Gastrostomies

All you need to know

4th edition

This book has been developed for people with gastrostomy tubes and their carers.

Information in the booklet has been compiled by staff from The Royal Children's Hospital, Melbourne. Its contents therefore reflect practices at this hospital. Your own health professionals may choose to adapt parts of this booklet to suit their own practices.

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Introduction

A gastrostomy is a hole made directly through the abdominal wall into the stomach. It is usually used as an alternative or additional means of providing feeds, fluids and / or medications for those who are unable to consume enough nourishment for their daily needs by mouth.
The initial gastrostomy is created with the aid of an endoscope (PEG), or by a laparoscopic or open surgical procedure.

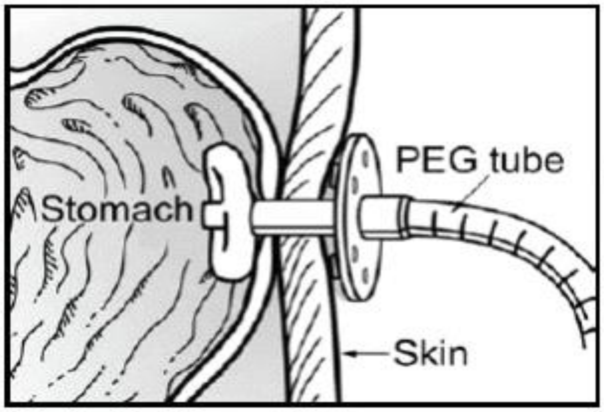
The initial procedure

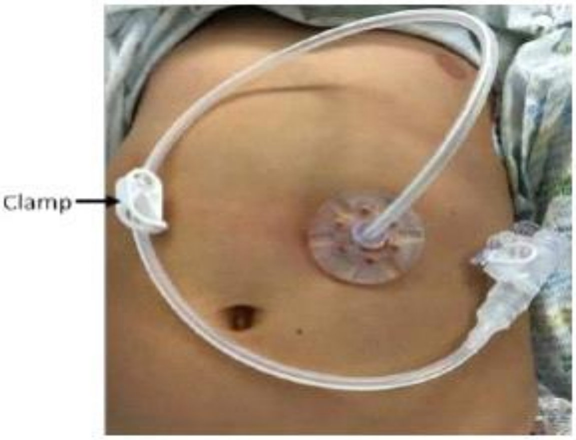
a) PEG

PEG stands for “Percutaneous Endoscopic Gastrostomy”.

Under anaesthesia, a long flexible endoscope (gastroscope) is passed through the mouth and into the stomach which is then distended with air. Under direct endoscopic vision, a small incision is made in the abdominal wall and a string is introduced into the stomach which is then pulled up the food pipe (oesophagus) and out the mouth. The initial gastrostomy feeding tube is attached to this and passed back down through the oesophagus into the stomach and pulled out through the small cut in the abdominal wall. The gastrostomy tube is prevented from coming all the way out by a mushroom shaped retention flange in the stomach. A flat disc called a skin flange is slid down on the outside to keep the tube in position.

The initial procedure is usually very quick, however pain relief is needed afterwards and the child will be admitted to the hospital for post-operative care and to establish gastrostomy feeds. The patient is usually able to be discharged from hospital within a few days.





This initial gastrostomy tube can last for approximately 9-12 months, but is usually changed between 3-6 months after insertion once the stoma tract has matured.

An anaesthetic and a gastroscopy will usually be required to replace the initial gastrostomy feeding tube. There are a number of different types of devices that can be used to replace the initial gastrostomy tube. These vary by the length of the external tube (short low profile or long tube) and the type of gastric retention mechanism. Please discuss these options with your Gastroenterologist.

