Gastrostomy and Nasogastric Tube Insertion, Care and Feeding

Good nutrition maintains health, as well as normal growth and development. Many Clients with different medical problems receive treatment with a nasogastric tube (NG) or gastrostomy tube (GT). Clients may need these tubes for several reasons. The client may not be able to eat at all, or may not eat enough to meet their nutritional requirements, or they may not be able to swallow safely.

Tube feedings are a way to give fluids, calories and medications to a client.

Possible reasons for tube feedings:

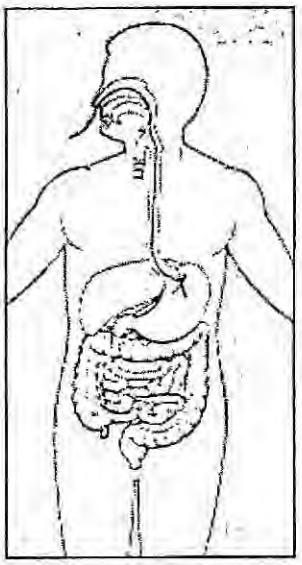
- Prematurity
- Central nervous system problems
- Severe cerebral palsy
- Burns
- Head trauma
- After surgery
- Inherited metabolic disorders
- Gastrointestinal diseases
- Severe gastroesophageal reflux
- failure to thrive
- Severe refusal to eat food
- Severe food allergy
- Disorders of the esophagus
- Abnormalities of the anatomy of the gastrointestinal tract
- Severe cleft lip/cleft palate
- Cancer

If a client has a GT/NGT what information is needed to properly document in your nurses note?

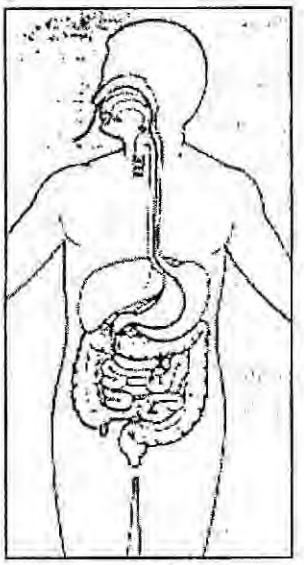
- Document the size of the Gastrostomy or Nasogastric tube.
- Document the amount of water in the balloon if applicable.
- Document the condition of the stoma.
- Document that a placement check is done.
- Document any feedings, including the type and amount of residual, the type and amount of formula, and the manner in which it was tolerated.
- For most infant feedings and amount of residual fluid aspirated from the stomach is refed and the amount subtracted from the prescribed amount of feeding.

What is a gastrostomy (GT)?

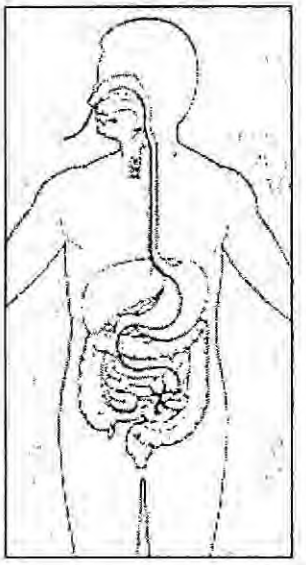
Usually a surgeon creates an opening through the skin, abdominal wall and into the stomach wall. The opening is called a stoma. Then a soft tube called a catheter is passed through the stoma and left in place until the stoma or fistula tract is healed. At that time the catheter is usually removed and replaced with a different type of Gastrostomy tube. The gastrostomy tube is held in place inside the stomach by either a balloon or mushroom shaped valve. An outside securing mechanism is required to stop the gastrostomy tube from migrating into the stomach and causing a bowel obstruction. Gastrostomy tubes are typically made from either silicone or rubber.



