

FEEDING YOUR CHILD

BY GASTROSTOMY

OR

GASTROJEJUNOSTOMY TUBE

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OBJECTIVES FOR PARENTS

This booklet was designed and written for parents or care givers of children who require feeding by gastrostomy tube.

We hope that it helps you to:

- Understand why your child needs G-tube feeding.
- Learn how to provide safe and correct care for your child with a G-tube.
- Provide a resource for you before and after discharge from hospital.
- Ask questions of the team involved with your child's care

Please note that some information may not apply to your child or some information may need to be changed to better suit your child's care.

Before discharge, parents will be able to do the following:

- 1. Identify reasons why your child requires gastrostomy or gastrojejunostomy tube feedings.
- 2. Administer gastrostomy or jejunostomy tube feedings.
- 3. State the protocol for care of the enteral feeding equipment.
- 4. Identify the signs and symptoms of illness in your child.
- 5. Identify potential difficulties with enteral feeding.
- 6. State the purpose of the Community Care Access Centre and A.D.P. Programs.
- 7. Identify your support resources and provide mutual support regarding your child's care.

DEFINITIONS

Abdomen:

Contains the stomach, small and large intestines, liver, gall bladder, spleen, pancreas and bladder.

Aspiration:

Occurs when the feeding accidentally enters the lungs instead of the stomach; may lead to pneumonia in some cases (however, it can occur without symptoms at times).

Abcess:

A localized collection of pus in a tissue resulting from the invasion by bacteria.

Bolus:

Refers to a relatively large amount of feeding given over a short period of time ie. breakfast, lunch, dinner, bedtime.

Cyanosis:

Refers to a bluish skin colour and may be a sign that the patient needs more oxygen.

Enteral:

Refers to the intestinal tract and relates to feedings which are not taken by mouth but go directly into the stomach or intestine.

Fundoplication:

A surgical procedure which is designed to prevent vomiting by wrapping the stomach around the opening to the oesophagus thereby narrowing this opening.

Gastrostomy:

Refers to a surgical opening into the stomach (a gastrostomy tube provides a direct route for feeding into the stomach).

G-tube:

A short form for gastrostomy tube.

Gastrojejunostomy:

A surgical procedure whereby the feeding tube enters the stomach and is threaded into the second portion of the small bowel (the jejunum). Usually done in radiology.

DEFINITIONS (continued)

G/J tube:

A short form for gastrojejunostomy tube.

Laparoscopic MIC-Key tube:

A surgical procedure using small incisions (often 3) and a laparoscope to view the abdominal cavity & insert a skin level gastrostomy tube (MIC-Key tube is a trade name).

Percutaneous Gastrostomy tube:

This procedure is done in radiology by an interventional radiologist. The radiologist uses the guide of the ultrasound and or x-ray to make a small incision and place the tube into the stomach.

Peritoneum:

The lining of the abdominal cavity.

Prime the Set:

Refers to flushing the feeding set with formula to remove all the air in the tubing. This procedure will fill the feeding set tubing with formula, ready to be connected to the child's gastrostomy tube.

Reflux:

A backward flow of stomach contents into the oesophagus which may lead to vomiting and/or aspiration.

Roller Clamp:

The device on the feeding set used to adjust the rate of the feeding.

Stoma:

An artificial opening.

INTRODUCTION

Making the decision about a G-tube or a G/J tube:

Most parents find that this is a difficult decision. A G-tube or a G/J tube may be suggested by your Physician or other health professional involved in your child's care. You may have spent much time and effort in helping your child to eat by mouth. You may feel that you are a poor parent. You must realize that you are not a failure and that children who have feeding difficulties, change over time. Sometimes the feeding gets better and sometimes it gets worse.

If your child has had a Modified Barium Swallow (MBS) you may have been told that some food textures or all food textures are unsafe for your child due to aspiration or an uncoordinated swallow.

A gastrostomy feeding tube may make feeding take less time, be less stressful for you and your child and your child will be receiving all the necessary nutrients for health and growth. Gastrostomy feeding should also decrease the occurrence of aspiration pneumonia. Depending on your child's assessment, he/she may be feeding some things by mouth and liquids by tube or all nutrients may be given by tube and small amounts by mouth for pleasure only.