Replacing the initial gastrostomy tube

The initial gastrostomy tube will need to be replaced. Replacement devices have either short (low profile) or long tubes, with a retention device in the stomach that is either a balloon or soft plastic flange.

a) **<u>Low profile gastrostomy tubes</u>**

These tubes are at skin level and less obtrusive. They all have an internal anti-reflux valve to prevent gastric contents leaking back through the tube.

i) Balloon button retention device (e.g. Mic-Key®, miniONE®, Nutriport™)

These are short skin level tubes, which are held in place by an inflatable gastric balloon filled with water. An anaesthetic is **<u>not</u>** required to change them. There are two openings on the outside. One of these is for feeding and the other, on the side, is to inflate the balloon. This type of gastrostomy tube is relatively easy to replace by a gastroenterologist/specialist nurse. Generally, they should be changed routinely every 6-8months dependant on the way in which the tube is used. You will be seen in PEG clinic routinely every 6 months. You will require a referral from your GP to access the PEG clinic, preferably an indefinite referral to cover ongoing clinic appointments.

ii) Soft plastic retention flange (e.g. MiniOne non-Balloon Button®)

These low profile tubes are kept in place by a soft plastic retention flange in the stomach. They will usually last for 6-12 months and need to be changed when they start leaking or become too short. They tend to last longer than balloon tubes and are less likely to fall out. In most circumstances, in children, these are changed under sedation or anaesthetic.

b) **<u>Long gastrostomy tubes</u>**

i) Long tube - balloon retention device (e.g. MIC® G-tube, Kangaroo™)

The length of these tubes can be adjusted by moving a skin flange. They are also held in place by a balloon inside the stomach which is inflated with water. They have 3 ports, 1 for feeding, 1 for medication, and 1 for inflating the balloon. They are easily changed by a gastroenterologist/specialist nurse without the need for an anaesthetic.

ii) Initial type PEG

These can be used as a long term "replacement" device but will usually need to be re-inserted with the aid of gastroscopy and an anaesthetic.

Replacement tubes – what to do if the tube falls out or malfunctions

If your child's tube falls out, it is NOT necessarily a medical emergency. However, a tube should be placed into the stoma immediately and taped securely to prevent the stoma (hole) from closing over.

Initial tubes

The initial gastrostomy tube will usually start to degrade within about 12 months and will need to be replaced. This replacement will be as a planned procedure just like the initial insertion.
Initial type gastrostomy tubes are unlikely to fall out spontaneously, but if they do, you will not be able to reinsert it yourself. Promptly seek advice from the Gastroenterology fellow on call (contact through switchboard 03 9345 5522) and present to the Emergency Department as soon as possible.
If it falls out in the first 2 months after initial placement, the stoma may not be completely formed, and a gastroscopy under anaesthetic may be the safest way to replace the tube. This will be determined by the Gastroenterologist once the patient is examined.

Low profile or long tubes with balloon

A gastrostomy tube is more likely to fall out if it is a balloon-type. The old tube can be reinserted and balloon inflated or temporarily taped into position if the balloon has burst. This will prevent the stoma from closing over. Seek advice from the PEG clinic regarding replacement gastrostomy device and reinsertion. If you reinsert the tube, seek medical advice before recommencing feeds or administering medicine.

Non-Balloon Low profile tubes

Low profile devices without balloons (eg MiniOne non-balloon/cage® or Entristar®) can become partially dislodged or fall out. You may notice redness and swelling around the tube, with slowed flow rates and discomfort, particularly during feeds. The tube may have "popped up" above the skin. Rotating the device may be painful. Seek medical advice if you suspect partial dislodgement.

In the event that you are unable to reinsert your child's low profile device or have an initial/cage tube AND cannot attend the RCH PEG clinic or emergency department, it is recommended that you present to your local hospital Emergency so that they can reinsert the tube or insert a catheter to keep the stoma open until a tube can be reinserted.

Tube breakages/malfunctions/falling apart

Continue to use the tube, if possible, until you can attend the PEG clinic, preferably the following day.
If your child is having overnight feeds or is metabolically unstable without strict feeds then follow the contact instructions as below to be seen promptly.

Contact
PEG clinic hours (8:30am – 2:30pm Monday to Friday)
Contact the PEG clinic for an urgent appointment 9345 5673

After PEG clinic hours (up to 5pm Monday to Friday)
Contact gastroenterology fellow on call via switchboard 9345 5522

Outside the above hours (5pm-8:30am Monday to Friday, weekends and public holidays)
Present to Emergency

Care of the stoma

a) Skin care

Skin around the gastrostomy tube requires cleaning each day, ideally at bath time, with water. A mild soap may be used but is not necessary.

