

Royal Hospital for Women (RHW)
BUSINESS RULE
COVER SHEET



Health
South Eastern Sydney
Local Health District

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NAME OF DOCUMENT	Continuous Enteral Feeding
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SUMMARY	To guide clinicians on continuous enteral feeding setup, care, and monitoring.

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This Clinical Business Rule 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 Clinical Business Rule. 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.

1. BACKGROUND

Infants who cannot tolerate bolus feeds require continuous feeding that delivered via syringe pump for enteral nutrition through intragastric (IGT), naso-jejunal (NJ) or gastrostomy (G-tube) feeding tubes.

NOTE:

- Jejunal feedings, indicated for infants with serious gastro-oesophageal reflux disease or for infants unable to protect their airway, must be given by continuous administration since there is no capacity to store bolus feeds in the jejunum.
- Do not fortify jejunal feeds without surgeon or neonatologist's approval.

2. RESPONSIBILITIES

Medical and Nursing Staff

3. PROCEDURE

3.1 Equipment

- Syringe pump for enteral nutrition
- Feeding syringe
- Feeding extension tube
- Feeding syringe cap
- 5-10mL enteral syringe to obtain gastric aspirate
- pH test strip
- Milk warmer

3.2 Clinical Practice

1. Check and confirm with a second RN/RM:
 - the infant's identity using 2 patient identifiers
 - the prescribed feeding order
 - the milk labels
2. Perform hand hygiene and collect equipment.
3. Draw up 2-hour feed volume into feeding syringe plus 3mL for priming the extension tubing.
5. Place feeding syringe cap on the syringe and label appropriately.
6. Check the intragastric tube is well secured and labelled.
7. Attach 5-10 mL oral syringe to IGT and gently aspirate 0.5 mL of gastric content.
8. Apply gastric fluid to pH test strip.
9. Check colour change with the colour chart on the strip container for pH to be at ≤ 5.5 .
10. Warm milk in the milk warmer.
11. Prime the extension tubing with milk and attach to the IGT.
12. Insert the syringe into the syringe pump for enteral nutrition. (Picture 1)
13. Switch pump on. (Picture 1)

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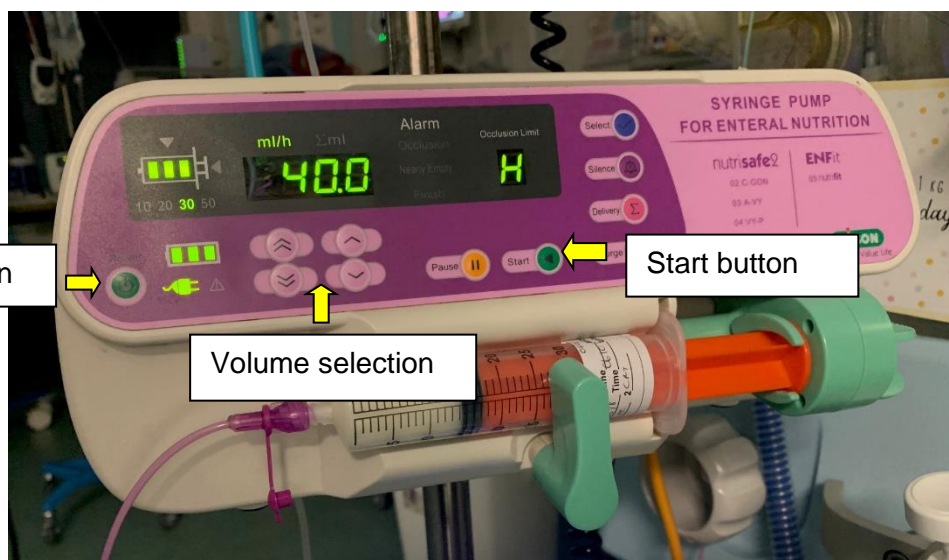
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14. Set the infusion rate by using the arrows below the display screen and press the start button to commence the enteral infusion. (Picture 1)
15. Clean and discard equipment appropriately and perform hand hygiene.
16. Complete documentation.
17. Perform hand hygiene.

NOTE:

- pH testing does not apply for gastrostomy or transpyloric tubes.
- Stop feeding and notify medical team if vomiting occurs during continuous feeding.



Picture 1

NOTE:

- The extension tubing and syringe is to be changed every 24 hours.
- Tilt the syringe driver to vertical position or agitate milk syringe every hour to avoid sedimentation and fat separation.

