



SECTION 3: GENERAL CARE OF THE SICK CHILD

3.3 Nutrition

3.3.3 Nasogastric and Orogastric Tube Feeding

Aim

To administer enteral feeds and/or medication via the nasogastric/orogastric route so as to:

1. Maintain optimum hydration and nutritional status for children requiring enteral feeds.
2. Prevent complications.

Background

Enteral feeding is a useful method of ensuring adequate intake of nutrients in patients with a functioning gastrointestinal tract but whom, for a variety of reasons, are unable to use the oral route to take sufficient nutrients to maintain growth and development.¹ Feeding via a nasogastric (NG), orogastric (OG) tube is indicated for short term nutritional support.

Longer term enteral feeding usually requires surgical insertion of a gastrostomy/jejunostomy. (Refer to [Gastrostomy Device Management](#) protocols for PEG, Button, and [Gastro-Jejunostomy](#) feeding and management).

Key points

- For insertion of a nasogastric or orogastric tube refer to [PNPM 3.3.2](#)
- Perform effective hand hygiene prior to any feed preparation and/or administration.² Use minimal handling and an aseptic non-touch technique when connecting the administration system and the enteral feeding tube.²⁻⁵
- Always check the tube position prior to administering any feeds or medication.
- Check the position of the feeding tube at least once per shift during continuous feeds. The position must also be assessed following dislodgement of any kind eg. post vomiting or coughing episodes.
- Use only dedicated enteral equipment (purple syringes, adaptors and connectors) for administering feeds and medication. All enteral connections, syringes and caps must **not** be compatible with intravenous or other invasive luer lock devices.⁶
- Refer to a dietitian for an appropriate feeding regime. Feeding regimens vary widely according to the nutritional needs of the child, type of enteral access, and degree of intestinal adaptation.^{1,4}

Key points (cont.)

- Liaise with ward pharmacist and treating medical team for the most appropriate medication preparation via the enteral route.⁷
- A regular oral hygiene plan should be implemented and documented on the nursing care plan for any child requiring enteral feeding.

Equipment

Enteral Feeding Tubes at PMH:

Nasogastric/ Orogastric tubes: (Vygon Nutrisafe™; Entriflex™, Covidien Kangaroo™)

- Indicated for short term feeding and medication administration.
- Suitable for bolus or continuous feeding.
- **Not** suitable for gastric drainage (A wide bore Ryles® tube should be used for this purpose).
- Length of duration depends on the material:⁶

PVC	7 days
Polyurethane (PUR)	4 weeks
Silicone	4-6 weeks
Hydromer™	4-6 weeks

Administering Feeds

Equipment

Mouth care equipment

Water (sterile or cooled boiled for immunocompromised patients)

Disposable enteral syringe (20mL for testing gastric aspirate)

pH indicator strip

Prepared feed

± Enteral syringe 20mL/50mL for gravity feeds

± Feeding Pump

± Administration set

± Enteral Feed Labels

Procedure	Additional Information
<p>Before all feeds:</p> <ul style="list-style-type: none"> • Provide/ encourage oral hygiene prior to intermittent feeds and at regular intervals if on continuous feeds. • Check the position and patency of the tube. • Position the patient in an upright position ($\geq 30^{\circ}$) if possible. 	<p>Stimulates gastric secretions.</p> <p>See PNPM 3.3.2.1 Testing the Placement of a Nasogastric Tube.</p> <p>Reduces the risk of aspiration.⁴</p>
<p>Bolus/Intermittent Feeds</p> <ul style="list-style-type: none"> • Obtain feed and allow it to reach room temperature, or warm if necessary. • <i>If</i> warming is required, heat breast milk or special formulas by standing in warm water – do not heat in microwave. 	<p>Warmed feeds must be used immediately and completed within one hour.⁷</p> <p>Excess heat can alter the immunological properties of breast milk and components in specialised formulas.⁸</p>
<p>Gravity Feeds:</p> <ul style="list-style-type: none"> • Attach enteral syringe to extension set (if required) and clamp the line or pinch the NG/OG tube. • Fill the enteral syringe with the feed and allow it to flow by gravity. <p>On completion of the feed:</p> <ul style="list-style-type: none"> • Discard the feed syringe. • Flush the patient’s tube with sufficient water to clear the tube of formula. • Replace the cap on the patient feeding tube and ensure the tube fixings are secure. 	<p>Occluding the tube will minimise air entering the stomach.</p> <p>The plunger is not used to force the fluid, but may be used to accelerate a slow flow when a fine tube is used.</p> <p>Syringes are single use items.</p> <p>Use sterile or cooled-boiled water for immunocompromised patients.^{2,4}</p>
<p>Intermittent feeds via a pump:</p> <ul style="list-style-type: none"> • Fill the bag/bottle/syringe with required feed plus sufficient to prime the administration set. • Apply enteral label to the bag/bottle or syringe and document type of feed, volume and date/ time of commencement. 	<p>Maximum of 4 hour volume for unheated feeds, one hour if heated.⁴</p>