The gastrostomy tube also requires full rotation daily. This usually begins 5-7 days after initial insertion. Confirm instructions with the surgeon/gastroenterologist after insertion.

Cotton buds are useful for cleaning underneath the top of the tube, around the stoma.

The skin around the gastrostomy tube must be kept clean and dry. Moist skin will lead to irritation and breakdown. If the site is leaking, start applying a barrier cream (paraffin ointment such as Vaseline, Phytoplex, silicone cream and zinc cream) before the skin breaks down. A dressing, such as Allevyn, is good at absorbing any leakage, however if there is no leakage, it is not necessary. Fabric or gauze 'toppers' should be replaced regularly if used, as they are not as good at absorbing moisture.

b) Mouth care

Mouth hygiene is very important, even if your child is not taking any food or drinks orally. Brush teeth twice daily with toothpaste and a soft toothbrush. Apply a moisturising cream to prevent dry lips. Visit the dentist regularly.

c) Bathing

Bathing may be recommenced 3 days after the initial gastrostomy has been placed.

Bathing is a very good way to keep the stoma clean.

d) Swimming

It is recommended to avoid swimming, either in the sea or in a pool for 2-6 weeks after the initial gastrostomy tube has been inserted. If you are planning some swimming, confirm with the surgeon/gastroenterologist how long your child should refrain.

Feeding

a) Types of feeds used

A variety of commercially prepared liquid feeds are available. In most cases they will provide all of the energy, protein, fats, carbohydrates, vitamins and minerals required. Additional foods such as purées should not be put down the tube as this may cause a blockage, damage the gastrostomy tube and are nutritionally unnecessary.

A Dietitian will assess the child's specific nutritional needs, and recommend the type of feed and amount that is required, depending on their age and individual nutritional needs.

b) Feeding regimen

The volume, frequency and timing of feeds will be discussed with you by your Dietitian. Feeding regimens can vary and will be tailored to suit individual needs. Some of the factors that will be considered when deciding on a regimen that is most suitable include:

- the total volume of feed needed.
- your current lifestyle (e.g. mealtime, usual bed-time, day-time activities).
- the volume of feed tolerated at one time.

c) Review

Nutritional needs and feed tolerance will change over time. Regular dietetic reviews are essential for determining whether the gastrostomy feeds need to be adjusted.

Your Dietitian will organise regular opportunities to review your feeding regimen, feed tolerance and growth or weight changes. A good opportunity to discuss these and any other issues is when you contact the HEN technician to re-order feeds and supplies, which is usually a bi-monthly basis.

d) When the feed is not tolerated

Sometimes feeds may not be tolerated. This may be due to illness and altered gastric emptying. Ask for a review of the gastrostomy feeding regimen if there is:

- discomfort and/or bloating during or after a feed.
- nausea or vomiting after a feed.
- diarrhoea or constipation.

Contact your Dietitian, doctor or emergency department if you feel your child is not tolerating feeds or is unwell.

e) Oral feeding

When food can safely be taken by mouth a Dietitian can advise you about appropriate oral foods. Gastrostomy feeds may need to be reduced accordingly. If swallowing difficulties occur, a Speech Pathologist may also be able to help develop a program that will improve eating skills.

f) HEN (Home Enteral Nutrition) Program

Currently there are two funding streams to provide financial support to Victorian patients who are receiving gastrostomy feeds. One funding stream is provided by the Victorian state government for patients with health conditions that require enteral feeding at home. This grant provides support for standardised monthly feed and equipment requirements. The program is coordinated by your Dietitian and the Equipment Distribution Centre (EDC). To be eligible for financial support through this program you must:

- have your main medical care based as a public patient at the hospital where the HEN
- Program is administered.
- have regular medical reviews.
- have regular dietetic reviews (at least once per year).
- have a Health Care Card
- not be eligible for NDIS funding
- receive most nutrition through the gastrostomy tube.

