PAEDIATRIC NURSING PRACTICE MANUAL
SECTION 3

GENERAL CARE OF THE SICK CHILD

3.3 Nutrition

3.3.4 Gastrostomy Device Management

This document replaces the former 3.2.4 (Care of a Gastrostomy (PEG or Button), 3.3.4 (Gastrostomy Tube/Button Feeding) & 8.4.2 (Postoperative Care Following PEG).

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All protocols should be read in conjunction with the Disclaimer in the Preface of this manual

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1. Gastrostomy Device Management

Aims

1. To promote the formation of a stoma.
2. To maintain adequate nutrition for a patient with a gastrostomy.
3. To maintain patency of the gastrostomy.
4. To maintain the integrity of the skin surrounding the gastrostomy.

Key points

1. Children who require enteral feeding should have the gastroenterology team and dietitian involved in their care.
2. Parents/carers will receive a Gastrostomy Feeding Booklet from the Gastroenterology Liaison Nurse. This is usually given prior to the PEG insertion as part of the preoperative education.
3. When a child is admitted with a gastrostomy it is important to establish what type is in situ and document in the patients notes.

Postoperative Care Following the Insertion of a Percutaneous Endoscopic Gastrostomy (PEG)

1. The first device inserted is usually a PEG held in place by internal mushroom shaped dome and externally with a skin retention disk. The PEG may have a dedicated medication port.
2. For a surgically introduced/created gastrostomy always refer to the specific postoperative instructions.

3. For postoperative PEG feeding and/or administration of medications via a PEG, refer to Page5

PROCEDURE	ADDITIONAL INFORMATION
Check that the position of the skin retention disc is 2-3mm above the skin.[1] **Note;** A tight retention disk may increase the pain experienced.	The disk prevents tubing from migrating back into the stomach. Correct positioning will prevent undue tension against the abdomen and allow access for cleaning under the flange.
Administer regular analgesia for the first 48 hours.[2, 3] If pain is not controlled with the postoperative analgesia prescribed, contact: • < 2 hrs post the procedure - the Anaesthetist for that patient/list • > 2 hrs post the procedure - the Pain Service or the Duty Anaesthetist	
After 24 hrs post surgery, commence a daily rotation of the tubing 360°.	Enables the formation of a stable and straight tract.
Decompress any excess gas in the stomach, by attaching syringe to the PEG adaptor and releasing the clamp.	During the insertion procedure the stomach is inflated with air which can cause discomfort.[3]

2. Shortening a PEG Gastrostomy Tube[4]

PROCEDURE	ADDITIONAL INFORMATION
If the parents request for a PEG tube to be shortened, discuss the request with Gastroenterology Nursing Team.	
To shorten the PEG tube: 1. Clamp the tube. 2. Remove the feeding connector from the end of the tubing. 3. Trim the tube to the desired length. 4. Replace the connector.[5]	Ensure adequate length is left for connection to Kangaroo pump giving set or gravity feeding.

3. Low Profile Devices (Button)

- These devices are usually fitted 12 weeks after PEG inserted, once a stable track has formed. They are anchored by a water filled balloon or collapsible dome.
- To administer feeds/medications attach the manufacturer supplied extension tubing to the button: **Never** attach a syringe directly on to the button device as this may damage the internal valve.

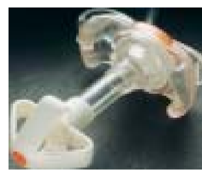
MIC-KEY™ Button (balloon*)*

Nutriport™ skin level (balloon)

AMT-Mini™ button (balloon)

Bard™ button
(Collapsible mushroom)

- Can be inserted in the theatre or anaesthetic room
- Can remain in situ 1-2 years



Entristar® Skin level
(Collapsible star)

- Can be inserted in the theatre or anaesthetic room
- Can remain in situ 1-2 years
- Routine replacement can be undertaken as an outpatient

4. Maintenance of Button Devices with a Balloon (Mic-Key™, Nutriport, AMT-Mini™)

Key points

1. Check the internal balloon integrity weekly.[6]
2. Refer to manufacturer's instruction for syringe types and required amount of water.

Equipment

Syringe
Clean tap water for injection

PROCEDURE	ADDITIONAL INFORMATION
Stabilise the tube. Remove water from balloon with syringe and discard.	
Check the aspirate compares with original volume instilled ie. 5mL. (3mL infants). Report any discrepancies.	The water aspirated should be equivalent to that instilled on the previous occasion.
Instil the recommended amount of water to reinflate the balloon (usually 3-5mL).	Follow manufacturer's instruction for amount required to inflate the balloon. Clean tap water can be used. Do not use air.
Document in progress notes.	