How will the G-tube help my child?

Some babies and children are unable to take in enough food when eating and drinking by mouth. A G-tube will provide your child with enough calories and fluid for adequate growth. Feeding will be less tiring for your child. G-tube feeding may decrease choking and aspiration. G-tube feedings are helpful for growth and development and healing. G-tubes may be used for several months or years depending on your child's progress and needs.

Can I do this?

You may be wondering how you are going to provide all the care required for gastrostomy feeding and remember all the important details. Within a few days or weeks, you will find that you become an expert at tube feeding your child. You are not alone, and each family will face their own unique challenges.

Never be afraid to ask questions and ask for help from the hospital team or the community team caring for your child. You will have a referral to the Community Care Access Centre in your area for nursing and or dietitian visits.

You may also choose to attend the Enteral Feeding Clinic every few months to help you manage your child's feeding and deal with any problems that you or your child are experiencing.

This booklet is designed to help parents whose children require enteral feedings through a gastrostomy or gastrojejunostomy tube. These feedings are necessary because your child is unable to take adequate nutrition by mouth. Before discharge, you will learn how to administer the feedings. You will also learn to provide any special care that your child may require.

What is a gastrostomy tube?

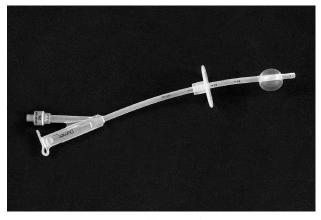
The gastrostomy tube is a silicone tube, inserted through the abdominal wall into the stomach for the purpose of providing nutrition and/or water and/or medications for your child. There are 3 or 4 different methods/procedures used at this hospital for establishing a gastrostomy feeding tube. The decision regarding the most appropriate procedure and tube for your child will be discussed with you, your doctors and/or a nurse practitioner. The gastrostomy tube is the best method for delivering long term (greater than 6 months) enteral feeding. When the gastrostomy is no longer needed, the tube may simply be removed. The skin opening usually closes over within a few hours to a few days.

Procedures for Inserting Gastrostomy Tubes

G-tubes may be inserted using 3 or 4 different types of tubes and surgical approaches. The physicians will assist in recommending the best method for inserting a feeding tube in your child and may be dependent on the child's medical condition(s), age, weight and risk for anaesthesia.

1. Surgical gastrostomy with/without fundoplication

- Placed in the operating room.
- Small incision plus a stab wound where G-tube is inserted through the abdominal wall.
- A balloon gastrostomy tube will be inserted. This tube will be converted in 3 months to a skin level tube in the enteral feeding clinic.
- Stomach is sutured to abdominal wall to secure the tract.
- Feedings usually initiated within ~ 48 hours post procedure



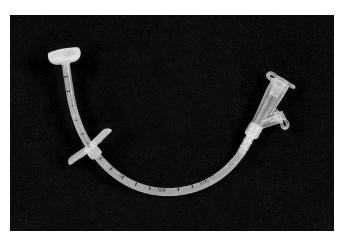
Balloon Tube

What is a fundoplication?

In some cases your surgeon/doctors may recommend a fundoplication procedure designed to prevent vomiting in a child who has severe gastro esophageal reflux. A fundoplication is a surgical reduction of the size of the opening into the stomach. This procedure is used in treating reflux of stomach contents into the oesophagus.

2. Percutaneous Endoscopic Gastrostomy

- Placed in the operating room by gastroenterologist under a general anesthetic.
- Endoscope placed down into the stomach and guides placement of stab wound and threading of PEG tube into stomach.
- PEG tube has a solid retention bolster, not a balloon, in the stomach. This tube will be converted in the operating room in 3 months to a skin level balloon gastrostomy tube.
- Feedings often initiated with 24 hours.



PEG Tube

3. Laparoscopic placement of skin level G-tube (MIC-Key tube)

- A surgical procedure using a small incision for a laparoscope to view the abdominal cavity and an endoscope to view the inside of the stomach to insert a skin level gastrostomy tube (MIC-Key tube is a trade name).
- Pexy buttons (up to 3) are placed to secure the stomach to the abdominal wall. These will be removed by the surgeon at the post-operative visit to the surgeon or may fall off spontaneously.