Procedure	Additional Information
<ul style="list-style-type: none"> ● Load the administration set into the pump and prime. Set volume to be infused (VTBI) at the specified rate and commence. <p>On completion of the feed:</p> <ul style="list-style-type: none"> ● Remove the administration set from the patients' tube and discard. ● Flush the patients' tube with water (5-20mL depending on the size of tube and feed viscosity). ● Check the securing tapes. 	<p>Follow manufacturer instructions.</p> <p>Administration sets are considered single use and are to be discarded after each feeding session (inpatients).^{2-5,11}</p> <p>Refer to dietitian regime if extra water is required for hydration.</p>
<p>Continuous feeds via a pump</p> <ul style="list-style-type: none"> ● Obtain 4 hours of feed only.^{3,4} ● If refrigerated, allow the feed to come to room temperature. ● Load/prime administration set and program the pump at the required rate. ● Complete and attach <i>Enteral Feed</i> label to the bag/bottle/syringe. ● Change bottle/syringe or refill the bag every 4 hours using aseptic non touch technique. ● Label the line with time of due change and change every 24 hours.²⁻⁴ 	<p>'Ready to hang' feeds supplied by manufacturer can hang for 24 hours providing a closed system is maintained.^{3,4,10}</p> <p>Refer to PNPM 2.12.1 Safe Labelling</p>
<p>Monitor and record on fluid balance chart:</p> <ul style="list-style-type: none"> ● Volume of feed infused; hourly for continuous feeds. ● All water flushes ● Input/output balance at least 24 hourly. ● Weigh the child as per Dietitian/ medical instruction 	

Procedure	Additional Information
<p>Document and report any of the following to the medical team and Dietitian:</p> <ul style="list-style-type: none"> • Persistent large residual gastric volumes • Diarrhoea or Constipation • Vomiting • Abdominal distension • Abdominal pain • Significant weight gain/loss. 	<p>Gastric losses may need to be replaced with fluids to maintain homeostasis.^{1,4}</p>

Administering Medications

1. Use only enteral (purple) syringes for drawing up and administering medications. Use enteral (purple) adaptors for tubes that are not compatible with enteral syringes.⁵
2. Use liquid medications where possible.⁶
3. Administer one medication at a time and flush between each one. Do not add medications to formula or mix medications together prior to administration.⁶ Refer to [PNPM 2.1.2](#) Checking and Administering Medications.
4. Enteral feeding should be delayed/interrupted for 1–2 hours where a drug interaction is known (eg. Phenytoin, Ciprofloxacin, Warfarin). Liaise with ward pharmacist and the team Dietitian for a feeding plan.
5. Flush the feeding tube with water before, between and after each medication to prevent potential chemical incompatibility and precipitation which can block the tube.

Blocked Tubes:

- The most common causes of enteral tube blockages include: inadequate flushing post administration of feeds/medications; administration of partially crushed medications; feed / drug interaction.

Procedure	Additional Information
<p>Options include:</p> <p>For tubes confirmed to be in the correct position, instil warm water and leave for 10 minutes. Aspirate using push-pull technique to attempt to clear the occlusion. Repeat if necessary.</p>	<p>Nothing should be flushed into a tube if its position cannot be confirmed.</p>
<p>If unsuccessful, change the naso/ orogastric tube.</p>	

Procedure	Additional Information
<p>Caution:</p> <ul style="list-style-type: none"> • Never insert a guidewire into a nasogastric tube that is still in the patient. • Instillation of acidic juices and soft drinks is not recommended (eg. orange juice/cola). • Do not use pancreatic enzymes for unblocking the tube. 	<p>This can rupture the tube and cause significant harm to the patient.</p> <p>Acidic products can precipitate coagulation of protein based formulas and exacerbate the tube occlusion.¹²</p> <p>Enzymes could be harmful to the patient if delivered to the pulmonary system or abdominal cavity.¹²</p>

Related policy, procedures and guidelines.
<p>ANTT[®] Clinical Practice Framework.</p>
<p>Insertion of a Nasogastric or Orogastric Tube</p>
Useful Resources
<p>Kangaroo e-Pump Operating Manual</p>
<p>Sydney Children's Hospital. Guideline: Enteral Feeding</p>
<p>American Society for Parenteral and Enteral Nutrition A.S.P.E.N</p>


References:

1. Axelrod, D., Kazmerski, K., & Iyer, K. Pediatric enteral nutrition. JPEN, Journal of Parenteral and Enteral Nutrition, 2006. 30(1), S21-6.
2. National Health and Medical Research Council. Australian Guidelines for the Prevention and Control of Infection in Healthcare. Enteral feeding tubes. 2010 B4.2.4 Available from: <http://www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b4-2-4-enteral-feeding-t> Accessed 9 July 2013
3. National Clinical Guideline Centre (UK). Infection: Prevention and Control of Healthcare-Associated Infections in Primary and Community Care: Partial Update of NICE Clinical Guideline 2. London: Royal College of Physicians (UK); 2012 Mar. (NICE Clinical Guidelines, No. 139.) 11, Enteral feeding. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK115259/> Accessed 9 July 2013
4. Bankhead R, Boullata J, Brantley S et al; American Society for Parenteral and Enteral Nutrition. A.S.P.E.N. Enteral Nutrition Practice Recommendations [Literature Review] 2009: Available from: <http://pen.sagepub.com/cgi/rapidpdf/0148607108330314v2>.
5. D'Arcy MJ. The Joanna Briggs Institute. Evidence Summary. Enteral Nutrition: Infection Control. June 2013

6. Department of Health Western Australia. Operational Directive OD 0385/12. National Recommendations for User-Applied Labelling of Injectable Medicines, Fluids and Lines. 2012
7. Williams NT. Medication administration through enteral feeding tubes. *American Journal of Health-System Pharmacy*. 2008 65(24) p2347-2357. Available from: <http://web.ebscohost.com.pklibresources.health.wa.gov.au/ehost/detail?sid=c732a336-1e46-4614-bb55-f99d3e8246e0%40sessionmgr112&vid=1&hid=122&bdata=JnNpdGU9ZWlhvc3QtbGI2ZSZzY29wZT1zaXRl#db=rzh&AN=2010138608>
8. Academy of Breastfeeding Medicine Protocol Committee. ABM clinical protocol #8: human milk storage information for home use for full-term infants (original protocol March 2004; revision #1 March 2010). *Breastfeed Med*. 2010 Jun;5(3):127-30. Available from: <http://www.guideline.gov/content.aspx?id=23797>
9. National Health and Medical Research Council. Infant Feeding Guidelines for Health Workers. 2012. Canberra: National Health and Medical Research Council. p. 75 http://www.nhmrc.gov.au/files/nhmrc/publications/attachments/n56_infant_feeding_guidelines.pdf
10. [McKinlay J, Wildgoose A, Wood W, Gould IM, Anderton A. The effect of system design on bacterial contamination of enteral tube feeds. *Journal of Hospital Infection*. 2001;47:138–142] cited in above.
11. Osland E. Promoting the reuse of enteral feeding equipment in ambulatory patients: Where do we stand? 2008. *Nutrition & Dietetics*, 65: 23–28. <http://onlinelibrary.wiley.com.pklibresources.health.wa.gov.au/doi/10.1111/j.1747-0080.2007.00221.x/full>
12. Kenny DJ, and Goodman P. Care of the patient with enteral tube feeding: an evidence-based approach. 2010. *Nursing Research*. 59 (supp 1) pS22-S31. Available from: <http://www.nursingcenter.com/lnc/static?pageid=1001969>

Bibliography

- National Collaborating Centre for Nursing and Supportive Care (UK). Infection Control: Prevention of Healthcare-associated Infections in Primary and Community Care [Internet]. London: Thames Valley University; 2003 Jun. (NICE Clinical Guidelines, No. 2.) Enteral Feeding: Guidelines for preventing healthcare-associated infections during enteral feeding in primary and community care. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK49290/>
- Bourgault A, Ipe L, Weaver J, Swartz S & O’Dea PJ. Development of evidence-based guidelines and critical care nurses knowledge of enteral feeding. [Literature Review]. *Critical Care Nurse*. 2007 27:17-29.
- Best C. Caring for the patient with a nasogastric tube. *Nursing Standard*. 2005. 20(3) 59-65.
- Smith R & Myers S. 2 devices that unclog feeding tubes [Level IV]. *RN* [serial on the Internet]. 2005; 68(1): Available from: <http://rn.modernmedicine.com/rnweb/article/articleDetail.jsp?id=142656>.

File Name and Path:	Nutrition - Nasogastric and Orogastic Tube Feeding https://healthpoint.hdwa.health.wa.gov.au/policies/Policies/CAHS/PNPM%2003.03.03%20Nasogastric%20and%20Orogastic%20Tube%20Feeding.pdf		
Document Owner:	CNC Gastroenterology		
Reviewer / Team:	Gastroenterology; CNM Wards 8A/5A		
Document Sponsor:	Nursing Director PMCCU		
Date First Issued:	January 1974	Version:	2
Last Revised:	19 November 2013	Review Date:	19 November 2016
Endorsed by:	Paediatric Nursing Practice Committee	Date:	19 November 2013
Standards Applicable:	NSQHS Standards: 		
<p>All documents in this manual should be read in conjunction with the Disclaimer in the Preface of this manual. The accuracy of this document is not guaranteed when printed.</p>			