Your Dietitian will be able to provide additional information regarding the HEN Program. The other funding stream is the NDIS which is provided by the Federal government for patients with disability conditions that require enteral feeding at home. This program provides support for individualised monthly feed and equipment requirements based on your child’s needs. The program is coordinated by your RCH Dietitian who can provide a letter of support to your plan manger outlining your child’s requirements and a service level agreement to outline the service that will be provided from the RCH NDIS HEN program. To be eligible for financial support through the NDIS program your child must have an ongoing functional impairment and the nutrition support requested must be directly related to this ongoing functional impairment. The RCH is a registered NDIS provider and can continue to provide your child’s HEN needs if you choose to continue to use our service with your NDIS funding package. Further information about the NDIS and NDIS eligibility can be found at https://www.ndis.gov.au/

Feeding methods

There are three main methods of delivering a feed through a gastrostomy tube: continuous, bolus and gravity. An appropriate method will be recommended by your Dietitian.

a) Continuous feeds

Continuous feeds are delivered through a feeding pump. This method of feeding is usually used when there are problems with managing a large volume of feed at one time, or when overnight feeds are required. Pump feeds can also be given over 24 hours, or intermittently during the day.

Setting up the pump

- Wash hands with soap and warm water.
- Assemble equipment. You will need:
  - – Pump
  - – Pump giving set
  - – Feed container
  - – ENFit syringe
- Prepare feed as instructed.
- Fill the container with the correct amount of formula, and connect it to the pump giving set. Hang the container above the pump.
- Prime the pump giving set with formula (i.e. run the formula through the line until it is almost at the end of the tubing). Both the Kangaroo and Patrol pumps require the small chamber along the tubing to be about one quarter filled with fluid.
- Connect the pump giving set to the pump as shown in the picture on the following page and connect the tip of the tubing to the feeding port. If you are using a low profile gastrostomy tube, use the extension set to connect to the gastrostomy device.
- Set the desired rate on the pump, and select RUN to commence feeding.

If the pump alarms during a feed, refer to pump trouble-shooting (page 23 – 25). At the end of each feed, wash hands and flush the gastrostomy tube with 5 to 10 ml of water using the ENFit tip syringe attached to the pump giving set. Wash all containers and feeding tubes in warm, soapy water. Rinse well. Store in an airtight container in a cool dry place or in the fridge, ready for use with the next feed.

Discard the pump giving set after 2 days of use.

b) Bolus syringe feeding

Bolus feeding involves delivering a feed over a period of time (10 – 30 minutes). Feeds can be given using a large ENFit tip syringe (with the plunger removed) or a gravity giving set.

Setting up syringe bolus feeding

- Wash hands with soap and warm water.
- Assemble equipment. You will need:
  - ENFit tip syringe (with the plunger removed, see below)
- Prepare formula.
- Fill the feed container with the correct volume of formula.
- Vent stomach (see below left)
- Connect the tip of the syringe directly into the end of the (long) gastrostomy tube. If you are using a low profile gastrostomy tube you must not put a syringe directly into the device. Instead, always connect the syringe using the bolus (straight) extension set.
- Fill the syringe with formula.
- Position the syringe to adjust the rate of feed delivery. The rate will be fastest if the syringe is held directly above the gastrostomy and slowest if held at the same level as the gastrostomy.
- Refill the syringe when 5 to 10ml of formula remains to prevent air from entering the stomach.
- At the end of the feed wash hands and flush the gastrostomy tube with 5 to 10ml of water.
- Wash the syringes and feeding extension set in warm, soapy water. Rinse well. Store in an airtight container in a cool dry place or in the fridge, ready for use with the next feed.

c) Gravity feeding

Setting up for gravity feeding

- Wash hands with soap and warm water.
- Assemble equipment. You will need:
  - Gravity giving set
  - Feed container
  - ENFit tip syringe
- Prepare formula as instructed.
- Fill container with the required amount of formula and connect to gravity giving set.
- Vent stomach.
- Hang the container and prime the gravity giving set with formula using the clamp, (i.e. run the formula through the line until almost at the end then clamp off).
- Connect the tip of the giving set to the gastrostomy tube. If you are using a low profile gastrostomy tube you must not put a syringe directly into the device. Instead,

always use the feeding extension set.