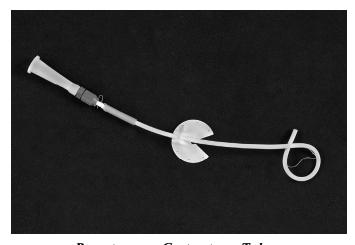
• The MIC-Key tube is a balloon G-tube and does not need to be converted. The tube will usually only require changing 3-4 times per year.



MIC-Key Tube

4. Percutaneous gastrostomy tube:

- This procedure is done in radiology by an interventional radiologist. The radiologist uses the guide of the ultrasound and or x-ray to make a small incision and place the tube into the stomach.
- The tube is initially held in place with some retention and skin sutures. The retention suture will be removed one week after the tube is inserted. The tube has a curled end (like a pig's tail) to hold it in place in the stomach. It can be converted to a balloon gastrostomy tube after 3 months.



Percutaneous Gastrostomy Tube

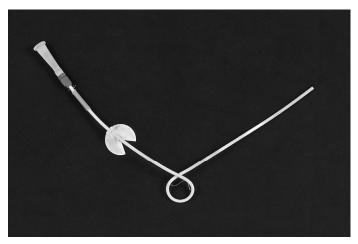
What is a gastrojejunostomy tube (G/J tube)?

A G/J tube is used to deliver food and fluids directly into the bowel when feeding into the stomach is not recommended. The child may be unable to tolerate food in the stomach due to the risk of aspiration, damage to the esophagus, a depressed gag reflex or chronic reflux, or other difficulties related to your child's condition.

A gastrojejunostomy tube is inserted through the wall of the stomach and threaded into the jejunum (the second portion of the small bowel). The gastrojejunostomy tube is a flexible, narrow tube. Gastrojejunostomy tubes are usually inserted in the Radiology Department by an interventional radiologist. Some conditions may require that the child go to the Operating Room.

Children with G/J tubes **may** require a special formula that is partially digested. The dietitian will assist in the choice of an appropriate formula.

All children who require jejunal feedings will need a feeding pump at home. If the tube becomes displaced or falls out, you must return to the hospital for reinsertion of the tube by an interventional radiologist.



Gastrojejunostomy Tube (G/J tube)

FEEDING ADMINISTRATION (G-TUBE AND G/J TUBE)

WASH YOUR HANDS Remember good hand washing prevents infections.

1. Gather equipment: feeding set

syringes

formula (at room temperature)

IV pole

enteral feeding pump (if necessary)

2. Position your child for feeding.

- a) Infants may be held during feedings if their condition permits. Infants should be offered a soother during feedings to satisfy their sucking reflex.
- b) Some infants tolerate feedings better in an infant chair.
- c) If the child is in bed, the child should be placed on his/her side with the head of the bed raised, probably about 30 degrees. This is important for children being fed overnight on a feeding pump.
- d) Older children may be fed in a high chair at the table with the family. Some children may be fed in their wheelchair.
- 3. Set the pump rate and dosage if using a pump. Prime the feeding set according to manufacturer instruction. All G/J tube feedings require a pump.
- 4. Connect the G-tube/G/J tube to the appropriate extension set and/or feeding set.
- 5. For gravity drip, open roller clamp to allow for desired rate of flow. (The higher the feeding set is placed, the faster the rate of administration). For pump feedings, press the start button to begin.
- 6. Administer feeding over 20-30 minutes or as tolerated by your child. Overnight feedings usually are given over 8-12 hours as necessary.
- 7. Disconnect feeding set and extension set from the G-tube when feeding is finished. After each feeding, clean the feeding set with soap and water or a mild solution of vinegar and water and rinse well. Hang to dry or place in the refrigerator to prevent bacterial growth. **Sets** should be **changed every 2-3 days.**

8. Flush the G-tube/G/J tube with water after each feeding.

- 9. Good **mouth care** is important for children receiving enteral feedings. Moist toothettes or an infant toothbrush may be used for young children and babies. Lips may be moistened with Vaseline. Older children should brush their teeth, if able, and have regular dental care.
- 10. **Venting** a G-tube is helpful for children who have difficulty burping and seem to be "gassy". Venting is simply letting air out of the child's stomach. Open the G-tube and attach the barrel only of a 60 mL syringe. Hold the syringe above the level of the abdomen or stomach. As the air vents you may see formula come back up into the syringe and bubbles burst the surface, or come to the top. The tube may need to vent for several minutes. Position your child on one side then the other to help with venting. Allow the liquid to return to the stomach and then flush the tube with a small amount of water. Venting is most helpful during the child's symptoms, but may be done regularly before and/ or after feeding.