3.3 Educational Notes

- Systematic reviews show longer time to reach full enteral feeding using continuous rather than intermittent feeding infants and fat loss may also be greater although there were no significant effects on growth. Data on apnoea are inconsistent.
- Milk fat is known to adsorb to tube delivery systems causing a significant drop in fat and calorie content when administered as continuous feed. When the breastmilk fat emulsion separates, the fat rises within the syringe towards the infant owing to density differences. However, fat gets adsorbed to the long extension tubing as the milk is traveling through. Fat loss can be up to 50% with continuous feeding. Certain feeding practices thought to reduce that loss, including upright tilting syringe and pump and agitation of the syringe every 30-60 minutes, however studies showed no benefits in reducing fat loss with any of these practices. Upright position of the syringe may lead to precipitate formation of electrolytes at the bottom of the milk and may get inadvertently discarded while changing the syringes.

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- Bolus feeds promote cyclical release of gastrointestinal tract hormones to stimulate gut maturation and motility but marked variations in practice exist and many use continuous feeds. Low-quality evidence suggests feeding 3-hourly is comparable to 2-hourly feeding although extremely low-birth-weight infants may reach full enteral feeds earlier when fed 2-hourly compared with 3-hourly. Bolus feeding increases splanchnic perfusion more than continuous feeding. Energy expenditure may increase upon bolus feeding as compared to continuous feeding.
- The feeding recommendation in NCC is:
 - Bolus feeding as default.
 - Continuous feeds only when other measures fail.
 - Maximum 2-hour feed volume in syringe plus 3mL for priming the extension tubing.
 - Agitation of syringe every hour to reduce precipitate formation and uniform delivery of fat.

3.4 Abbreviations

IGT	Intragastric Tube	NJ	Naso jejunal
G-tube	Gastrostomy tube		

3.5 References

1. NHS, August 2005. National Patient Safety Agency, Patient safety alert 09. Reducing the harm caused by misplaced naso and orogastric feeding tubes in babies under the care of neonatal units.
2. NSW Health Infants and Children Insertion and Confirmation of Placement of Nasogastric and Orogastric Tubes (GL2016_006).
3. Sadrudin Premji S, Chessell L, et al. Continuous nasogastric milk feeding versus intermittent bolus milk feeding for preterm infants less than 1500 grams. Cochrane Database Syst Rev. 2021: CD001819.
4. Premji SS, Chessell L. Continuous nasogastric milk feeding versus intermittent bolus milk feeding for premature infants less than 1500 grams. Cochrane Database Syst Rev. 2011:CD001819.
5. Embleton ND, Moltu SJ, Lapillonne A, et al. Enteral nutrition in preterm infants (2022): a position paper from the ESPGHAN committee on nutrition and invited experts. J Pediatr Gastroenterol Nutr. 2023;76:248-68.
6. Paulsson M, Jacobsson L, Ahlsson F. Factors Influencing Breast Milk Fat Loss during Administration in the Neonatal Intensive Care Unit. Nutrients. 2021;13:1939.
7. Loomis T, Byham-Gray L, Ziegler J, et al. Impact of standardized feeding guidelines on enteral nutrition administration, growth outcomes, metabolic bone disease, and cholestasis in the NICU. J Pediatr Gastroenterol Nutr. 2014;59:93-8.
8. Moore TA, Wilson ME, Schmid KK, et al. Relations between feeding intolerance and stress biomarkers in preterm infants. J Pediatr Gastroenterol Nutr. 2013;57:356-62.

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 Medical CBR - Enteral Nutrition - preterm infants 1000g and under
- RHW NCC Medical CBR - Enteral Nutrition - preterm infants 1001-1500g
- RHW NCC Medical CBR - Enteral Nutrition - preterm infants 1501-1800g
- RHW NCC Medical CBR - Enteral Nutrition - infants greater than 1800g
- RHW NCC Medical CBR - Enteral Nutrition - formula preparations in Newborn Care Centre
- RHW NCC Nursing CBR - Enteral Feed Warming - Calesca
- RHW NCC Nursing CBR - Intragastric Tube Insertion and Maintenance

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- RHW NCC Nursing CBR - Silastic Tubes (Gastric and Transpyloric)
- RHW NCC Nursing CBR - Transpyloric Tube Placement and Management
- MOH Policy directive - [Maternity - Breast Milk: Safe Management](#) PD2010_019

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
12/05/2014	1	KB Lindrea (CNC); Local Operations Committee and Newborn Care Centre Quality Committee
05/01/2024	2	J Delmodes (RN), KB Lindrea (CNC), E Jozsa (CNS); Approved RHW NCC CBR Committee
21/03/2024		Endorsed at RHW Safety and Quality Committee