- Release the clamp on the gravity set until the desired rate is achieved.
- At the end of the feed wash hands and flush the gastrostomy tube with 5 to 10ml of water.
- Wash all containers and feeding tubes in warm, soapy water. Rinse well. Store in an airtight container in a cool dry place or in the fridge, ready for use with the next feed.
- Discard the gravity giving set after 2 days of use.

Feeds hung for long periods of time in a warm environment are at risk of becoming contaminated with micro-organisms. In the home environment it has been suggested that ready to feed formula can be hung for a maximum of 8 to 12 hours, and formula prepared from powder for 6 to 8 hours.

Administration of medications

Medications should be given one at a time and flushed in between with water.

- Check with your Doctor or Pharmacist before giving medications through the gastrostomy.
- Use liquid medications where possible to avoid blocking of the gastrostomy tube.
- If there is no liquid form of medication, please discuss options with your Pharmacist
- Medications MUST NOT be mixed with feeds.
- Syringes should NEVER be inserted directly into skin level gastrostomies. Always use the feeding extension set provided.
- Medications should be administered via a syringe connected to the extension set, the tubing should then be flushed with appropriate volumes of water to ensure that the correct dose is given.

Volumes for flushing are:

- 5-10ml unless otherwise fluid restricted due to chronic illness

Tablets

- Immediate release tablets: these are ordinary tablets, sometimes they can be sugar or film coated. Some of these tablets will disperse if left in water.
- Soluble tablets: these tablets dissolve completely to leave a clear or coloured solution.
- Dispersible tablets: these tablets break down to a fine powder when put in water.
- Special release: these tablets can be called slow release, modified release or enteric coated and usually have the letters XL, LA, SR, MR, EC or CR in the name. These should NOT be crushed and are not suitable for use via a feeding tube. Please check with your doctor and pharmacist

Methods of crushing tablets

- You should check with your Pharmacist or Doctor prior to crushing tablets. If your pharmacist or Doctor has told you it is OK to do so, tablets can be crushed using a mortar and pestle or between two spoons.

Capsules

- Most capsules have a gelatin shell with loose powder inside that can be mixed with water
- Some contain granules and others liquid. Advice should be sought before giving these through a feeding tube.

Liquids

- Some liquid medicines are very thick and you may be told to mix them with water before putting them down the tube. This should be done just before giving the dose. Ensure tube is flushed properly post thick liquid medications.

Blocked gastrostomies

The gastrostomy tube can become blocked by:

- Poorly crushed medications.
- Not adequately flushing the gastrostomy tube when feeds are completed or medications given.
- The feed being too thick.
- Feed containing lumps of powder when not mixed thoroughly.
- Leaving formula in the tube to curdle.
- Pureed/solid food being put down the tube.

To unblock the gastrostomy tube 10 to 20ml of warm water may be syringed through the tube using a push-pull method to try and agitate the blockage.
The best way to prevent blocked tubes is by ensuring adequate flushing of tubes before and after all medications and feeds, and avoiding the use of solid items into the tube.

If on continuous feeds, flush whenever disconnecting feeds, or as instructed by your Dietitian. Additional water may need to be given between bottle changes to meet fluid requirements: this should be discussed with your Dietitian.

Venting

Venting is the process of allowing excess air to escape from the stomach. This may not always be required. If bloating or retching are problems, venting the tube may help.

Venting before feeding is important for those who have had a fundoplication (anti-reflux procedure), as they may find it difficult to burp.

Low profile gastrostomy devices can be vented by attaching an extension set or a special venting tube. These allow air that has built up in the stomach to escape. Attach a large syringe with the plunger removed and hold it up to release the air. Some feed might also be aspirated, this can be returned to the stomach once the air has been released.

Long gastrostomy tubes can also be vented using the same method above, but directly attaching the syringe to the long tube.

Care of equipment

a) Giving sets and accessories

The giving set is the tubing that connects the feeding bottle or container to the extension set or gastrostomy tube. The type of giving set you will receive depends on whether you will use gravity or pump feeds.

