Student Nurses

Capital & Coast District Health Board
ŪPOKO KI TE URU HAUORA

Neonatal Intensive Care Unit

Student Name:

The Neonatal Intensive Care Unit

The Wellington Regional Hospital NICU has a capacity for 40 infants. The infants range from those born after 23 weeks gestation, through to sick term infants, or any infants requiring surgery. Their families originate from throughout the Central Region - Wellington, Blenheim, Nelson, Hastings, Wanganui, Palmerston North, Masterton and the Hutt Valley.

The unit provides a 24-hour emergency service to delivery suite and outlying hospitals for any baby in need of intensive care. To provide this service we can have up to 12-14 nursing staff on each shift. To supervise staff and maintain the general running of the department, each shift is managed by a clinical coordinator (ACNM). Any concerns or questions concerning infants or their families should be directed to this person.

There is a doctor, neonatal nurse practitioner/ specialist covering the unit at all times.

Philosophy of Care:

We will provide culturally appropriate holistic health care for all infants admitted to the Neonatal Intensive Care Unit, while maintaining the integrity and cohesiveness of the family unit. Our practice is based on the belief that each baby is an integral part of his/her family.

We recognize the need to maintain the individuality, dignity and confidentiality of every infant and his/her family.

Inherent in our practice is our belief in the importance of an evidence based multidisciplinary approach to neonatal care that includes and accepts input from the family.

Each member of the Neonatal Intensive Care Team has a responsibility to maintain a high level of professionalism in their work, while at the same time supporting and respecting other members of the team.

Gestational Model of Care:

The clinical environment in NICU is organized to nurse infants in groups of similar gestations. For example, extremely low birth weight infants are nursed together in a room with a low stimulus environment, with constant warm temperature, less light and noise.

Family Centered Nursing Care:

Parents are encouraged to do what they can for their infants who have been admitted to the unit. Parental activities can be limited if the infant is unwell. Parents can participate in daily care planning, decision making and attending to their babies needs e.g. kangaroo cuddles and performing infant cares.

Some of the different groups of infants you will see in NICU include:

- Extremely premature infants – can range from 23 weeks gestation and have complex needs such as respiratory care and intravenous nutrition.
- Late Preterm infants – 34 to 37/40 – variability in feeding ability, thermos regulation, wakefulness, large subset in NICU.
- 32-36 week infants – mainly Wellington infants who will go through to discharge
- 36+ week infants with more complex needs - including surgical infant's e.g. abdominal wall defects, congenital diaphragmatic hernia.
- Transitional acute care infants – 36 weeks to post term infants – cold, hypoglycaemia, sepsis, jaundice, traumatic deliveries.
- Pre-discharge infants – have chronic complex care, or have been extremely low birth weight babies now establishing oral feeds and preparing for home.

Neonatal Multidisciplinary Team:

- Charge Nurse Manager: Rosemary Escott
- NICU Clinical Leader: Vaughan Richardson
- Neonatal Consultants
- Medical Staff and Neonatal Nurse Practitioners
- Associate Charge Nurse Managers
- Nurse Lecturer: Sandra Bryant
- Clinical Nurse Specialists: Marilyn Gibson and Jackie Chin-Poy
- Clinical Nurse Educators: Carol Gibson, Sarah Gillon, Tammy Stevens, Sue Corin
- Lactation consultant: Georgina Wilson (Gina)
- Registered Nurses
- NICU Community and Homecare Team: Carole Dunn, Helsa Fairless
- Flight Retrieval Team: Sarah Cody – Team Coordinator
- Biomedical Technician: Albert Mahapure
- Receptionists
- Health Care Associates
- Cleaner

Welcome!! We are looking forward working with you!

