# Royal Hospital for Women (RHW)
# NEONATAL BUSINESS RULE
# COVER SHEET

T24/1431

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| **NAME OF DOCUMENT** | Enteral Nutrition - Infants above 1800g |
| **TYPE OF DOCUMENT** | Clinical Business Rule |
| **DOCUMENT NUMBER** | RHW CLIN018 |
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| **RISK RATING** | Low |
| **REVIEW DATE** | January 2029 |
| **FORMER REFERENCE(S)** | Medical LOP – Enteral Nutrition in Neonates |
| **EXECUTIVE SPONSOR** | S Bolisetty (Medical Co-Director Newborn Care Centre); S Wise (Nursing Co-Director Newborn Care Centre) |
| **AUTHORS** | S Bolisetty (Medical Co-Director), S Allworth (Dietitian), SJ Tapawan (NICU CMO), E Jozsa (CNS), A Scott-Murphy (NUM), R Jackson (NE), P Everitt (CMC), K Lindrea (CNC), T Parmar (NICU fellow), Eloise Deibe (CNE) |
| **SUMMARY** | To provide feeding guidelines for neonates with birthweight above 1800g |

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# NEONATAL BUSINESS RULE

## Enteral Nutrition - Infants above 1800g — RHW CLIN018



### 1. BACKGROUND

This CBR provides feeding guidelines for neonates admitted to NICU with birth weight above 1800g.

### 2. RESPONSIBILITIES

Medical, Nursing and Allied Health Staff

### 3. PROCEDURE

#### 3.1 Nutrition Goals

- To establish safe and timely breastfeeding.
- To minimise intravenous nutrition.

#### 3.2 Clinical Practice

Prior to birth

- Antenatal counselling: NICU medical team or CMC for lactation may provide counselling for the woman and her partner about the importance of expression of mother's own milk, breastfeeding, and feeding goals. But DO NOT encourage expression prior to delivery, which may facilitate preterm labour.

At birth

- Determine if the infant is appropriately grown for gestational age (AGA) or small for gestational age (SGA), that is growth restricted with birthweight <10$^{th}$ percentile.

First 24 hours

- Stable, AGA infants with normal Doppler can be commenced on feeds using any of the options: (A) Attempt 3$^{rd}$ hourly breastfeeds with pre-feed BGL every 6 hours, or (B) 3$^{rd}$ hourly gavage enteral feeds of expressed breastmilk (EBM) or formula at 30 mL/kg/day and increased/graded up to 60 mL/kg/day if first 2 feeds are tolerated.
- SGA or infants with abnormal Dopplers
  - Discuss with Neonatologist/Fellow about enteral feeds.
  - Option to trial feeding regime of AGA infants or commence at 5 ml 3$^{rd}$ hourly (20-30 mL/kg/day) with partial intravenous therapy and grade/increase feeds as tolerated.
  - Team may consider parenteral nutrition for remaining fluid requirement.

NOTE:

- Parental consent must be obtained prior to formula administration as per policy.

After 24 hours of life – Grading up feeds

- Increase feeds by 20-30 mL/kg/day until 170 mL/kg/day is reached.
- Grading up feeds may need to be slow or altered (eg. slow bolus feeds over 20-30 minutes or 2$^{nd}$ hourly feeds) in special circumstances, such as:
  - Growth restriction

- Abnormal umbilical Dopplers
- Feed intolerance

NOTE:
- SGA infants: Fortification may be commenced at 150-170ml/kg/day.
- Consider parenteral nutrition in infants with feeding intolerance and/or poor weight gain.
- Follow guideline on parenteral nutrition on timing of cessation.

Fortification

- There is insufficient evidence to recommend routine fortification of feeds in infants >1800g. Fortification may be considered by the treating NICU team on a case-by-case basis.
- If fortification is added, perform weekly serum and urine Ca/P and serum urea and creatinine for 2-3 weeks to ensure tolerance.

Multivitamins and Iron supplementation

- Add Multivitamin and iron once the feeds reach 120-150 mL/kg/day if the infant is <37 weeks or <2.5 Kg at birth.