FEEDING SCHEDULE

Some infants and children tolerate feedings at normal feeding times. For example, a feed may be given over 20 minutes to 1 hour at breakfast, lunch, dinner and bedtime. Middle of the night feedings are usually discontinued after 4 –6 months of age, if possible.

Some children or infants tolerate their feedings at a slower rate or given continuously. In this case, it may be advisable to give the feedings overnight using a feeding pump if his/her aspiration risk is low. This method allows children their usual activities during the day. Water or small feedings may be given during the day. G/J tube feedings are given by feeding pump continuously over 12 - 24 hours per day depending on your child's tolerance.

Information about your child's formula for enteral feeding

Several excellent formulas are available for G-tube or G/J tube feeding. The dietitian will talk to you about your child's needs.

GIVING MEDICATIONS

Note: Clarithromycin/Biaxin will clog all tubes.

Please do not give, ask your doctor to prescribe another antibiotic.

- Unless otherwise directed always give the medications directly into the G-tube and not in the feeding. Children on a continuous feed will need to have their feeding stopped to give the medications. Flush the tube well before and after each medication with the recommended amount of water (usually 5-10 mL).
- Liquid medications will be the easiest to give. Viscous (thick) medications can be diluted with water to prevent the tube from clogging. If your child requires crushed pills, crush as finely as possible and dissolve in warm water prior to administration.
- The pharmacist will give you instructions before discharge on how to mix or prepare your child's medications given in the G-tube or the G/J tube.

REPLACEMENT OF THE GASTROSTOMY TUBE

Initial replacement of your child's G- tube will depend on the type of tube inserted.

Surgically placed G-tubes with or without a fundoplication:

Some patients will return to their surgeon's office 4-12 weeks after surgery and/or they may be seen in the Enteral Feeding Clinic. Surgically placed tubes (balloon gastrostomies) are usually replaced at ~ 12 weeks post procedure, at which time your child may also be measured for the skin level tube. Currently we are using 2 products. One is called a MIC-KEY tube and the other is called Nutriport. Please remember to **bring your own replacement G-tube** to the doctor's office or the clinic.

Percutaneous Endoscopic G-tubes or PEG tubes:

PEG tubes are usually left undisturbed for 12 weeks after placement, to allow the site to heal. Your surgeon or gastroenterologist will arrange to see you in the office and/or you may attend the Enteral Feeding Clinic during the first 12 weeks. Your child will be booked for a short outpatient procedure in the Operating Room to remove the tube and replace it with a balloon G-tube, and measure for a skin level G-tube, (MIC-Key or Nutriport tube), if that is the plan. Most children go home the same day as the tube is replaced.

Percutaneous G-tubes or G/J tubes or PERC tubes:

Percutaneous **G-tubes**, placed in radiology, are usually removed in 12 weeks, dilated (if necessary), with a balloon gastrostomy tube and measured for a skin level gastrostomy tube. This procedure is done in radiology. Some children need some sedation for this procedure. Your child will go home after the procedure.

G/J tubes are left in place as long as they are functioning and are in the correct position. They will always need to be replaced in the Radiology Department, so you will not be given an extra tube.

Most gastrostomy tubes PEG, PERC and balloon G-tubes **last several months**. You will learn how to replace a balloon gastrostomy tube yourself, if you wish. Always carry an extra tube with your child, in case of accidental removal. You may call the Enteral Feeding Nurse Practitioner for assistance in replacing the tube

until you are comfortable replacing the tube yourself. Teaching will be done in the Enteral Feeding Clinic.