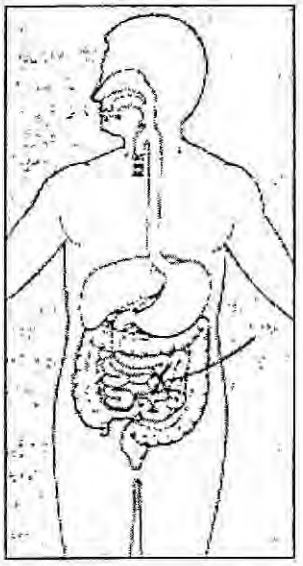
Nasogastric (NG) feeding



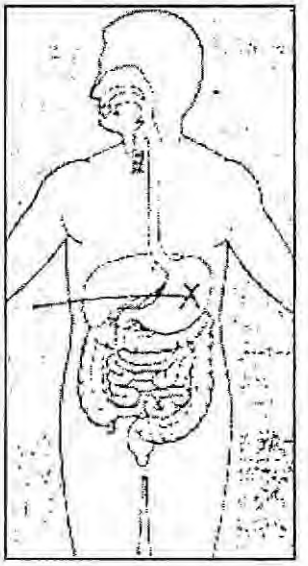
Nasoduodenal feeding



Nasojejunal feeding



Jejunostomy (JT) feeding



Gastrostomy (GT) feeding

What are the advantages of a gastrostomy (GT)?

- The ability to provide additional food and calories.
- No nasogastric tubes are needed--no more tape!
- Less time spent giving feedings.
- Feedings can be done at night when client is asleep.
- Does not interfere with daily activities.
- Less chance of client spitting up.
- Less chance of tube coming out.
- Tube is easy to replace.

What are the disadvantages of a gastrostomy (GT)?

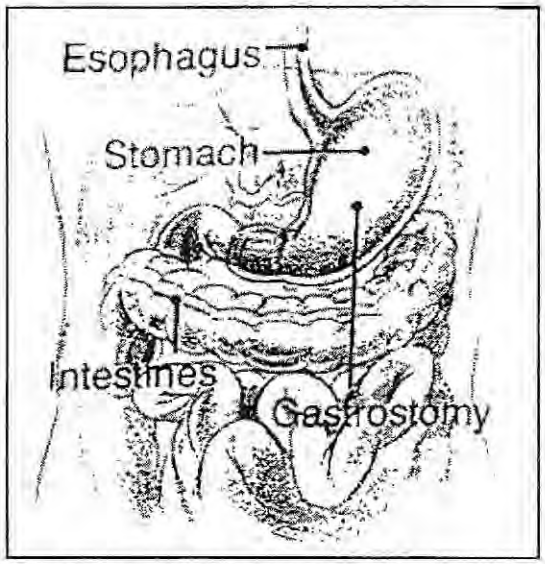
- Malfunction
- Redness
- Swelling
- excessive, foul smelling discharge
- formula leakage
- skin around the stoma feels hard to touch.

NOTE: If any of these symptoms occur, call the Primary Physician and get an order for treatment.

How long will a client have the GT?

It is not always possible to tell how long a client will have the GT. It will depend on how well the client is able to take enough food (calories) by mouth and how well the client can gain weight without GT feedings.

Diagram of abdominal organs showing site in stomach where gastrostomy is made.



What types of food or medicines can be given through the GT?

The only fluids that can be given through the GT are milk, formula and water. Liquid medications or crushed pills diluted with liquid may also be given. Always flush the tube with3-5 mL's water following feedings or medications. This will prevent tube blockage. If giving a medicine during a tube feeding, flush before and after giving the medicine. This is important since some medicines do no react well with the formula and will cause curds that could clog the tube. Record the amount of water used to flush the tube, clients may be on I&O

What activity restrictions will the client have?

For one week following the surgery, the client should avoid swimming or soaking I a bathtub. The client may participate in all normal activities including on his/her stomach as long as the tube is secure so that it will not come out.

What happens to the emotional development of the client?

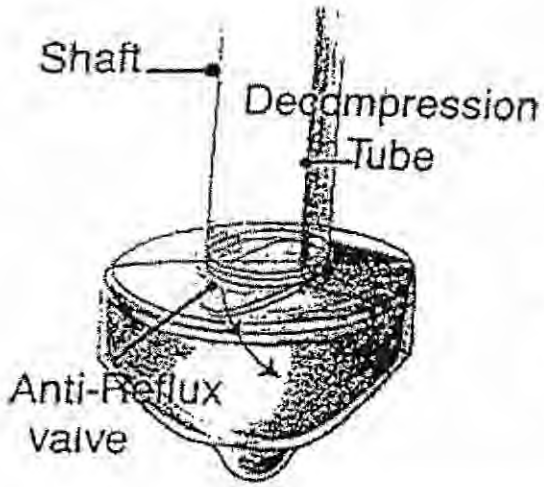
Emotional development in infants or Clients with a GT or NGT are at risk for being deprived of normal eating routines. It is important for the clients' emotional development that the GT/NGT feedings be enjoyable and relaxing. To promote this, try doing the following during feeds;