Most manufacturers recommend that giving sets should be used only once in the hospital setting however at home it is reasonable to reuse giving sets for up to 2 days as long as they are carefully cleaned after each use.

Special consideration needs to be given to infants and immune suppressed children, who should use a new giving set every 24 hours.

All feeding equipment (giving sets, syringes, baby bottles, flexi-containers and extension sets) needs to be washed in warm (not hot) soapy water between each use. Equipment should then be rinsed well and drip-dried thoroughly before storing in a clean, dry container with a lid (preferably in the fridge).

b) Formula

Feeds should be prepared as instructed by your Dietitian. If unsure about the right feed or recipe, contact your Dietitian.

Store unopened formula in a cool, dry place.

Opened packs of “ready to feed” formula must be refrigerated with the screw caps tightly in place until required.

Feeds in the refrigerator should be used within 24 hours if made from powder and 48 hours for ready to feed formula. Formula can be brought to room temperature before feeding if desired.

c) Pump

The outside surface of the pump can be cleaned with a damp cloth and warm soapy water.

When cleaning the pump, it should be turned off and unplugged.

Avoid any alcohol and strong household cleaners.

If your pump requires servicing or is not operating correctly it should be returned to the relevant company or place of hire/ purchase, where you will be provided with a replacement pump (Annual service is recommended).

If the pump is not working, and a feed is required before you can get a replacement, try the following:

- Use a gravity giving set and adjust the flow rate to a slow drip using the roller gauge. 1 drop is equivalent to 1ml of feed, hence 6 drops per minute will deliver 180ml over 30 minutes.
- Feed a small bolus amount slowly using a syringe at regular intervals.
- Try to deliver the usual volume over a 24 hour period.

Common problems

Potential problems	Cause	Action	Prevention
Accidental removal of initial PEG/tube	Retention disk or balloon may have perished, or deflated or been pulled out.	A replacement tube should be re-inserted within 4hrs. A trained Person can insert a balloon long tube or low profile tube or use a Foley catheter. SEEK MEDICAL ADVICE BEFORE STARTING FEEDS.	Use a firm singlet, all-in-one jumpsuit or tubular elasticised bandage to prevent tubes from being accidentally pulled out.
Balloon tube falls out	Deflated or ruptured balloon or pulled out inflated	If balloon is ruptured, the tube will need replacing. If there is no water in balloon, replace water and monitor volume to see if balloon is ruptured or has a slow leak. Reinsert the old tube (even if the balloon is ruptured) and tape to secure if required or otherwise, if available, insert a new tube Contact PEG clinic for review	Monitor the fit when attending to daily cleaning. If loose, check the balloon volume and top up as required. Balloon volume can be checked routinely, however is not necessary. Use a firm singlet, all-in-one jumpsuit or tubular elasticised bandage to prevent tubes from being accidentally pulled out. Keep extension set disconnected when not using.
Tube damage	Incorrect opening technique of the tabs on the gastrostomy tube. Plastic disc has dislodged from incorrect connection of extension tubing	Contact PEG clinic for replacement at next convenience. Contact PEG clinic for replacement ASAP	Gently lever the tab out of the gastrostomy tube. Check tube daily. Ensure extension is inserted properly and attached by anchoring the button with one hand and firmly inserting the tube with the other. Do not rotate the extension beyond the advised amount.
Perished or deterioration of tube	Not flushing correctly i.e. formula remaining in the tube. Candida in the tube Clamping in the same spot on the tube Kinking the tube in the same spot Old tube	Contact PEG clinic as a replacement may be required	Wash and care for tubing as instructed. Flush gastrostomy tube with water before and after every feed. Also before and after administration of medication. Clamp in alternating positions Avoid frequent kinking of the tube at the top of the retention disc Attend PEG clinic appointments to change the tube as required