Contacts

Neonatal Unit	Main contact	Email for main contact	Phone number for ward/Unit
Clinical Nurse Educator	Sarah Gillon	Sarah.Gillon@ccdhb.org.nz	**DD**(04) 8060828
Clinical Nurse Lecturer	Sandra Bryant	Sandra.bryant@ccdhb.org.nz	**DD**(04) 8060837
Clinical Nurse Manager	Rosemary Escott		
DEU Student Liaison Nurse	Anne Hardwick Murrette Fergusson	Anne.Hardwick@ccdhb.org.nz	Murrette.ferguson@ccdhb.org.nz
Associate Clinical Nurse Manager	Various coordinators		**DD**(04) 8060802

Sarah Gillon is the Clinical Nurse Educator (CNE) for preceptorship coordinating student placements. She works alongside Anne Hardwick and Murrette Fergusson representing the DEU, please email both Anne and Sarah for any enquiries during your placement. Sarah is part-time Educator. Sandra Bryant is the educator team leader and is available Monday - Friday. Please contact the ACNM if you are unable to attend your rostered shift e.g. you are sick and email Sarah- ph **8068802**

Your Preceptor

For your short placements e.g. 3 weeks, it is unlikely that you will be assigned a specific preceptor therefore you will be working with a mixture of staff nurses. For your longer placements e.g. 9 weeks, you will be assigned to a few preceptor staff nurses for your clinical placement and direct supervision. However there may be circumstances where it is necessary that you work with another nurse. These nurses are the people you should make aware of your objectives for the week and the assessments you are required to have completed before the end of your placement. Please provide evaluations and/ or other paperwork to your preceptor in a timely fashion (i.e. not on the due date!!). You preceptor will not complete any evaluations if you give it to them on your last days in the unit. The CNE for preceptorship will liaise with the preceptors and can do assessments if necessary. If you have any concerns or questions do not hesitate to contact the CNE for preceptorship as listed above.

Expectations of the Student Nurse while in the Neonatal Intensive Care Unit

- Shifts for your short placement e.g. 3 weeks, are 8hr shifts Monday-Thursday and a mixture of morning or afternoons. Longer placements e.g. 9 weeks, follow your preceptor's roster which is 12hr shifts and rotating day and night shifts. Ideally you will be given your roster a few weeks prior to starting your placement.
- Air transports are performed by NICU staff frequently – students are restricted in this experience due to aviation safety rules and room for parents.
- When you first come onto a shift please report to the staff meeting room for handover. You will then be allocated a nurse and patient room.
- A more thorough handover is then provided at the infant bedside. Initially you will take handover with your preceptor /buddy. This allows you to observe the staff nurse role in NICU.
- You will begin taking a patient load, usually in your second week, but should still have direct supervision for activities where you do not feel safe or competent. You will be planning and prioritizing patient needs for your shift. You must let the ACNM/preceptor know if you feel the workload you have received is not safe as soon as you are aware of this feeling.
- Personal belongings and valuables should be kept in your allocated locker. A locker is set aside in the staff changing rooms. This locker is shared with other students. You will have to provide your own padlock.
- Parents can visit their infants at any time. Other visitors are limited to visiting between 1530hrs – 1800hrs. A parent should accompany friends or relatives unless they are on a nominated list of "allowable visitors" and only 2 people at the bedside. Only siblings can visit the baby – no other children. Visitors are not able to touch the baby due to infection control considerations.
- The Home Care Team are involved with discharge planning for the Wellington based infants and will follow them up in the community where necessary. It is possible for you to arrange some time with the HCT when doing home visits or clinic in the community.

Infection prevention and control (IPC):

Each room has a guideline by the sink for the correct hand washing procedure. Hands are washed on starting the shift, before and after breaks and whenever gel build-up/ other is evident. Alcohol gel is the primary hand hygiene (HH) product and is available in all clinical areas and at all cot sides. Disposable gloves are also worn for some infant contact in NICU. Hands are gelled before removing gloves from the glove box and again after removing gloves following infant contact. Please be mindful of the five moments of hand hygiene: before touching a patient, before a procedure, after a procedure or contact with bodily fluids, after touching a patient and after touching a patients' surroundings and/ or equipment. On your first day, you will receive a detailed education session on IPC and HH practices in the NICU. Hand cream is available, but should not be applied just before infant contact. Please let your preceptor or shift ACNM if you have any concerns about the skin integrity of your hands or the products used in NICU. To all students on NICU Placement,