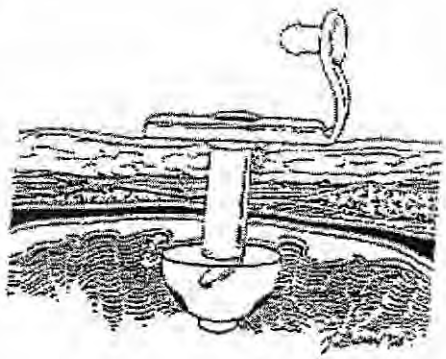
- For and infant: Hold the client and give him/her the opportunity to suck on a pacifier or your finger. The infant will learn to associate the pleasure of sucking with the feeling of satiation. If the infant may have food by mouth, offer the bottle for 15-20 minutes. At the end of this time, give the remaining formula through the tube. If you can not hold the infant, then talk to him/her quietly, pat and stroke his/her hands and face, and maintain eye contact during the feeding.
- For the toddler or school age client: Try scheduling feedings around mealtimes and let him/her eat at the table with other family members. School routines should also be considered. (Follow any feeding protocol left by OT/Speech therapists.)

What is a G-Button (GT)? When can a gastrostomy tube be replaced by one?

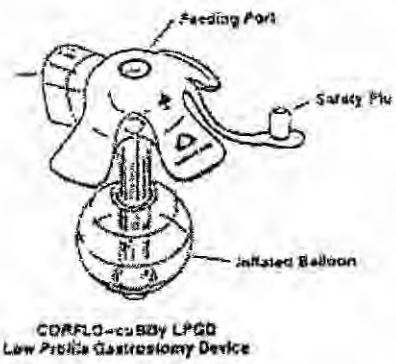
The advantage of the GB is that it lies flat against the abdomen when it is not is use. The gastrostomy button usually replaces a standard gastrostomy once the fistulous tract is well established (after four to six weeks post op). The button consists of the following three parts: safety plug, shaft, and dome or balloon. The safety plug remains in place between feedings and eliminates the need for a clamp. An extension tubing is attached to the button to administer feedings and medications. The site should be observed closely for evidence of pressure necrosis. This can occur if the button is too small and must be closely monitored during periods of rapid weight gain.

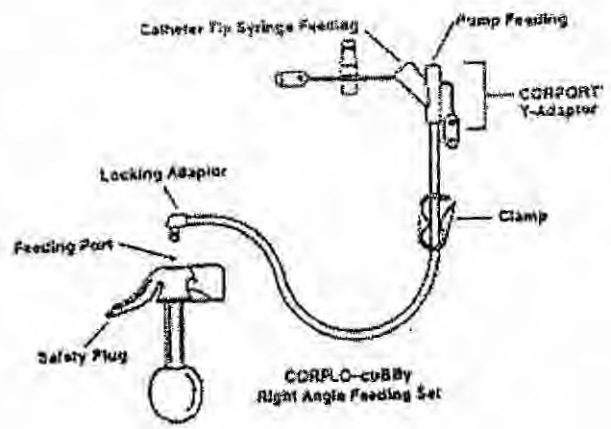
What are the different GBs that could be placed?