G-tubes should ideally be replaced immediately after being dislodged as the sites can close quickly. In well-established tracts, you may be able to reintroduce a G-tube within a few hours of the G-tube being dislodged. If you are unable to reintroduce the G-tube, proceed to the closest Emergency Department or contact the On-call Paediatric Surgery Resident at Children's Hospital. Balloon gastrostomy tubes last 3 - 6 months. If you are having problems with balloon deflation, please call your supplier, as a product problem may exist.

DIRECTIONS FOR REPLACEMENT OF G-TUBES WITH BALLOONS

- 1. Check the new tube prior to placement, before removing the old tube.
 - Fill the balloon with water (3-5 mL is usual, with a maximum of 10 mL recommended for most tubes) prior to placement. If necessary, roll the inflated balloon gently between the thumb and index finger to achieve symmetry.
 - Deflate the balloon after inspection.
 - If you are replacing a regular G- tube, check the retention bolster to establish that it slides easily up and down the shaft of the tube.
- 2. Lubricate the tip of the tube with any water-based lubricant (i.e. Muko or KY Jelly). **NOTE: Do not use oil or petroleum jelly.**
- 3. Completely deflate the current G-tube balloon with a syringe.
- 4. Apply gentle pressure and pull the tube until it exits the stoma.
- 5. Gently guide the new, lubricated tube through the stoma and into the stomach until the entire balloon has passed through the tract.
- 6. Inflate the balloon with water. Use the amount recommended for your child. Check the amount of water in the balloon every 1-3 weeks and replace any amount lost.
- 7. If inserting a regular G-tube, slide the retention bolster down the shaft of the tube until there is a space of 1 2 mm between the stoma and bolster. Excessive tension should **NOT** be applied.

Skin Care / Care of the Stoma or Exit Site

- After the surgery, the area around the gastrostomy tube (stoma) is cleansed with water (preferable) or normal saline. A dry dressing, **over** the retaining device, may be used in the first week. Expect to see a small amount of clear drainage in the first few weeks following the initial tube insertion.
- The G-tube site should be left open to the air and kept clean and dry, once a dressing is no longer required.
- The gastrostomy site will need to be checked daily for redness, abnormal drainage, rash, swelling, bleeding or pain.
- At home the area may be cleansed gently during the bath and dried thoroughly.
- If your child is unable to take a tub bath, or the area needs cleaning more frequently you may use cotton tipped applicators or soft infant washcloths, moistened with water, to remove any leakage, crusting, or formula from around the stoma.
- Care should be taken to **avoid pulling** on the tube. This could cause the gastrostomy site to widen and allow leakage of irritating stomach contents. A small amount of No Sting spray, Cavilon cream, Calmoseptine (or Polysporin cream if ordered) may be applied to the gastrostomy site.
- Once all the sutures are removed, the disc, external restraining device or bolster should be **rotated 90 degrees** once a day to prevent irritation and pressure ulcers beneath it.

Remember: Scrubbing or cleaning the skin too often can dry and injure the skin and cause skin breakdown.

Preventing accidental tube displacement Securing the PEG tube, the Perc tube and the balloon Gastrostomy tube

Stabilization of the G-tube or G/J tube is vital to preventing leakage, migration and tube dislodgement.

- Secure the G-tube (except the skin level tubes) to prevent accidental pulling and/or removal of the tube. Tape the tube to your child's abdomen using a tube securing device or tegasorb and a tape that does not bother your child's skin. Sometimes we use a burn net dressing in the first twelve weeks to keep the tube in place while the tract matures.
- Secure the G-tube to the diaper using a piece of tape and a safety pin or use the diaper tab.
- Put mittens or socks on infant's hands for short periods of time to keep little fingers away from the tube.
- Avoid clothing with tight waistbands that could pull or push on the tube.
 Many parents find that their children are comfortable in overalls,
 sleepers and one piece outfits. They protect the tube from accidental pulling and/or infants grabbing under the clothing. One piece undershirts are also effective in keeping "busy" hands away from the tube.

Mouth Care

- Mouth care helps to keep the teeth, gums and mouth clean and healthy. Try to clean your child's mouth twice per day.
- Moist toothettes or infant toothbrushes may be used for infants and children. The inside of a baby's mouth may also be wiped with a moist, soft cloth.
- Brush your toddler's teeth and mouth with a soft toothbrush and a small amount of toothpaste. Older children should brush their teeth, if able, or have their teeth and tongue brushed with a soft toothbrush and a small amount of toothpaste.
- Lips may be kept moist with Vaseline.
- Your child should have regular dental care.