As you know we look after a very fragile and vulnerable population in NICU and therefore we need to have forethought as to how we implement thorough and effective infection prevention and control policies. This includes hand hygiene which remains the single most important factor in reducing risk of infection. I have listed below the practices that we would ask students to abide by during their NICU placement:

1) Prior to commencing your placement, please check the skin integrity of all areas of the body which may desquamate over a patient/ infant – such as hands, forearms, elbows, face, neck and head. If you have any concerns or skin breakdowns such as cracks, rashes, open wounds, or acute exacerbations of eczema, dermatitis, psoriasis or other; you are advised to visit your treatment / medical provider to have this assessed and treated prior to starting your placement here. At the commencement of your placement you will be asked to have these areas checked by myself/ one of the charge nurses and you may be advised to visit the staff occupational health department here. If you have a "clean cut" please cover this with a plaster. We will assess this on your first day here.

2) Please have fingernails free of nail polish and nail edges short and smooth. No artificial nails may be worn.

3) Please remove all hand and wrist jewelry and watches. A single flat band may be worn on a finger as a symbol of union/ wedding band.

4) Please remove any nasal piercings prior to and for the duration of your placement. Research has shown that individuals with nasal piercings have a higher than normal Staphylococcus aureus load in the nasal area.

During your orientation you will be given a comprehensive teaching session on infection prevention and control policies in NICU, including hand hygiene practices and products used. If you experience irritation, burning or skin breakdown when using these products please notify the charge nurse immediately.

The shifts in the Neonatal Unit are:

Morning (AM)	0700hrs to 1530hrs
Afternoon (PM)	1500hrs to 2330hrs
Night (N)	2300hrs to 0730hrs
Long Day (LD)	0700hrs to 1930hrs
Long Night (LN)	1900hrs to 0730hrs

Tasks which students in NICU may or may not perform:

May not perform:

IV's

- No Intravenous drug/ fluid checking, preparation or administration at all (encouraged to participate in checking & calculation process and witness preparation and administration)
- Long line changes: may not be the sterile person (may be the unsterile assistant if directed by a RN and follow NICU IPC protocol, but may not double check TPN/ Lipids/ other infusions)
- May not access/ sample/ flush a UAC or PAL at all (may also not calibrate or level a UAC/ PAL)

Blood gases

- May take the heel-prick sample (if competent) but may not process the sample in blood gas machine, as this requires training by Lab tech and annual eLearning recertification

Complex observations

- May not document on any complex, level 3 infant e.g. ventilated, unstable, neuro babies. Optiflow and ML CPAP recording is at the preceptor discretion

Monitor alarms

- May not silence any alarm unless checked first with RN

Medications

- May not be the second person to check any IV fluid or drug – this is always done by two RNs

May perform if competent: (see "student clinical skills assessment" sheet)

Heel-pricks and sampling (supervised initially and then may independently perform once competent)

Infant cares and assessment:

- **S**upervised initially, then checked by RN and infant assessment performed

Assist with long line fluid changes:

- May be the unsterile assistant only, directed by RN (see IV above)

Checking of OGT/ NGT tubes:

- Once competent – may check tube placement prior to feed, show RN aspirate and pH strip prior to starting feed

Inserting OGT/ NGT (once competent)

Administer tube feeds (once competent)

Setting up a level 2 admission bed space

Re-stocking "Hippo"

Check, prepare and administer Oral meds – this must always be supervised and the double checking and signage also done by 2 RN's

Documentation

- May document vital signs on level 2 chart/ level 3 chart as long as baby not ventilated or complex observations (check with preceptor RN)
- May not document in Badgernet

Perform skin assessment using tool

A few expectations of student nurses working in the Neonatal Unit are:

- It is expected that you arrive on time for your shift and if you are going to be late or you are unwell and cannot come to call the unit on (04) 8060802
- You must complete the full shift that you are allocated to work – if you are unable to do so please discuss this with your nurse, preceptor or nurse educator. A lot of learning occurs at quiet times in the unit!
- It is important to work as a team, helping when a nurse has several feeds due, or is busy assisting parents or medical staff
- Maintain a clean and tidy patient environment e.g. damp dusting, de-cluttering the work space, re-stocking infant stock cart ("hippo")
- It is important for your preceptor or the nurse you are working with that he/she is aware of your objectives
- Due to infection prevention and control a clean uniform must be worn, long hair must be tied back, cardigans must not be worn when working in the clinical area. The only hand jewelry that may be worn is a flat band that is symbolic of a union/ marriage. Nails must be short and smooth. No artificial nails may be worn. No wrist watches or nasal piercings may be worn. Please comply with the NICU infection prevention and control notification emailed to you by your student coordinator.
- Cellphones may be used in the clinical area for calculators/ NICU Apps and not for personal use. If a personal txt or phone-call needs to be made, the student should do this on his/her break outside of the clinical area.
- If you are not achieving your objective please see the CNE or your preceptor (before the last week in the unit)
- Please ensure all documentation you need to complete for the polytechnic/ university is accomplished before the last days in the unit – your preceptor will **not** complete any paper that is given to him or her if it is given in the last days of your placement

Safety Measures in Neonatal Intensive Care Unit

Patient Bedside Checks (will be shown to you):

- Emergency equipment check - check that there is a working suction and resuscitation device (neopuff or ambu bag) and that required equipment is within reach of each baby. Ensure the pressures set on the neopuff are suitable for each individual infant
- Check evacuation box is at patient bedside and is complete
- If infants are on monitoring equipment, then parameter settings should be checked and alarms activated
- Check brakes are on all equipment
- Check that patient has ID label on

Swipe Cards:

- You will each need to bring your swipe card (provided by your institution) for every shift. You will need to access lots of different areas within NICU that require this card. If you have forgotten your card then you can approach Sarah Gillon or Sandy Bryant and we will lend you one for that shift- please make sure it is returned at the end of the day

Manual Handling:

- It is important to identify hazards in your workspace when you orientate
- Adjust incubator height to your preference
- When moving equipment in the Unit assess whether you need a second person to assist you
- When moving the compactors in the store room be aware of the correct movement to avoid injuring your back
- Be aware of safe posture when assisting breast feeding mothers, opening doors, bathing an infant

What to do if a patient has a respiratory arrest:

- Notify nursing staff in your room immediately
- Stimulate the baby
- Press RED emergency bell at patient's bedside
- Prepare neopuff for use by increasing flow (if you know how)
- Retrieve emergency resuscitation trolley from outside either room F or C
- Assist nursing and medical staff as directed
- Document time of events on some paper
- Debrief with staff and preceptor

What to do in the event of a fire:

- If fire is an obvious threat, set off nearest fire alarm
- Let staff and ACNM know of danger
- Determine location of smoke or fire by listening to type of alarm e.g. constant or intermittent.
- If there is fire in your patient room, immediately prepare to evacuate to an adjacent fire cell as directed by your preceptor or staff nurse
- Ensure all patients, visitors and staff are safe

Treasure Hunt

This list is designed to help you become familiar with the environment, but is by no means exhaustive of all the things you will be required to locate.