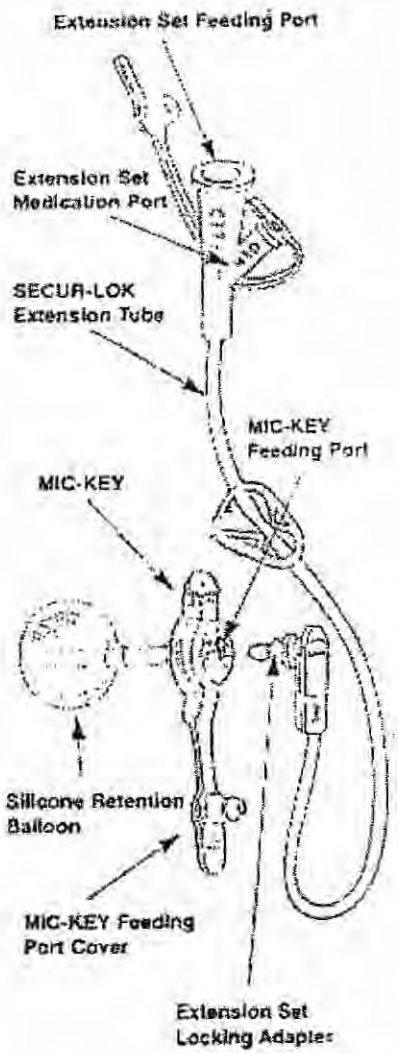


BARD gastrostomy button

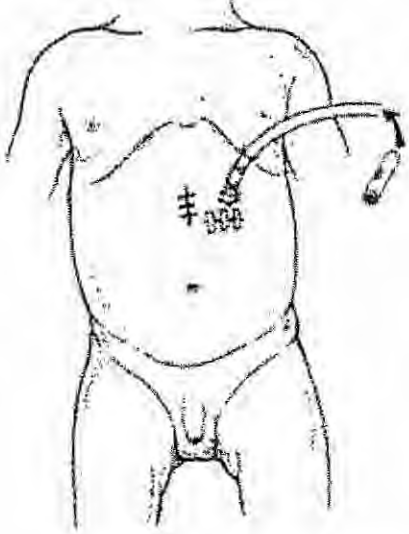


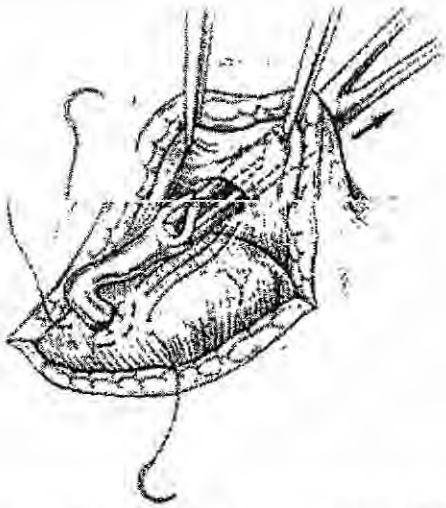


CORPAK gastrostomy button

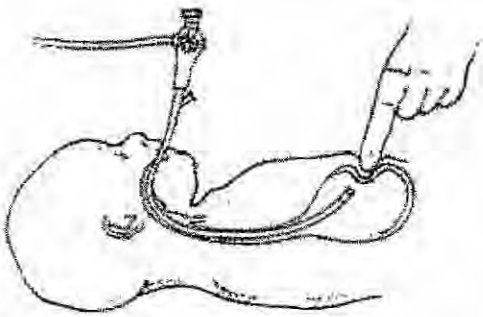


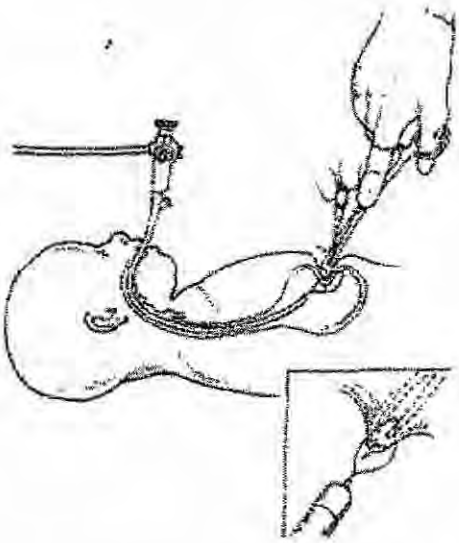
MICKEY gastrostomy button

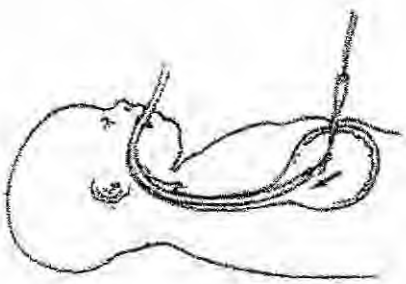


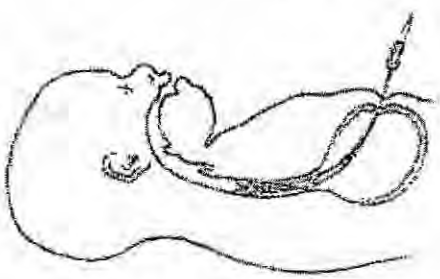


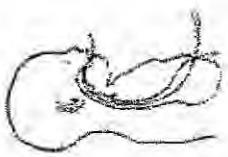
placement of open gastrostomy operative procedure involved in open gastrostomy Percutaneous Endoscopic GT (PEG)

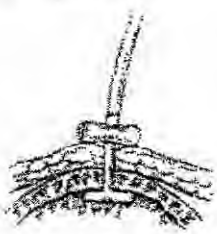












How to insert a Gastrostomy Tube (clean technique)

1. Equipment
   - Gastrostomy tube
   - surgilube lubricant or K-Y jelly (*must be water soluble – Do not use Vaseline*)
   - 5 mL or 6 mL syringe
   - water (from the tap is fine)
   - Stethoscope
   - Tylenol PRN
   - Procedure glov
2. Procedure
   - Wash hands, place on procedure gloves
   - Medicate with Tylenol if prescribed by Physician prior to a scheduled procedure.
   - Open new gastrostomy tube
   - Check to make sure the GT balloon is not defective before inserting it. Fill syringe with 5 mL of water (3 mL for infants). Inflate the balloon by inserting the syringe in port that has a white plastic rim. Push plunger of syringe until all water is in balloon. Observe balloon for any leakage. If balloon appears intact, remove water using the syringe.
   - Squeeze a small amount of lubricant onto the catheter wrapper.
   - Lubricate the GT tip.
   - Remove water from balloon and pull out old GT, then discard the old GT
   - Insert the GT tip about 1 ½ to 2 inches into the stoma. The client may be crying, this will make the abdomen somewhat firm. If the GT tip is difficult to insert, wait until the client takes a breath or calms down. **Do not ever use force to insert the tube.**
   - Once the GT is in, inflate the balloon with the water filled syringe. If you feel resistance, push the GT into the stoma a little further and try again to inflate. (The tube may still be in the tract between the stomach and the wall of the abdomen.) Remove the syringe after all water is in the balloon.