Activity

- For safety keep all tubing away from your child's neck. You may run the tubing down your child's pant leg or sleeper.
- Children may go swimming with the G-tube after the tract has healed well. Be sure the tube is clamped off. Be sure to dry the skin around the G-tube well after being immersed in water.
- Babies should not sleep on their tummies, but need some play time on their tummies. The area may need to be padded a little if your child finds it uncomfortable. It is important for development that infants learn to raise their heads and push up to their hands and knees from the tummy lying position. If your child is able to crawl, be sure the tube is well secured and do not let the tube dangle outside clothing.

Travel

There are times that you will plan to travel away from home and times when you need to take your child urgently to the doctor, clinic or emergency room. Try to be prepared for planned and unplanned trips from home by having a travel bag ready with needed supplies.

- Generally there are no restrictions on travel. It will be necessary, however, to obtain a letter of explanation from a physician for any formula that you bring in your carry-on luggage.
- It will be **necessary** to always have a spare G-tube and extension sets with your child. Take enough supplies for the time that you will be away including formula, water, syringes and feeding pump sets etc. Ready to use formula will be handy and be sure the water supply is safe, or take extra water with you.
- It is wise not to feed your child while travelling in a car, as the motion may contribute to vomiting. If feeding during travelling is necessary, please ensure there is a responsible individual the can supervise the child in case of vomiting.
- Try to plan trips around the feeding schedule or adjust feeding schedule to travel times (eg 1/2 feed prior to travel and 1/2 feed on arrival at destination). Your child's tolerance will determine how easy it is for your family to travel.

"TROUBLESHOOTING"

PROBLEM	SYMPTOMS	CAUSE	ACTION
1. Aspiration	Coughing, difficulty breathing. Cyanosis.	Caused when formula accidentally enters the lungs.	 Stop feeding and notify Physician/seek medical attention if child has difficulty breathing. Observe child during feedings for vomiting. If the child is fed overnight, raise the head of the bed 30-45° and turn child on side.
3. G-tube Dislodgement	G-tube found outside the stomach. Leakage of stomach contents onto clothing, etc.	May be caused as the balloon deflates or by accidental pulling.	 G-tubes should be reinserted as soon as possible to prevent closure of the gastrostomy tube tract. Follow reinsertion procedure or take child to local Emergency Department with your replacement tube.
4. Feeding Intolerance	Child may have dry mouth, decreased urine output (may lead to dehydration). Abdominal distention. Vomitus which smells like stool.	 Giving feeding too quickly. By an increase/change in formulas strength or amount. Formula may be too hot/cold. May be related to other illness such as flu. May be caused by a serious bowel problem or blockage. 	 Stop feeding. Seek advice from Dietitian or Enteral Feeding Nurse Practitioner Vomiting/diarrhea which persists for 24 hours should be reported to your Physician. Dehydration in an infant should be reported to your Physician immediately. This symptom should be reported to your Physician or local Emergency Department.

PROBLEM	SYMPTOMS	CAUSE	ACTION
5. Granulation Tissue	Granulation tissue begins forming a few weeks after tube placement. Granulation tissue is a build up of extra tissue around the exit site. It may appear suddenly, looks like a bubble or extra skin around part or all of stoma.	 Granulation tissue is simply scar tissue as the body tries to close over the stoma. Inappropriate fit of low profile gastrostomy tube. Infection. Trauma to G-tube site 	Barrier cream may help. Aqua cel dressing may decrease the granulation tissue. Can be treated with silver nitrate stick in doctor's office, by CCAC nurse or in the Enteral Feeding Clinic. Steroid spray or specialized dressings may help heal the area.
Skin Irritation	Redness, irritation under/around tape (if used).	Some children are allergic to certain kinds of tape.	 Try another brand of tape. Barrier product (Cavilon) application prior to adhesive Apply calmoseptine or polysporin cream to site to heal redness.
6. Leakage of Stomach Contents Around Stoma	Redness around G- tube stoma, skin breakdown, liquid discharge from site with stomach contents and/or formula.	 Balloon may have become deflated. Check water in balloon. Tube may be too long/loose for the stoma or may be sitting in the tract. Tube may also be too tight, causing indentation at the site. 	Keep 3-5 mL water in the balloon. If balloon deflated, change G- tube and monitor. Have G-tube size reassessed by Physician or Enteral Feeding Nurse Practitioner.