☐	Pyxis Medication Machine	☐	Admission documentation
☐	Controlled Drug cupboard	☐	Clinical policies & procedures
☐	Expressing Room	☐	NICU drug monographs
☐	Expressing Equipment	☐	White wash/feed pottles
☐	Clinical Nurse Manager Office	☐	Portable vitals machine
☐	CNE/ACNM Office	☐	Suction Equipment
	Baths/green wash bowls	☐	Scales
☐	Intravenous Fluids and equipment	☐	Bio-hazard bags
☐	Heel prick lancets	☐	Suction catheters
☐	Store room/compactors	☐	Thermometers/ECG leads
☐	Staff tea room	☐	Incubators/cots
☐	Resuscitation trolley x2	☐	Photocopier
☐	Dirty utility room	☐	Patient charts
☐	Milk freezer and fridge	☐	Laboratory forms
☐	Dressing trolley and Materials	☐	New sharps containers
☐	Infant feeding equipment	☐	Incident Reporting
☐	Jaundice equipment	☐	Air/oxygen cylinders
☐	Emergency bell	☐	Sterile Gloves
☐	Adult resus trolley	☐	PTS system
☐	Where to store your bags	☐	Drug Fridge
☐	Linen supplies/warm linen	☐	Hand washing gel
☐	Blood gas machine	☐	Home Care Team office
☐	Neonatal Trust Shop	☐	Whanau Room
☐	Lockers/Toilets	☐	Filtered water
☐	Hospital phone directory	☐	Wound cupboard

☐ Transport Room	☐ Clean IV pumps

(Mark on the Map: Fire Exits, Fire Extinguishers, Fire Alarms, Fire Doors, Transport Incubators, Transport Packs, Stairs, Lifts, Adult Resuscitation Box)

Objectives

Bathing and hygiene cares: ❖ Infant bathing and hygiene needs according to weight and gestation ❖ How often are cares performed ❖ Involvement from family
Developmental Care: ❖ Positioning in cots, safe sleeping ❖ Developmental positioning in incubators, warming beds ❖ Frequency of handling of neonates
Thermoregulation: ❖ Temperature taking and maintenance of – i.e. being able to respond appropriately if temp is unstable ❖ How to read and adjust incubator temperatures ❖ Appropriate stage for graduation to a cot, dressing up for a cot, safe sleeping
Management of an NGT or OGT tube: ❖ Insertion and fixing of O/G tube, checking for position ❖ Signs of feed tolerance/intolerance – especially when oral feeding or feed volumes increasing ❖ Use of feeding equipment ❖ Positioning for feeding – tube, breast, bottle ❖ Care of breast milk and formula
❖ Weighing – frequency and charting ❖ Significance of excessive weight gain or loss
Monitoring: ❖ Able to place ECG leads ❖ Set up an apnoea monitor

- Manage placement and use of saturation monitor
- State normal range of RR, HR and SaO2 for a neonate
- Understand basic responsibilities if alarms ring – how to respond
- How to check that infants are correctly identified

IV Therapy:

- Use of pumps
- Documentation of IV therapy, IV site condition
- Priming an IV line
- Taking out an IV
- Observe long-line management – what is TPN

Tests and Investigations:

Observe-

- Eye checks
- Any radiological tests

All the following are taken usually by heel prick – students should attempt the test with full supervision -

- What is the Guthrie/Metabolic Screening Test, when is it taken, documentation and follow up
- Blood sugar levels – when are they taken, how often, normal ranges
- Serum bilirubin tests – frequency of test, response to test result
- Haemoglobin - when is it taken

Oxygen Therapy:

- Be aware of appropriate saturation limits for individual infants
- Side effects of O_2 toxicity
- Basic understanding of Retinopathy of Prematurity – need for eye checks
- Delivery of low flow oxygen

Admission & Discharge:

- Observe a delivery, the neonatal assessment following delivery
- A discharge assessment

- Documentation
- Requirements for legal report writing
- Charting of vital signs
- Drug therapy
- Fluid balance – input/output

Emergency Equipment:

- Neopuff and suction checks
- Alarm parameters on monitors
- Emergency call bells in NICU
- Procedures for fire, earthquake or power/gas failure.

