

Admission to Intensive Care Level 3 Nursery in Newborn Intensive Care Unit

Procedure Responsibilities and Authorisation

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Target Audience	Nurses
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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	Aug 2018	Equipment change ELBW Baby Care & NICU IVH Bundle (For Infants with Expected Birth Weight < 1000g and/or GA < 28 Weeks)
6	Richard Pagdanganan & Mamta Rajbanshi	Oct 2021	Due for review, process change, new patient identification process

Admission to Intensive Care Level 3 Nursery in Newborn Intensive Care Unit

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 and acronyms	3
2	Clinical management	4
2.1	Competency required	4
2.2	Equipment.....	4
2.3	Procedure	5
2.3.1	Specific preparations of set up for ELBW infant	5
2.3.2	Preparation of bed for other babies.....	5
2.3.3	Preparation for equipment.....	5
2.3.4	Care of baby	6
2.3.5	Respiratory Support	6
2.3.6	Monitoring and documenting observations	7
2.3.7	Lines insertions	7
2.3.8	Administration of infusions and medications	7
2.3.9	Developmental Care.....	7
2.3.10	Parents / family /Whanau	8
2.3.11	Documentation	8
2.3.12	Recording in Admission Book	8
3	Evidence base	9
3.1	Bibliography	9
3.2	Associated Waikato DHB documents.....	9

Admission to Intensive Care Level 3 Nursery in Newborn Intensive Care Unit

1 Overview

1.1 Purpose

To ensure infant receives prompt and appropriate monitoring and appropriate care; parents and family/whanau are informed and participated in partnership during the care process.

1.2 Scope

Waikato DHB staff working in Neonatal Intensive Care Unit (NICU).

1.3 Patient/ client group

Neonates and infant in NICU.

1.4 Admission Criteria

- Prematurity < 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 and acronyms

CPAP	Continuous positive airway pressure
CVAD	Devices that are inserted into the body through a vein to enable the administration of fluids, blood products, medications and other therapies to the blood stream. In NICU's these are most commonly PICC (Peripherally Inserted Central Catheter)
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

Neohelp™	Polyethylene occlusive suit for reducing postnatal temperature decline and evaporative heat loss in very low birth weight and premature infants (gestational age <28 weeks).
NHI number (National Health Index)	NHI number is a unique identifier that is assigned to every person who uses health and disability support services in New Zealand
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 – a one bottle of sterile water for humidification
 - Giraffe incubator: 33-34°C for baby requiring CPAP if 32-36 weeks gestational
 - Radiant warmer for term baby
 - Servo temperature probe and probe cover for Omnibed, or radiant warmer
- Weighing scale + pre-warmed linen
- Weighed nappies
- Tape measure
- Identity (ID) label and ID band
- 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
- Monitoring equipment

Admission to Intensive Care Level 3 Nursery in Newborn Intensive Care Unit

- Electrocardiography (ECG) lead or limb band for ELBW baby who needs ECG monitoring
- SpO₂ saturation probe and posy wrap
- Blood pressure (BP) cable for arterial BP or cuff BP (stored in pendant drawer) + appropriate sized cuff
- Temperature probe + cable for peripheral temperature
- Emergency equipment
 - Suction equipment set at ≤100mm Hg
 - Suction catheters of appropriate sizes
 - Emergency trolley checked and ready for use
- Infusion pumps and syringe pumps
- Stethoscope
- Gloves
- Tapes and thin Duoderm™
- Gastric tube and syringe of appropriate size, pH testing strip
- Red folder with NICU L3 charts
- Tamariki Ora Health book

2.3 Procedure

2.3.1 Specific preparations of set up for ELBW infant

- Refer to Waikato DHB Clinical Management NICU Medical Guideline: [Extremely Low Birth Weight \(ELBW\) Bundle of Care for Prevention of Intra Ventricular Haemorrhage](#) - for Infants with expected birth weight < 1000g and/or gestational age < 28 Weeks

2.3.2 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™ Omnibed Incubators and Cosytherm™ Use in NICU](#) and [Temperature Control of Infants in Newborn Intensive Care Unit](#).
- Raise the cover of Omnibed incubator to ensure heater is functioning.