   - Gently pull up on the GT until resistance if felt. This tells you that the balloon is now up against the stomach wall.
   - Tape tube if using a Foley GT.
   - Order a new tube from the Supply Company if you do not already have a spare tube on hand.

Note: Always have the prescribed size GT and one size smaller with client at all times. If no extra GT's are available to insert if GT comes out, then a suction catheter can be used to keep the stoma open until client is seen in the Emergency Room. Also, a parent or home care nurse can not replace PEG tubes at home. Go to the Emergency Room within one to two hours to have the tube replaced.

How to check for Gastrostomy Tube Placement and Residual

1. To check for placement of tube. (non-sterile technique)
   - Wash hands, put on procedure gloves
   - Before each feeding, place stethoscope below xiphoid process and instill 1 mL to 10 mL of air. For Clients weighing less that 10 kg, instill 1-2 ml of air. Listen for "*whoosh*" of air.
2. Check the amount of water in the balloon (3 mL for infants up to 5 mL for Clients) once a week and/or PRN
   - Residual volume ____*____mL or less, refeed.
   - Residual volume ____*____mL or greater. May hold feeding. Refeed aspirate (if large amount of curdled formula or oral secretions, discard). Wait 30 to 60 minutes, then check residual again. If remains high, contact the physician.

Note: A common reason for high residuals is constipation. Please monitor client for regular bowel movements.

How to unclog a Gastrostomy Tube

1. Equipment
   - Syringe
   - Juice or soda
   - Back up Tube

- Procedure gloves

2. Procedure
   - Wash hands, put on procedure gloves
   - Try putting some soda or fresh pineapple juice in the tube. Leave the soda or juice in the tube for about an hour and then try to flush the tube.
   - Change the tube if unable to clear it.

