugar level.
- Assist with X-ray to confirm position of endotracheal (ETT), state of lungs and positions of UAC/UVU/CVL.

8. Administration of infusions and medications

- Set up fluid for infusion to provide fluid and calorie intake via UVC / CVL / IV as per Waikato DHB Clinical Management Nursing Procedure: *Central Venous and Umbilical Venous Line Management in Newborn Intensive Care Unit (4936)*
- Connect fluid after confirmation of line's position to avoid fluid being administered via an inappropriately placed line.
- Administer drugs as prescribed to support and maintain stability of baby.

9. Developmental Care

- Incorporate developmental care interventions during admission and initial care to optimise and stabilise oxygenation, thermoregulation, nutrition, and minimise pain and stress.

Rationale:

- To decrease stress, reduce energy consumption, improve oxygenation and prevent iatrogenic stress.

10. Parents / family /Whanau

- Introduce yourself to parent/visitors of baby.
- Explain all the procedures to the parents, and answer questions that the parents may have as able.
- Provide opportunity for the parents to talk with registrar, nurse practitioner/nurse specialist/consultant to ensure parents / family / whanau are informed of baby's condition.
- Take and print photos for mother if required to promote bonding and attachment.
- Give parents "*Parent Information – Newborn Intensive Care*". Explain visiting policy, and hand washing requirements to familiarise parents / family / whanau with NICU and Waikato DHB policies.

11. Documentation

- Documentation is vital to ensure accurate assessment of baby and ongoing management of care.
- Baseline vital signs on admission, and hourly observations, i.e. SpO₂, vital signs and respiratory status, BP, skin temperature, oxygen requirements.
- Skin condition

Doc ID:	4571	Version:	05	Issue Date:	8 SEP 2018	Review Date:	8 SEP 2021
Facilitator Title:	ACNM			Department:	NICU		
IF THIS DOCUMENT IS PRINTED, IT IS VALID ONLY FOR THE DAY OF PRINTING							Page 7 of 9

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

- Blood sugar level
- Blood gas results
- Fluid intake and output
- Procedures performed
- Responses of baby to procedures
- Pain and sedation scores
- Fill in Tamariki Ora Health Book if time permits
- Commence care plan if time permits
- Assist parents to fill out NICU admission and parent information form to obtain essential information pertaining to care for baby and parental/family/whanau wishes.

12. Record in Admission Book

If Receptionist is on duty:

- Inform same of baby's admission so she can record the admission, and arrange for charts and identification stickers. An identification number is required prior to other hospital personnel processing any tests/procedures required.

If Receptionist is not on duty:

- Delivery Suite Receptionist will bring/send to NICU the identification stickers and computer front sheet.
- NICU staff must document all admissions in the "Admission Book" to ensure accurate documentation of admission and provide information used for statistical purposes.

3 Evidence base

3.1 References

- McGrath, J. (2008). Trauma and admission to the neonatal intensive care unit: What is excellent nursing care during the admission process? *Journal of Perinatal & Neonatal Nursing*, 22, 1, 6-7.
- Merenstein, G. & Gardner, S. (2016). *Handbook of neonatal intensive care*. 8th ed. St Louis: Mosby.
- Wolters Kluwer (2018). *Extremely low birth weight neonate patient care*. Lippincott Procedures. Wolters Kluwer Health.
- Phibbs, C. S. (2007). Level and volume of Neonatal Intensive Care and mortality in very low birth weight infant. *New England Journal of Medicine*, 356, 21,2165-2175
- American Academy of Paediatrics (2012) Policy Statement (2012) Levels of Neonatal Care. *Paediatrics*, 130, 3.

Doc ID:	4571	Version:	05	Issue Date:	8 SEP 2018	Review Date:	8 SEP 2021
Facilitator Title:	ACNM			Department:	NICU		
IF THIS DOCUMENT IS PRINTED, IT IS VALID ONLY FOR THE DAY OF PRINTING							Page 8 of 9

Admission to Intensive Care Level 3 nursery in Newborn Intensive Care Unit (NICU)

3.2 Associated Waikato DHB documents

- Waikato DHB NICU medical protocol – Admission Policy – Newborn Service (2290)
- Waikato DHB NICU Drug Manual
- Waikato DHB NICU Nursing Procedure: Arterial line: Catheterisation and set up (1637)
- Waikato DHB NICU Nursing Procedure: : Continuous Positive Airway Pressure (CPAP) - Management in NICU (4939)
- Waikato DHB NICU Nursing Procedure: Critical cooling device: Use of (1639)
- Waikato DHB NICU Nursing Procedure: Central Venous and Umbilical Venous Line Management in Newborn Intensive Care Unit (4936)
- Waikato DHB NICU Nursing Procedure: Heel prick for blood sampling (4352)
- Waikato DHB NICU Nursing Procedure: Temperature Control of Infants in Newborn Intensive Care Unit (1476)
- Waikato DHB NICU Nursing Procedure: Giraffe and Omnibed incubators: humidification, servo control and weighing (1485)

Doc ID:	4571	Version:	05	Issue Date:	8 SEP 2018	Review Date:	8 SEP 2021
Facilitator Title:	ACNM			Department:	NICU		
IF THIS DOCUMENT IS PRINTED, IT IS VALID ONLY FOR THE DAY OF PRINTING							Page 9 of 9