5. Maintaining Patency

PROCEDURE	ADDITIONAL INFORMATION
Flush with water before and after feeds and with each medication.[3, 6] **Recommended flushing amounts**[7] Infants 5mL, toddlers 10-15mL and children over 6 years 10 -20mL. OR as directed by the Dietitian.	Flushing is necessary to prevent clogging/blockage and to ensure all formula and medication are cleared from the tube.[6] For troubleshooting refer to Page 9 of this document.
Continuous feeding regime. Flush every 4 hours.	Drinking water may be used for children >1yr.[3, 6] Cooled boiled water may be used for infants <1yr.
Rotate the device 360° daily.	Assists with maintaining patency.

6. Administering Medications

Key Points

1. Medications followed with water to flush the tube may be administered immediately postoperatively.[3] **However, check the Gastroenterologist's postoperative orders** before using the PEG.
2. Administer medication via the extension tube: never attach syringe directly into a button device as this risks rupturing the valve.[2, 3]
3. Administer each medication *separately* and flush with sufficient water to clear the tubing and gastrostomy device of the medication to prevent potential chemical incompatibility and precipitation which can block the tube.
4. Ensure the ward pharmacist is aware the patient has a gastrostomy. Always check the prescribed medication is appropriate for this route. Points to consider:
   - Most liquids are suitable; however some liquids may be too thick to flush through.
   - Some tablets are not soluble in water.
   - Enteric or slow release tablets should not be crushed.[2,3] Check with pharmacist/medical officer for an alternative preparation.
5. Implement an education plan for patient/carers on safe administration of medications prior to discharge. Liaise with ward pharmacist for advice where necessary.

7. Feeding

Key Points

1. **Postoperatively**
   - When the child returns to the ward following a PEG insertion, page the dietitian to provide individualised feeding advice prior to the commencement of feeds.
   - Feeds are to be withheld for six hours post PEG insertion.
   - After six hours, water may be given via the PEG by continuous pump for a minimum of four hours. The Dietitian will determine the rate of infusion.
   - After four hours of water, the child's usual feed or an appropriate feed will be commenced and run continuously overnight. Recommendations will be made for titrating IV fluids down if appropriate.
   - The Dietitian will document a plan for the next 2-3 days of feeding progression. On day 2 slow grading to boluses will begin. The patient will be back to their usual feeding regime on day 2 or 3 depending on bolus volumes and tolerance.
   - Children not tolerating the usual volume may require a temporary reduction in the rate.
2. If the feed is expressed breast milk (EBM) refer to PNPM 3.8.3 for checking procedure.
3. Stop the feed if the child experiences coughing, choking or breathing difficulties[2] and seek appropriate advice.

Equipment

Disposable catheter tip syringe (50mL)

Water

Prepared feed at room temperature

Additional equipment required for button device feeding

Appropriate manufacturer feeding extension tube attachment (*Bard™* must match French size of button)

PROCEDURE	ADDITIONAL INFORMATION
Prior to feeds, provide oral hygiene as per PNPM 3.2.1.	
Consider the need to decompress the stomach.	The Bard™ button comes with a specific decompression extension tube. MIC-KEY™ Button and AMT-Mini™ buttons have separate feeding extension tube for bolus and continuous feeding. Both can be used for decompression.
Position the child either: • on their back with head/chest slightly raised • right side with head/chest elevated or • in a sitting position	For infants who have a dummy, allow them to suck on it as they feed. This helps form the association of sucking with a full stomach.[6]
Flush the gastrostomy tube with water OR as per dietitian's instruction.	Recommended flushing amounts.[13] Infants 5mL, toddlers 10-15mL and children over 6 years 10-20mL.
PEG Bolus Feeds via gravity Pinch the tube and remove the spigot.	Occluding the tube will prevent excess air from entering the stomach.
Remove the syringe plunger.	
Attach the syringe and fill with the required amount of formula.	
Release the tube Adjust the rate of flow by raising or lowering the syringe.	The plunger may be used to accelerate a slow flow but not to push the feed.
Administer the feed over 10-30 minutes.[12]	
Button Device Bolus Feeds via gravity Attach extension tube to syringe. Remove the plunger.	
Prime extension tube attachment. Fill the syringe with required amount of formula.	Priming the tube will prevent excess air from entering the stomach.
Clamp the extension tube.	
Attach the extension tube to the feed port as per manufacturer's instructions, as outlined below.	Grip the external stabiliser to prevent putting undue pressure on the child's abdomen.
For Bard™, Nutriport & Entristar® Gently push the extension tube directly into the device.	