Leakage from around gastrostomy tube	Balloon deflated or ruptured.	Re-inflate balloon or replace if burst.	Check balloon volume
	Tube too small for opening.	Likely due to irritation in tract. Address granulation and stomach acidity to heal tract Replace with larger Fr size tube as last resort.	Mostly unavoidable
	Tube migration into stomach. (Initial PEG)	Adjust skin retention disc to ensure internal flange or balloon is snug against the stomach wall.	Check for migration of thetube by checking markings on the tube daily (some tubes may not have markings and these can be marked with a permanent marker). Use tape above disc to stop it from slipping
Skin ulceration	Low profile device too short or external retention disc too tight. May be due to growth	Contact PEG clinic. Disc may need adjustment or low profile device may need replacing with a longer size. May also require wound care.	Attend regular appointments with dieticians to ensure weight gain is not excessive. Attend regular appointments with PEG clinic for resizing and disc adjustment Contact PEG clinic as soon as you notice the tube is too tight and redness/indentations occurring. Do not wait for skin to break down
Tube leaking when patient isunwell	Gastric secretions around gastrostomy tubes when unwell.	Use barrier ointment such as paraffin to minimiseirritation to skin from gastric secretions. Acid suppressing medications as directed by yourDoctor e.g. Ranitidine® or Omeprazole®. Use absorbent foam dressings e.g. Allevyn®	Leakage should decrease as the child becomes well. If not, contact PEG clinic to arrange a review.

Common problems (continued)

Potential problems	**Cause**	**Action**	**Prevention**
Connections come apart Ask device tech	Formula fats make silicone tubing slippery.	All surfaces that make contact must be ‘defatted’. This can be done with any mild acid such as distilled white vinegar, cranberry juice, or mineral water.	With a fine cloth or gauze rub the surface of all extension set tips, plugs and into the gastrostomy device. Rub each surface a couple of times to keep them clean with water.
Leakage through the tubes	The internal valve is not functioning. May be plugged with medication, food or broken tip/locking notch from extension or valve may have stiffened and worn out.	Flush with carbonated drink via an extension tube. Use a syringe with up to 30ml of fluid and infuse in 10ml increments over 20min. Flush directly into the tube with water using a 10ml syringe If this doesn’t work, the valve may be permanently damaged. Contact PEG clinic	Flush before and after feeds and medications. Monitor for broken extension sets and leaking valves coinciding. Ensure you flush the tube to dislodge any plastic before it permanently damages the valve.
Blocked tubes	Poorly crushed medications.	To unblock the gastrostomy tube flush it with 10 – 20ml of acarbonated drink (e.g. mineralwater).	Flush tubes before and after all feeds and administration of medications.

	Not flushing the gastrostomy tube when feeds are completed.		
	The feed is too thick.		
	Leaving formula in the tube to curdle.		
	Puréed food being put down the tube.		Pureed feeds are not recommended.
	Feed contains lumps of powder.	Mix powdered feeds thoroughly.	Mix powdered feed thoroughly.
White plaques in gastrostomy tubing	Candida (Thrush) mostly seen in long tubes.	Anti-fungal can be administered orally, down tube and topically.	Prophylactic 10ml cranberry juice down tube after feeding at the end of day (contraindicated in children less than six months of age)
Irritation, skin redness, bleeding, soreness, swelling and oozing	Tube leakage. Child is currently unwell with intercurrent illness	Check balloon volume is optimised and tube length is correct. Apply a barrier cream to protect from moisture and acid. Apply a foam dressing to absorb and wick away exudate. Avoid soft-wick gauze that will not wick Hydrocolloid powder can help stop bleeding and absorb excess moisture. Discuss acid reducing medication with PEG clinic or doctor. Solutions such as Mylanta® can help reduce redness. A thin hydrocolloid dressing protects and heals irritated skin.	Keep skin clean and dry. Initiate barrier cream and dressing when child is unwell and as soon as any signs of leakage or redness.