Care of the Gastrostomy Tube (clean technique)

1. Equipment
   - Soap and warm water or half strength hydrogen peroxide and water
   - Washcloth and/or cotton tip applicators
   - Silver nitrate sticks (if needed)
   - Procedure gloves
2. Procedure
   - Wash hands, put on procedure gloves
   - Clean the tube site daily with a washcloth and/or cotton tip applicators and soap with warm water followed by warm-water rinse. (You may also clean the stoma with half strength hydrogen peroxide followed by water). Use a spiral pattern beginning next to stoma and working outward to skin around stoma.
   - Thoroughly pat dry.
   - Clean and dry outside of tube and any retention disks/rods present with soap and warm water followed by warm-water rinse
   - For low-profile gastrostomies (buttons) or gastrostomy tubes with a retention rod or bolster, rotate daily as per Physicians' orders (check manufacturer's directions).
   - If hypertrophic granulation tissue is present, apply silver nitrate stick PRN to moist, reddened areas and allow to air dry. Use only if prescribed by a Physician.(*Do not apply without prior education regarding application process.)*
   - Monitor the tube and site every day for breakage, signs of infection or skin breakdown.

What is a Nasogastric tube?

Nasogastric tubes are passed through the nose, down the esophagus, and into the stomach. They are used as a temporary means of administering feedings to a client.

The most common tubes are made of polyvinylchloride (PVC), polyurethane, or Silastic. The stiffer PVC tubes do not require a guide wire for insertion, but they will become brittle and sharp when subject to the low pH of the stomach. The softer tubes (polyurethane or Silastic), which require a guide wire for intubation, are recommended when the frequency of NG replacement is greater than once per week.

How to measure, prepare and insert a Nasogastric tube

A Nasogastric tube is placed through the nose: the nares are rotated with each insertion to minimize irritation, chance of infection, and possible breakdown of mucous membranes from pressure that occurs over a period of time.

1. Equipment
   - A PVC, Polyurethane or Silastic feeding tube (infants -sizes5-8 FR, lg child sizes 10-14 FR)
   - Procedure gloves
   - A cup
   - Ice (optional)
   - Sterile water or water-soluble lubricant
   - Stethoscope
   - Tape and/or marker
   - A 10 mL syringe
   - Neck roll
   - Blanket

2. Procedure:
   - Gather all equipment
   - Wash hands, place on procedure gloves
   - Measure the tube for correct length of insertion and mark the point with a permanent black marker or a small piece of tape.
   - The correct length can be determined by measuring from the tip of the nose to the earlobe (or vice versa) and then to the tip of the xiphoid process of the sternum and then a few centimeters farther.
   - Insert the tip of the tube into a cup of sterile water or water-soluble lubricant

***Helpful Hint**: if using a small FR cath place the tip of the tube into a cup of ice to hardened the tip, it will help with ease of insertion*

   - Wrap infant in a mummy restraint by placing a small towel or blanket folded across the chest and secured beneath the shoulders.
   - Even tiny infants with random movements can grasp and remove the tube.
   - Care must be taken so that breathing is not compromised.
   - Place infant's head in a hyperflexed position by using a neck roll.
   - The esophagus is situated behind the trachea therefore, the tube is more easily inserted if the client's head is hyperflexed. This reduces the chance of the tube entering the trachea
   - Insert the tip through one of the nares, then the tube is slipped along the base of the nose and directed straight back toward the occiput (back of the throat) to the predetermined mark.
   - The tube is passed quickly and, if the client is able to swallow, synchronized with swallowing.