PROCEDURE	ADDITIONAL INFORMATION
For MIC-KEY™ 1. Lift up the safety cap from the feeding port. 2. Line up the black line on the extension set with the black line on top of the button. 3. Push the extension set into the feeding port.	
4. Turn the extension set clockwise until resistance is felt (usually ¾ turn). 5. Ensure locking mechanism is secure.	Do not turn past this point.
Release the clamp and allow the feed to flow by gravity. Administer the feed over 10-30 minutes.[9] Use the plunger to accelerate a slow flow	Adjust the flow by raising/lowering the syringe. DO NOT pull on the plunger as this will damage the one way valve. Do not to push the feed.
Feeds via a feeding pump Clamp the line. Fill feeding bag/bottle with required amount of the feed.	No more than 4 hours of feed should be placed into feeding set.
For button devices connect feeding administration set to extension tube.	For secure attachment to button device refer to bolus feeding above.
Prime lines with formula and connect to gastrostomy.	
Set the pump rate. Unclamp the line and administer the feed.	
Following the feed Disconnect the line. Flush the extension tube/gastrostomy with water. Replace PEG spigot or Button cap. Clamp the gastrostomy. Record amount of feed and water on the Input and Output chart.	
Disconnect the extension tube and wash in warm soapy water and air dry.[10] Rinse feeding administration set through with water.	A Bard™ brush may be used to clean the tubing. Ensure all tubing is removed from patient before doing so.
Change feed administration set every 24 hrs.	Replace extension sets every few weeks.

8. Stoma Care

PROCEDURE	ADDITIONAL INFORMATION
Monitor the site daily for signs of infection, swelling, redness, bleeding, exudate, leakage around the tube from the stoma and/or leakage from the device.[3, 6, 11] If excessive exudate is noted call the Gastroenterology Nurses.	Slight redness and serous leakage around the tube is expected due to the inflammatory response of the tissue to the tube.[6] Dressings under the retention disk are unnecessary[1] and can promote infection.
Ensure skin beneath the skin retention disk is kept clean and dry, as part of normal daily hygiene needs.[2, 6]	Providing the skin under the disc is dried, showering post op is permissible. Do not bathe not until one week post op.
Use warm soapy water or sodium chloride 0.9%[10] to clean the skin.	Moistened swab sticks may facilitate cleaning under and around the tube.
Rotate the skin retention disk/tubing or button daily through 360°. [2]	Relieves pressure and exposes the skin under the disc/buttons wings to the air.
Managing excoriation If excoriation of the skin occurs due to leakage of stomach contents from the site, apply a barrier product to protect the skin and allow healing. Liaise with CNS Gastroenterology/CNC Stomal Therapy for a management plan if required.	It is important to detect the reason for leakage (eg. exclude infection, loss of balloon volume, migration of the tube, non return valve blocked) and resolve the problem. Refer to PNPM 3.2.5.

9. Trouble shooting

PROCEDURE	ADDITIONAL INFORMATION
Blockage **PEG** Rotate and massage tube between fingers to try and dislodge the blockage. **Low Profile (button) Devices** If blocked, tube will need to be replaced.	Regular flushing prevents blockage. Inform Gastro Nursing Team if tube remains blocked.
Leakage Around the Tube; **MIC-KEY™, Nutriport, AMT-Mini™** 1. Check patency of balloon. 2. Try decompression of excess gas. 3. Consider that the patient may not be tolerating the amount of bolus feed.	If the valve does not stop leaking, the button may need changing. Refer to page Page 4. Refer to Page 6. Seek advice from the patient's team.
Bard™ & Entristar® 1. Try decompression of excess gas (for Bard™ use separate decompression tube). 2. Consider that the patient may not be tolerating the amount of bolus feed. 3. Check the age of device. 4. Inform Gastro Nursing Team as the button will require changing.	Refer to Page 10. Refer to Page 6. Seek advice from the patient's team.

