

Royal Hospital for Women (RHW)
BUSINESS RULE
COVER SHEET



Health
South Eastern Sydney
Local Health District

NAME OF DOCUMENT	Intragastric Tube – Insertion and Maintenance
TYPE OF DOCUMENT	Clinical Business Rule
DOCUMENT NUMBER	RHW CLIN001
DATE OF PUBLICATION	20 July 2023
RISK RATING	Low
REVIEW DATE	July 2027
FORMER REFERENCE(S)	N/A
EXECUTIVE SPONSOR	S Bolisetty (Medical Co-Director Newborn Care Centre); S Wise (Nursing Co-Director Newborn Care Centre)
AUTHOR	E Deibe (RN)
SUMMARY	To correctly insert and maintain an intragastric tube in newborn infants

Royal Hospital for Women (RHW)

BUSINESS RULE

Intragastric Tube – Insertion and Maintenance

RHW CLIN001

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

Intragastric tubes (IGT) are used for administering feeds and medications. They can also be used to facilitate free drainage and aspiration of stomach contents and to vent the stomach.

2. RESPONSIBILITIES

Medical and Nursing Staff

3. PROCEDURE

3.1 Equipment

- Size 5 Fr feeding tube (L – 125cm) for feeding <3000g infant (infants may need a size 6 Fr for larger feeding volumes)
- Size 6 Fr feeding tube (L – 125cm) for feeding >3000g infant
- Size 6-8 Fr (L – 125cm) for venting
- 24% Oral Sucrose
- Barrier tape (Comfeel)
- 1 cm wide brown tape (Leukoplast)
- Medical adhesive remover wipe
- Skin barrier film (Cavilon)
- Clean pair of scissors
- Precision pH test strip
- 5 mL syringe

3.2 Clinical Practice

1. Explain the procedure to parents (if present).
2. Check and confirm the infant's identity: patient's name; MRN and procedure matching with another nurse.
3. Collect equipment.
4. Perform hand hygiene (gloves optional).
5. Measure distance of IGT for insertion (Figure 1)
6. Swaddle infant to provide comfort.
7. Administer EBM or oral sucrose (2 drops).
8. Cut tapes to desired length to secure IGT.
9. Remove IGT that is in situ and barrier tape on the skin if changing an IGT using medical adhesive remover wipe.
10. Clean skin and apply skin barrier film prior to barrier tape application. Allow to dry.
11. Apply barrier tape to skin.
12. Gently insert IGT down the nasal/oral passage to the measured length.
13. Aspirate 0.1 - 0.2 mL of gastric fluid using 5 mL syringe.
14. Apply gastric fluid to pH test strip – check colour change on strip with the colour chart on the bottle for pH (to be ≤ 6).