### 3.3 Educational Notes

- There are no large comparative trials to guide the feeding regime in infants greater than 1800g.
- These local guidelines are a compilation of an integrated system for providing optimal newborn care, family integrated care, kangaroo care (skin-to-skin contact), rooming-in, respecting the WHO/UNICEF Ten Steps to Successful Breast-feeding expanded in 2011 for use in NICUs, and other best practices for neonatal care.[1,2]
- Early intervention with milk expression soon after delivery (ideally within 1 hour of birth) is critical for milk production of NICU mothers; therefore, mothers should be taught a method of milk expression within this time frame.
- This feeding strategy should be done in conjunction with Immuno-Supportive Oral Care (ISOC).[2]
- Routine prefeed gastric residual (GR) aspiration of entire contents in the clinically stable infant is not recommended. Assessment of GR volumes should be performed only when other clinical signs associated with feed intolerance or NEC are present.[3]
- Growth targets of weight: 21 g/kg/day (±2 g/kg/day), length and HC target: 1.1 cm/week (±0.2 cm) during NICU stay are extrapolated from studies on extremely low birthweight infants[3,4].

### 3.4 Abbreviations

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| NCC | Newborn Care Centre | Ca | Calcium |
| NICU | Neonatal Intensive Care Unit | P | Phosphorus |
| CMC | Clinical Midwifery Consultant | ISOC | Immuno-Supportive Oral Care |
| AGA | Appropriate for Gestational Age | GR | Gastric residual |
| SGA | Small for Gestational Age | NEC | Necrotising Enterocolitis |
| BGL | Blood glucose level | HC | Head Circumference |
| EBM | Expressed breastmilk | | |

### 3.5 References

1. Nyqvist KH, Häggkvist AP, Hansen MN, et al. Expansion of the ten steps to successful breastfeeding into neonatal intensive care: expert group recommendations for three guiding principles. J Hum Lact. 2012;28:289-96.

2. Immuno-Supportive Oral Care. Royal Hospital for Women Newborn Care Centre Nursing Clinical Business Rule.
3. Ehrenkranz RA, Dusick AM, Vohr BR, et al. Growth in the neonatal intensive care unit influences neurodevelopmental and growth outcomes of extremely low birth weight infants. Pediatrics. 2006;117:1253-61.
4. Cormack B. Section 3. Growth goals and centile charts. In Neonatal & Paediatric nutrition handbook. 5th ed. 2022

## 4. RELATED BUSINESS RULES AND POLICY DOCUMENTS

- RHW NCC Medical CBR – Enteral Nutrition - formula preparations in Newborn Care Centre
- RHW NCC Medical CBR – Enteral Nutrition - human milk fortification - preparation
- RHW NCC Nursing CBR – Breastfeeding - First Expression - Refer to CBRs Lactation/Infant
- RHW NCC Nursing CBR – Enteral Feed Warming – Calesca
- RHW NCC Nursing CBR – Immuno-Supportive Oral Care (ISOC)

## 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.
- 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 2 Partnering with Consumers
- Standard 3 Preventing and Controlling Infections
- Standard 4 Medication Safety
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety

## 9. REVISION AND APPROVAL HISTORY

| Date | Revision No. | Author and Approval |
|---|---|---|
| 2010 | 1 | S Bolisetty (lead clinician); Newborn Care Management Committee and RHW Quality & Patient safety |
| 2018 | 2 | S Bolisetty (lead clinician); NCC LOPs Committee |
| 2019 | 3 | S Bolisetty (lead clinician); NCC LOPs Committee |
| 2023 | 4 | S Bolisetty (Medical Co-Director), S Allworth (Dietitian), SJ Tapawan (NICU CMO) E Jozsa (CNS), A Scott-Murphy (NUM), R Jackson (NE), P Everitt (CMC), K Lindrea (CNC), T Parmar (NICU fellow), Eloise Deibe (CNE); NCC CBR Committee |
| 10.1.24 | 4 | Endorsed out of session RHW SQC |