Common problems (continued)

Potential problems	Cause	Action	Prevention
Cellulitis	Staph infection.	Appropriate antibiotics may be required. If site is swollen, tube may need to be loosened or even replaced.	Clean and check site daily.
Contact Dermatitis (Appears like swelling, redness, itching or blistering)	Due to sensitivity to soap, tapes and/or anchoring devices used around gastrostomy tube.	Remove causative agent. Medications such as antihistamines may be needed. Topical corticosteroids can reduce the inflammation.	Check site daily and clean with non-perfumed soap.
Overgrowth of fleshy skin around gastrostomy (bleeds easily, often smells)	Granulation tissue often occurs around 6 weeks post-surgery.	Contact the PEG clinic. A foam dressing can be used to apply pressure to site and reduce granulation. Silver nitrate application daily to granulation tissue only. Application of steroid cream.	Check tube daily to ensure it doesn't move too freely and adjust skin retention flange as necessary. Consider use of a firm singlet, all-in-one jumpsuit or tubular elasticised bandage to prevent tubes from moving.
	The tube is moving too freely.	Anchor device.	
Diarrhoea	Feeding too rapid.	Temporarily decrease the rate of feeding.	Review feeding regime with Dietitian.
	Gastroenteritis.	Rehydration with oral rehydration solution. Stop concentrated feeds. Stop Polyjoule®. If diarrhoea persists more than 24 hours seek medical advice.	Hygienic food preparation and storage.
	Feeds too concentrated.	Stop concentrated feeds, use standard dilution. Stop adding Polyjoule®. Consult your Doctor or Dietitian.	Discuss diet/fluid management with your Dietitian.
Thirst and dehydration	Usually as a result of not getting enough fluid.	Ensure you give enough water and/or Gastrolyte®.	Review diet and fluid intake with Dietitian.
Nausea and vomiting	Feeding too fast.	Feed more slowly.	Venting of tube.
	Lying flat.	Sit up at 30 degree angle or more whilst feeds are running.	
	Build-up of stomach gas.	Vent before feeding. Release gas with decompression tube/syringe.	
		If persists seek medical advice.	
Reflux	Altered stomach emptying.	Feed more slowly, vent tube. Sit upright, thickened feeds or medications can be prescribed (consult your Doctor). Remain upright following feed.	Venting before and after feeds.

Gastro-Jejunal Feeding (trans-gastric feeds)

Sometimes feeds are given directly into the small bowel in order to bypass the stomach. A special type of feeding tube is required and there is a range of types available (e.g. Freka® Intestinal tube for PEG, Mic-Key® G-J tube).

You should speak with your Gastroenterologist and Dietitian in order to understand the special issues related to jejunal feeding tubes. Ideally, you should also have a copy of the manufacturer's instructions.

It is important to realise that these tubes are:

- more difficult to put in position – they have to go beyond the stomach, and are placed by radiology using X-ray or endoscopically at gastroscopy. An anaesthetic may be required to replace a tube that has fallen out or become dislodged.
- more easily obstructed, both from kinking and blocking, as they are much longer and thinner.

To avoid blockages:

- Do not administer medications through the jejunal feeding port (unless there is absolutely no alternative under medical direction). If possible, give medications through the gastric port (if there is one) or else by mouth.
- Never allow formula to stand in tube.
- Flush the jejunal tube with water every two hours, and before and after feeds.
- NEVER use any force when flushing – let water trickle through.
- Always use feeding pump to deliver formula.
- Never draw back on the jejunal feeding port with a syringe or suction.
- NEVER rotate the gastro-jejunal feeding tube at the gastrostomy site.

Information Sheet

Name		
Date of initial gastrostomy tube insertion		
Type of tube		
Size (fr)	Length (cm)	
Malecot® /Foley	Length from skin level to end of tube (cm)	

Tube Changes				
Date	Type	Size	Insertion (cm)	Doctor
Pump type				

Feeding Plan		
Date	Formula	
Total fluids per day		Volume of additional water required

Doctor	Phone:
Gastroenterologist	Phone 03 9345 5060
Nurse Coordinator – PEG clinic	Phone 03 9345 5673
Stomal Therapist	Phone 03 9345 5338
Dietitian	Phone 03 9345 5663
Home Enteral Nutrition (HEN) Dietitian Assistant	Phone 03 9345 7029
The Royal Children’s Hospital	Phone 03 9345 5522
Equipment Distribution Centre	Phone 03 9345 5325