***Helpful Hint**: if the client has a pacifier then use it or advance the tube when the client takes a breath while crying.*

   - With the syringe, inject a small amount of air into the tube while simultaneously listening with a stethoscope over the stomach area. Sounds of gurgling or growling will be heard if the tube is properly situated in the stomach. The air is then withdrawn. The amount of air injected is determined by the size of the client: 0.5mL to 1 mL in premature or very small infants to 5 ml in larger Clients.
   - The syringe is attached to the feeding tube and gently pull back on the syringe plunger (negative pressure). Aspiration of stomach contents indicates proper placement. The amount and character of any fluid aspirated is noted and returned to the stomach. Absence of fluid is not necessarily evidence of improper placement. The stomach may be empty or the tube may not be in contact with stomach contents.
   - Visually assess for the mark on the tube made with indelible ink or tape where it exits the nose. Adjust or replace the tube if needed.
   - Stabilize the tube by holding or taping it in place with tape to maintain correct placement. After it is taped secure the tube to the cheek.
   - Administer the feeding and/or medications.
   - When feeding and/or medications are complete:
   - flush the tube with sterile water (1 or 2 mL for small tubes to 5 mL for large ones) to clear it of formula.
   - Indwelling catheters are capped or clamped to prevent loss of feeding and entry of air into the stomach.

How to check for proper placement

1. Equipment
   - Syringe
   - Stethoscope
   - Procedure Gloves
2. Procedure
   - Attach the syringe to the NGT
   - Pull back gently on the syringe plunger (negative pressure) aspiration of stomach contents indicates proper placement. (Absence of fluid is not necessarily evidence of improper placement. The stomach may be empty or the tube may not be in contact with stomach contents.)
   - Remove syringe and fill syringe with 0.5mL to 5 mL air
   - Place syringe of air on tip on NGTube
   - Place stethoscope over the stomach area.
   - With the syringe, inject the air into the tube while simultaneously listening with a stethoscope

- Sounds of gurgling or growling will be heard if the tube is properly situated in the stomach.

- The air is then withdrawn.
- You can also place the end (tip) of the NGTube into a glass of water. If bubbles are present then the NGTube is probably in the lungs.

Note: The amount of air injected is determined by the size of the client: 0.5mL to 1 mL in premature or very small infants to 5 ml in larger clients.

How to check for NGT residuals

1. Equipment
   - Syringe
   - Procedure Gloves
2. Procedure
   - Wash hands, put on procedure gloves
   - Open plug on end of Nasogastric tube (NGT)
   - Attach syringe on end of NT tube
   - Apply gentle negative pressure on the syringe plunger
   - Record residual
   - Re-administer residual

What is a jejunostomy or Nasointestinal tube?

A jejunostomy is the placement of a tube in the jejunum for feeding. It can be placed surgically or by using the percutaneous endoscopy technique. Jejunostomy tubes are placed when long-term intestinal feedings are needed and reflux is a significant problem. The indications for a jejunostomy are the same as those for a nasointestinal tube. The technique of placing a jejunal extension through a gastrostomy tube may be useful when aspiration of gastric feedings are a problem.

Nasointestinal tubes are passed through the nose, down the esophagus, and into the duodenum or jejunum. These are referred to as Nasojejunal Tubes. They are appropriate if the client has poor gastric emptying, has difficulty with regurgitation, or is at high risk for aspiration of formula. Polyurethane or Silastic tubes are preferred for this route because they remain soft for long periods are not likely to cause intestinal perforation.

Note: If a Jejunostomy tube or Nasointestinal tube were to come out, they must be replaced in the Emergency Room

Delivery Methods of Enteral Formula via GT or NGT

The common methods of delivering enteral formulas are continuous or intermittent (bolus) methods. The gravity feeding methods are used for intermittent feedings, using either a syringe or gravity feeding set.

Continuous delivery is required when enteral formula is delivered into the jejunum or duodenum or the client is intolerant of intermittent gastric feedings. An enteral pump is usually required when continuous feedings are necessary.

Slow constant delivery of formula into the jejunum or duodenum is necessary to prevent *"dumping syndrome" symptoms of dizziness, tachycardia, diarrhea, and nausea..* These symptoms result from a rapid fluid shift. A typical feeding requires 15 to 20 minutes to complete. Portable backpack pumps are available that allow continuous enteral pump feeding without severely limiting the client's activities when nocturnal cyclic feedings are not possible

Information obtained: http://pediatric.um-surgery.org, www.pedisurg.com/PtEduc/Tube-Feeding.htm, CNMC hospital discharge teaching information. The information above, although based on a thorough knowledge and careful review of current medical literature, is intended as only a guide for when caring for clients. It is not meant to contradict any information you may receive from your client's personal physician.