PROBLEM	SYMPTOMS	CAUSE	ACTION
7. Cellulitis	Bleeding excessive redness, rash, pain, fever or drainage around site.	 Infection of skin around gastrostomy site, called cellulitis. May need a topical or a systemic antibiotic. May also be an abcess caused by tube displaced into tract or too tight against stomach wall. 	Please take your child to your Paediatrician or Family Doctor for assessment and need for antibiotic. Apply calmoseptine or other barrier like Cavilon or polysporin cream to site to heal redness, protect skin.
Candidiasis	Patchy red spots with characteristic satellite lesions, the area may be itchy.	A yeast like fungal infection can develop when skin is exposed to leakage around the tube. May be more prevalent when dressings are used.	Treat with antifungal ointment or powder. Remove the cause of moisture and maintain a dry, intact area.
Chemical Dermatitis	Skin around stoma is red, moist and often painful	Leakage of stomach fluid onto unprotected skin.	Correct the cause of leakage and apply a barrier spray, cream or powder to area. May also use Aqua cel or alginate dressing to absorb excessive fluid.
Allergic Contact Dermatitis	Area appears red, swollen, eroded, weepy or may be bleeding.	Skin is sensitive to the tapes, soaps or anchoring devices.	Remove the suspected allergen (tape or dressing). Treat the area with a protective barrier.

PROBLEM	SYMPTOMS	CAUSE	ACTION
8. G or G/J Tube Clogging	Feeds or medications will not infuse.	Not flushing tube after each feeding and or medication Biaxin/Clarithromycin will clog all tubes. Some medications are more problematic than others in clogging the tube.	 Attempt to clear the tube with a syringe and warm water. The tube will have to be replaced if it does not unclog. Contact the Interventional Radiology Department if it is a percutaneous tube that is blocked.
9. Equipment Malfunction	Feeding pump will not operate and/or alarms continuously.	Mechanical/circuit error. Clogged or kinked feeding set.	Contact your supplier.

CARE OF THE EQUIPMENT

- Clean each piece of equipment immediately after feeding to prevent clogging and bacterial growth. Rinse the set with warm water. You may place the set in the refrigerator to prevent bacterial growth.
- Feeding sets and/or syringes may be cleaned with a 1/2 or 1/4 strength solution of vinegar and water. A dilute solution of dish detergent (avoid anti-bacterial dish soap) may also be used. Rinse thoroughly with warm water.
- 50 mL syringes used for infant gravity feeding should be discarded every 2-3 days. Feeding sets should be discarded every 2-4 days.
- The feeding pump should be cared for as recommended by the manufacturer.

ENTERAL FEEDING PUMPS

For children who require, on average, six or more hours of feeds each day, a feeding pump may be used. The enteral feeding pump recommended for home use will depend of suppliers in your area.

M	y child's tube is :			
1)	A#		G-tube with a	balloon
	The balloon is inflated with:	:	mL of water	
	It will need to be replaced:			
2)	A	#	PEG tub	be . There is no balloon.
	It will be replaced:			
3)	A		#	PERC tube.
	It will be replaced in Radiol	ogy on		
4)	A		#	G/J tube.
	It will need to be replaced in	n radiology w	hen it no longe	r functions.
5)	A	#		_MIC-Key tube.
	The balloon is inflated with		_ mL of water	
	It will need to be replaced 2 not functioning.	-3 times per	year or when tu	be

COMMUNITY CARE ACCESS PROGRAM (CCAC)

All children receiving gastrostomy tube feedings will be referred to the CCAC Program in their area. Our in hospital CCAC case manager will assess your child for eligibility and if eligible, make arrangements for nursing visits at home. These nursing visits are funded by the Ministry of Health and must be ordered by your physician.