2.3.3 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](#)

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Admission to Intensive Care Level 3 Nursery in Newborn Intensive Care Unit

- Ensure emergency trolley and CPAP trolley ready for use.
- Check Neopuff is working.
- Weigh babies in the incubator using the in-bed scale or the weighing scale.
 - Position the scale appropriately for easy transfer of baby.
 - Use pre-warmed linen to reduce conductive heat loss.
 - Zero the scale before use

2.3.4 Care of baby

- Perform hand hygiene and put on gloves.
- Using weighing scale : place the baby gently on scale and note the weight
- Using in-bed scale: refer to Waikato DHB Clinical Management NICU Nursing Procedures: [Giraffe™ Omnibed Incubators and Cosytherm™ Use in NICU](#) session 2.2.3 Operation of in-Bed Scale.
- Transfer baby onto warmer or into incubator.
- If baby is in Neohelp™, avoid completely opening the suit until the neonate's temperature has been stable. Neohelp™ may be discarded if baby lying in pool of fluid because 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.
- All babies in NICU: mandatory requirement to have at least one ID label on their wrist/ankle. Maternal ID can be replaced on admission to NICU baby ID bracelet.

Putting ID bracelet on

- Check the baby's ID labels with parents or another nurse to ensure correct identification: name of mother, date of birth (DOB) and NHI number
- Use a small baby's ID sticker on the ID label band: soft ID bands for babies gestation <35 weeks and Plastic ID bands for babies ≥35 weeks gestation
- Wrap it around the baby's ankle/ hand.

2.3.5 Respiratory Support

- Continue to provide respiratory support via Neopuff™ if there is a delay in initiating ventilation or CPAP 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).

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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

2.3.6 Monitoring and documenting observations

- Check and document axillary temperature as soon as possible on admission because admission temperature 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.

2.3.7 Lines insertions

- Assist with UAC & UVC insertion or PICC insertions
- Set up BP transducer and fluid for UAC as per Waikato DHB Clinical Management NICU Nursing Procedures: [Arterial Line Catheterisation in Newborn Intensive Care Unit](#) so equipment is ready for BP monitoring when arterial line in situ.
- 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/PICC.

2.3.8 Administration of infusions and medications

- Set up fluid for infusion to provide fluid and calorie intake via UVC / PICC / IV as per Waikato DHB Clinical Management Nursing Procedure: [Central Venous and Umbilical Venous Line Management in Newborn Intensive Care Unit](#)
- 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.

2.3.9 Developmental Care

- Incorporate developmental care interventions during admission and initial care to optimise and stabilise oxygenation, thermoregulation, nutrition, and minimise pain and stress.
- The objectives of developmental care is to decrease the baby's stress, reduce their energy consumption, improve oxygenation and prevent iatrogenic stress,

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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

2.3.10 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.
- 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.

2.3.11 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
- Blood sugar level
- Blood gas results
- Fluid intake and output
- Procedures performed

2.3.12 Recording in Admission Book

If Receptionist is on duty:

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

If Receptionist is not on duty:

- Delivery Suite Receptionist will bring or send to NICU the identification labels 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.

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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

3 Evidence base

3.1 Bibliography

- 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.
- Wolters Kluwer (2020). Admission to floor, Pediatric. Lippincott procedures. Wolters Kluwer Health.
- American Academy of Paediatrics (2012) Policy Statement (2012) Levels of Neonatal Care. Paediatrics, 130, 3.
- The Joint Commission. (2020). Standard PC.01.02.03. *Comprehensive accreditation manual for hospitals*. Oakbrook Terrace, IL: The Joint Commission. (Level VII)

3.2 Associated Waikato DHB documents

- NICU Medical Protocol – [Admission – Newborn Service](#) (2290)
- NICU Medical Guideline: [Extremely Low Birth Weight \(ELBW\) Bundle of Care for Prevention of Intra Ventricular Haemorrhage](#) (Ref: 6240)
- Waikato DHB NICU [Drug Guidelines](#)
- Waikato DHB NICU Nursing Procedure: [Arterial Line Catheterisation in Newborn Intensive Care Unit](#) (1637)
- Waikato DHB NICU Nursing Procedure: [Continuous Positive Airway Pressure \(CPAP\) - Management in NICU](#) (4939)
- Waikato DHB NICU Nursing Procedure: [Criticool Device for Infants in Newborn Intensive Care Unit](#) (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 in Neonates](#) (4352)
- Waikato DHB NICU Nursing Procedure: [Temperature Control of Infants in Newborn Intensive Care Unit](#) (1476)
- Waikato DHB NICU Nursing Procedure: [Giraffe™ Omnibed Incubators and Cosytherm™ Use in NICU](#) (1485)
- Waikato DHB Policy: [Patient Identification](#) (1539)

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