Intragastric Tube – Insertion and Maintenance

RHW CLIN001

15. Secure IGT to the side of the face (for the nasal route) or below lower lip (for the oral route).

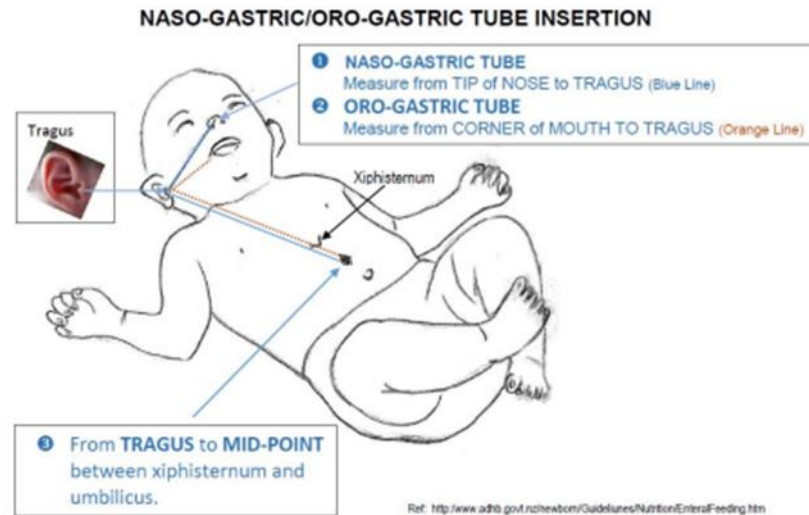


Figure 1

16. Place IGT on top of the barrier tape and apply the brown tape to secure. Ensure the brown tape does not attach on the infant's skin or hair.
 17. Clean and discard equipment appropriately.
 18. Sign addressograph label by 2 nurses and attach to IGT.
 19. Document insertion in eRIC.
 20. Perform hand hygiene.
- When an aspirate CANNOT be obtained from an IGT
21. Use a size 10mL syringe to obtain gastric residual.
 22. Reposition the infant to left side to re-aspirate IGT.
 23. Wait 1-5 minutes before aspirating gastric residual.
 24. Replace IGT if all of the above did not allow aspirate to be obtained.

Standard of Practice for Verification

An Abdominal x-ray to check IGT position is not routine practice.

However, if an abdominal x-ray has been prescribed for any medically indicated reasons, check the IGT position at the same time.

Verification of IGT placement before use

25. Confirm the marking on the tube at nares/mouth.
26. Aspirate small amounts of gastric contents.
27. Test pH of aspirate (to be ≤ 6).

When to check IGT position

28. Following initial insertion
29. Before administering each feed
30. Before giving medication
31. Following vomiting, retching or coughing (absence of coughing does not rule out misplacement or migration)
32. If tapes are loose or the visible tube appears longer or kinked indicating possible tube displacement.

Removal of IGT

33. Verify medical order.

Royal Hospital for Women (RHW)

BUSINESS RULE

Intragastric Tube – Insertion and Maintenance

RHW CLIN001

34. Inform parents (if in attendance).
35. Follow hand hygiene precautions.
36. Remove brown tape and barrier tape on the skin prior to removal.
37. Gently withdraw IGT.
38. STOP withdrawing if any resistance. Inform the medical staff for further advice. Resistance indicates kinking, obstruction or knot formation of the IGT and forceful withdrawal may damage and tear the gastric or oesophageal mucosa.
39. Document removal in eRIC.

3.3 Educational Notes

- All neonates can maintain a gastric pH of below 4 from the first day of life.¹
- As the infants became more mature, both in terms of gestation and postnatal age, there is a decrease in intragastric pH from median (range) 3.7, 2.5 (0.6–3.9) and 1.8 (1.3–2.6) for infants of 24–25, 26–27 and 28–29 weeks' gestation, respectively on the first day of life to 1.8 (1.7–1.9), 2.0 (1.8–2.3) and 1.7 (1.5–2.0) on day 16.¹
- Gastric acid secretion in the newborn preterm infant should allow normal proteolytic activity and the well-recognised clinical problems of intragastric bleeding, gastritis or oesophagitis may be attributable to intragastric acid.¹
- Nasogastric tube position: Common measurement techniques used to place a nasogastric tube include measuring from the tip of the nose to the earlobe and then to the xiphoid process (NEX-method); from the tip of the nose to the earlobe to midway the xiphoid process and umbilicus (NEM-method); and from the tip of the nose to the earlobe to the umbilicus method (NEU-method).²⁻⁴
- Proper position is defined as tube tip 17 mm or more below the gastroesophageal junction (i.e. both orifices of the feeding tube in the stomach) and not bending or curling in the stomach.⁵
- Placement within the stomach using the auscultatory method (insufflation of air while auscultating for a gurgling sound over the epigastrium) is unreliable.⁶ Confirm the tube position by pH testing of the gastric residuals. Normal pH is 1-4 (<5.5). However, median pH of gastric content can be higher (2.77-9.58) immediately after birth due to amniotic fluid in the stomach.⁷
- pH testing can be unreliable in neonates on anti-reflux medications such as Proton Pump Inhibitors (e.g. omeprazole, pantaprazole) or H2-Blockers (e.g. ranitidine).⁸ However, the pH method is less effective in distinguishing between intestinal and respiratory fluids because both have higher pH values.⁹
- Soft, small-bore NG tubes are less likely to cause complications and reduce the risk of aspiration because the lower esophageal sphincter is less compromised, decreasing the risk of reflux, but they may migrate out of position, knot, occlude, or rupture.⁹ Negative pressure generated when attempting to aspirate fluid from these soft tubes can cause these flexible NG tubes to collapse.
- A prospective randomized controlled trial demonstrated right lateral decubitus position leads to less gastric residuals and better gastric emptying compared to supine or left lateral position.¹⁰