10. Replacing a Displaced Gastrostomy Tube[7 8]

Key Points

1. If displacement occurs less than eight weeks post insertion of tube the tract may not be fully established. Seek immediate advice from the appropriate team (gastroenterology and/or surgical team).
2. For tubes that have been place for over 8 weeks; replace immediately with an appropriate replacement tube to prevent the stoma closing.
   - low level button devices with a balloon can be replaced by parents/nursing staff educated to do so.
   - all other tubes ie. Bard™ and Entristar® require the appropriate team to be notified (gastroenterology and/or surgical team) and a temporary insertion of a Foley catheter (largest size that will ensure a snug fit).

Equipment

Appropriate replacement device

Wash cloth

Syringe – to inflate the balloon

Water – to inflate the balloon

Water soluble lubricant

+/- tape

PROCEDURE	ADDITIONAL INFORMATION
Clean the skin around the gastrostomy site.	
Wash the displaced tube with soap and water.	Alternatively, use a new tube (same make and size as the old one).
Draw up water into the syringe.	Follow manufacturer's instruction for amount required to inflate the balloon (usually 3-5 mL).
Inflate the balloon with water. Pull the water back into the syringe.	To check the integrity and uniform shape of the balloon, prior to insertion. **Note;** if displaced tube balloon is not functioning it can still be inserted and taped in situ as a temporary measure to prevent the stoma closing.
Moisten the end of the tube with water-soluble lubricant. **Do not** use an oil based lubricant eg petroleum jelly.	To aid insertion.
Insert the tube into the stoma.	Minimal resistance should be felt.

PROCEDURE	ADDITIONAL INFORMATION
Inflate balloon with the water in the syringe. Remove the empty syringe from the tube.	
Rotate through 360° until it feels snug against the stomach wall.	
If button device cannot be replaced Insert a Foley catheter to approximately 5cm. Inflate the balloon then pull back until resistance is felt. Mark where the tube comes out of the body and secure with eg. Fixomull™ tape.	The depth of insertion may vary according to size of patient).
Clean and dry the skin.	
Attach a syringe to appropriate extension tube. (Bard™ must match the French size of button).	Refer to Page 5
Attach the extension tube to the button.	Do not insert syringes directly into the button, as this will damage the one way valve.
Check the placement of the tube by allowing back flow of stomach contents.	
Return this fluid into the stomach.	
If any doubt, do not use the tube Contact gastroenterology nursing team.	Unless you are sure of correct placement Foley catheters and displaced devices (with non functioning balloons) should not be used for feeding. Predominately they are only inserted as a temporary measure to prevent the stoma closing.

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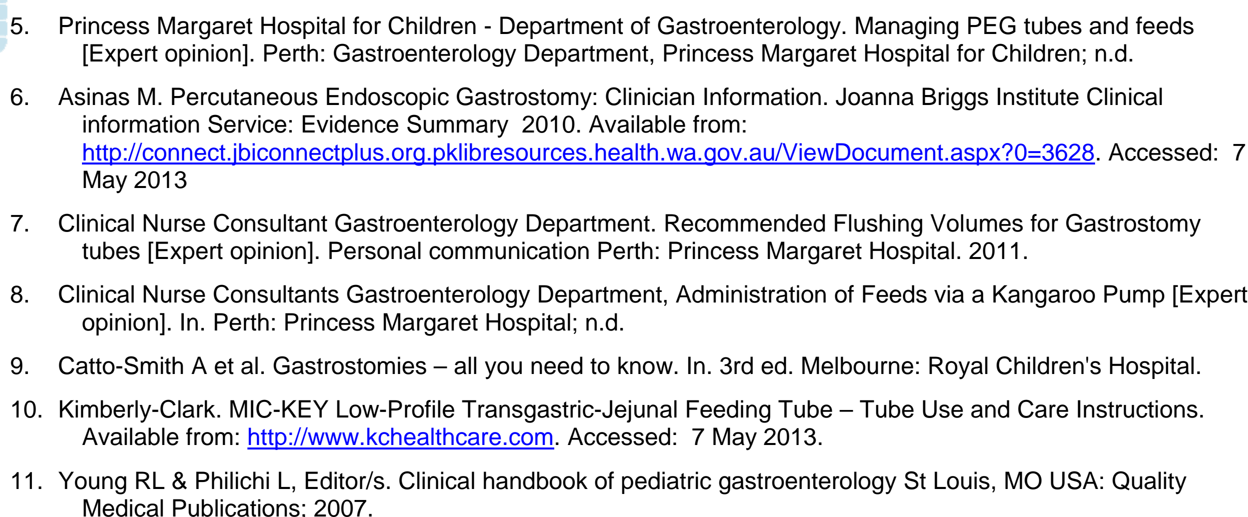

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