ASSISTIVE DEVICES PROGRAM

This program known as "ADP" is financed by the Ministry of Health. The program will cover 75% of the cost of the feeding equipment and supplies (including a pump if needed) regardless of household income. Your private extended health insurance may pay for the remaining 25% of the cost of the supplies. The ADP form will be filled out and signed by your Physician or Enteral Feeding Nurse Practitioner and yourself. If your child receives Assistance to Children with Severe Disabilities or ACSD benefit, the 25 % cost is covered.

ADDITIONAL INSTRUCTIONS

I	DIARY

DIARY (continued)
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REFERENCES

Alltop, Shirley (1988). Teaching for discharge: Gastrostomy tubes. <u>RN</u>, November: 42-6.

Arnbjorsson, E., Jakobsson, I., Larsson, L.T., Mikaelsson, C. (1998). Gastrostomy button causing perforation of the posterior gastric wall. <u>Acta Paediatrica</u>, <u>87</u>: 1203-4.

Bochus, Sherry (1991). Troubleshooting your tube feedings. AJN. May. 24-30.

Bordewick, A., Bildner, J., Burd, Randall (2001). An Effective Approach for Preventing and Treating Gastrostomy Tube Complications in Newborns. <u>Neonatal Network</u>, March, Vol. 20, No. 20: 37 – 40.

Bowers, S. (200). All About Tubes, Your Guide to Enteral Feeding Devices. Nursing 2000, Dec: 41 – 48.

Breach, Connie L., & Saldanha, Leila G., (1988). Tube feeding complications, Part I:Gastrointestinal. <u>Nutritional Support Services</u>, 8, (3):15 - 19.

Breach, Connie L., & Saldanha, Leila, G. (1988). Tube feeding complications, Part II:Mechanical. <u>Nutritional Support Services</u>, <u>8</u>, (5): 32-33.

Dall'Oglio, I., Cianchi, D., Somma, R. (1999). PEGS in Children: Nursing Considerations. <u>Gastroenterology Nursing: The Official Journal of the Society of Gastroenterology Nurses Association.</u>, March – April: 22(@): 47 – 51.

Grant, M.J., Martin, S. (2000). Delivery of Enteral Nutrition. <u>AACN Clinical</u> Issues, Vol. 11, No. 4: 507 – 516.

Hass-Beckert ,Betsy; Heyman, Melvin [1993] Comparison of two skin level gastrostomy feeding tubes for infants and children. <u>Paediatric Nursing</u>, 19, (9): 351-354,364.

Huddleston, Kathi, C., Ferraro, Adelina R. (1991). Preparing families of children with gastrostomies. <u>Paediatric Nursing</u>, 17, (2)153-8.

REFERENCES (continued)

Martin, L., Cox, S. (2000). Enteral Feeding: Practice Guidance. <u>Paediatric</u> <u>Nursing</u>, Feb. Vol. 12, No. 1: 28 – 33.

Metheny, N.A., Titler, M.G. (2001). Assessing Placement of Feeding Tubes. <u>AJN</u> May, Vol.101, No. 5: 36-45.

Metheny, N.A., Stewart, B.J., Smith, L., Yan, H., Diebold, M., Clouse, R. E. (1999). PH and concentration of Bilirubin in Feeding Tube Aspirates as Predictors of Tube Placement Nursing Research July/Aug. Vol. 48, No. 4: 189 – 197.

Robie, Daniel K., & Pearl, Richard, H. (1991). Modified Nissen Fundoplication: Improved results in high risk children. <u>Journal of Paediatric Surgery</u> 26, (11): 1268-1272.

Starkey, J., & Kirby, D. (1988). Taking care of percutaneous endoscopic gastrostomy. AJN Jan. 42-5.1

Thorne, S. & Radford, J. (1996). A comparative longitudinal study of gastrostomy devices in children. Western Journal of Nursing Research, 20, (2): 145-165.

Thornton, F.J., Vargese, J.C., Haslam, P.J., McGrath, F.P., Keeling, F., Lee, M.J. (2000). Percutaneous gastrostomy in Patients who Fail or are Unsuitable for Endoscopic Gastrostomy. <u>Cardiovascular Intervention Radiology</u>, 23, 279 – 284.