3.4 Abbreviations

NCC	Newborn Care Centre	EBM	Expressed Breast Milk
IGT	Intragastric Tube		

3.5 References

1. Kelly EJ, Newell SJ, Brownlee KG, et al. Gastric acid secretion in preterm infants. *Early Hum Dev* 1993;35:215-20.

Royal Hospital for Women (RHW)

BUSINESS RULE

Intragastric Tube – Insertion and Maintenance

RHW CLIN001

2. Weibley TT, Adamson M, Clinkscales N, et al. Gavage tube insertion in the premature infant. *MCN Am J Matern Child Nurs* 1987;12: 24-7.
3. Tedeschi L, Altimier L, Warner B. Improving the accuracy of indwelling gastric feeding tube placement in the neonatal population. *Neonatal Intensive Care* 2004;16:16-8.
4. Gallaher KJ, Cashwell S, Hall V, et al. Orogastric tube insertion length in very low birth weight infants. *J Perinatol* 1993;13:128-31.
5. de Boer JC, Smit BJ, Mainous RO. Nasogastric tube position and intragastric air collection in a neonatal intensive care population. *Adv Neonatal Care* 2009;9:293-8.
6. Metheny NA, Dettenmeier P, Hampton K, et al. Detection of inadvertent respiratory placement of small-bore feeding tubes: a report of 10 cases. *Heart Lung* 1990;19:631-8.
7. Widström AM, Christensson K, Ransjö-Arvidson AB, et al. Gastric aspirates of newborn infants: pH, volume and levels of gastrin- and somatostatin-like immunoreactivity. *Acta Paediatr Scand* 1988;77:502-8.
8. Taylor SJ, Clemente R. Confirmation of nasogastric tube position by pH testing. *J Hum Nutr Diet* 2005;18:371-5.
9. Farrington M, Lang S, Cullen L, et al. Nasogastric tube placement verification in pediatric and neonatal patients. *Pediatr Nurs* 2009;35:17-24.
10. Cohen S, Mandel D, Mimouni FB, et al. Gastric residual in growing preterm infants: effect of body position. *Am J Perinatol* 2004;21:163-6.

4. RELATED BUSINESS RULES AND POLICY DOCUMENTS

- RHW NCC Nursing Clinical Business Rule – Continuous Enteral Feeding
- RHW NCC Nursing Clinical Business Rule – Silastic Tubes (Gastric and Transpyloric)
- RHW NCC Nursing Clinical Business Rule – Transpyloric Tube Placement and Management

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 Clinical Business Rule will be distributed to all medical, nursing and midwifery staff via @health email. The Clinical Business Rule 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 Clinical Business Rule. The Clinical Business Rule will be uploaded to the Clinical Business Rule tab on the intranet and staff are informed how to access.

7. RISK RATING

- Low (5 years)

Royal Hospital for Women (RHW) BUSINESS RULE

Intragastric Tube – Insertion and Maintenance

RHW CLIN001

8. NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 3 Preventing and Controlling Healthcare-Associated 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
4.11.2005	1	KB Lindrea (CNC)
12.1.2010	2	KB Lindrea (CNC), S Gan (RN), approved by NCC Policy/ Procedure Working Group
24.9.2014	3	J Blaeck (CNS), KB Lindrea (CNC)
24.10.2017	4	E Jozsa (CNE), S Bolisetty (Senior Staff Specialist), approved by NCC Policy and Procedure Working Group
29.06.2023	5	E. Deibe (RN), approved by NCC Clinical Business Rules Committee
20.07.2023	5	Endorsed by Safety and Quality Committee