Breastfeeding and infant feeding related policies:

- Breastfeeding
- Breastfeeding the preterm and low birth weight infant on the Neonatal Unit
- Infant Feeding Guidelines
- Breast milk – expressing, storage and use
- Disinfection of expressing equipment
- Administration of wrong breast milk
- Cup feeding guidelines
- Supplementary tube feeding guidelines
- Mastitis Guidelines
- Nipple shield Guidelines

Common Presentations/Clinical conditions to the Neonatal Intensive Care Unit

Common presentations to the NICU include:

- RDS - Respiratory distress syndrome
- BPD – Bronchopulmonary dysplasia
- TTN – Transient tachypnoea of the newborn
- Apnoea's of prematurity
- Anaemia of prematurity
- Gastro-oesophageal reflux (Disease)
- Jaundice
- Hypothermia
- Hypoglycaemia
- Sepsis – Group B Strep
- Surgical – hernias, cardiac, gastric, spine, eyes

Common Medications

All drugs and fluids should be doubled checked by two registered nurses. Please see "student may and may not perform" regarding IV and oral drugs)

Fluid Management:

There is a set formula for working out fluid and nutritional requirements for the neonate in a day

mls / kg / 24 hours mls / kg / day

Infants are generally commenced on 60mls / kg / day and increase by 15ml increments each day up to a total of 150mls / kg / day.

Fluids and nutrition are provided by

- IV Fluids and additives: D10W and additives
- Parental nutrition (TPN) and lipids
- Breast milk and Human Milk Fortifier
- Formula: Standard Infant Formula, Low Birth Weight (LBW), Special formula's

Note: Additives such as Sodium and Potassium are included in maintenance IV fluids after 48 hours of age. All infants with potassium in their IV fluids should have cardiac monitoring (see IV protocol).

Monitoring of fluid and nutritional status:

There are several methods to check that infants are receiving adequate fluid and nutrition

- Weight changes: a lack of weight gain, or too big a weight gain
- Blood sugars: these require monitoring while changes are being made to fluid volumes, types of delivery or feed strengths are being altered
- Electrolytes: indicate the infants hydration status
- Wet nappies
- Skin condition

Formula for Feed Volumes:

mls X weight (in kgs) = mls in 24 hours

Then divide the volume by the frequency of feed,

e.g. 60 x 2kg = 120ml. Then divide 120ml by 12 for 2 hourly feed volume. (As there are 12 x 2 hourly feeds in 24 hours).

Drug Therapy:

Understanding of why, when, frequency of, and delivery mode of the following (5 rights – person, time, drug, route, dose)

- Amoxycillin
- Gentamicin
- Caffeine
- Vitadol C
- NaCl replacements
- Phosphate and Calcium supplements

Drug Calculation:

$$\frac{\text{What you want}}{\text{What you have got}} \times \text{volume} = \text{dose to be given}$$

Student clinical skills assessment sheet (student to show preceptor nurse every shift)

Student: **Date of placement:**

Clinical Skill	Demo Date & sign	Supervised Date & sign	Competent Date & sign	Comments Date & sign
Hand Hygiene				
Safety checks				
Heel prick sampling				
Temperature taking				
Eye and mouth cares				
Nappy change				
Checking OGT/ NGT placement prior to feeds				
Test gastric aspirate for pH level				
Administer OGT/ NGT feeds				
Insertion of OGT/ NGT tube				
Preparing, checking and administration of **oral** meds				
Simple infant assessment				
Infant positioning				
Safe sleeping				
Skin assessment tool				
Documentation level 2/ stable level 3 infant flowchart (no vents)				
Assist with longline changes (helper only, not fluid checker)				
Set-up Level 2 admission space				
Stocking-up 'Hippo'				
Baby bath				
8- hour shift workload planner				
Damp dust work-space				

Articles to Read:


Fetal physiology and transition to ex


The newborn examination_Part 1_


The newborn examination_Part 2_


Normal development of the


Non-invasive respiratory support


Metabolic adaption at birth.pdf


15-minute consultation.pdf


Breastfeeding_Success_Is_More_.pdf


Feeding assessment, NDC dis