

Care of the Child with a Gastrostomy Tube: What The School Nurse Should Know

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Today's Lesson:

1. Gastrostomy Tubes
2. Daily Care and Use of the G-tube
3. Common Problems
4. Resources
5. Skills

The Why, When, Where, How, & What of Gastrostomy Tubes



Indications for Gastrostomy

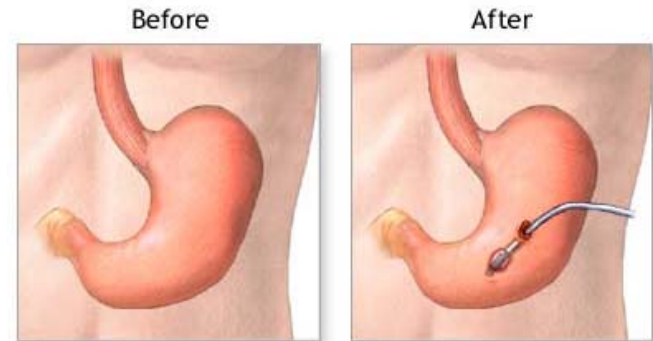
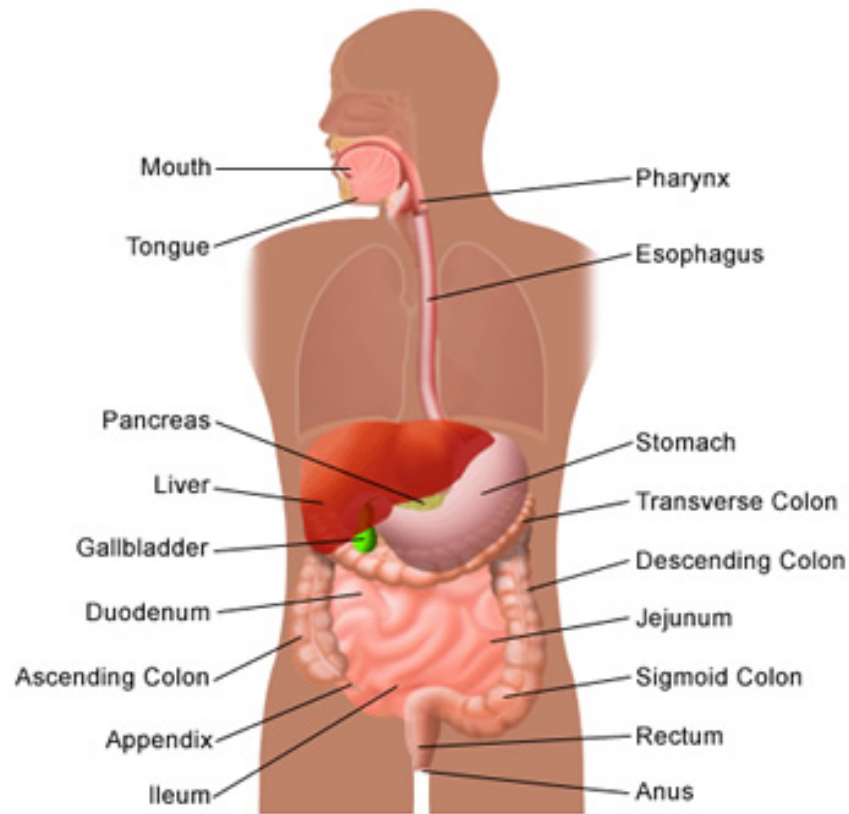
- A gastrostomy device is placed for the purpose of feeding, administering medications and/or decompressing the stomach.
- Feedings can be given directly into the stomach or small intestine.
- The gastrostomy device may be used as a supplement to oral feeds or the patient may be solely fed this way
- A gastrostomy is generally placed when enteral feedings are necessary for longer than 6-12 weeks time. It may be needed for the rest of the patient's life or for a shorter period depending on the patient's circumstances.

Indications for Gastrostomy

- Aspiration/swallowing problems
- Failure to thrive/poor growth-*sometimes ? cause*
- High caloric needs-*like Cystic Fibrosis*
- Minimal or no oral intake, poor suck/nippling
- Medically necessary medications and/or fluids-*for patients w/ seizures/diabetes insipidus, etc.*
- Need for specialized diets
- Trauma/anomaly of the mouth or esophagus

Intro to Gastrostomy

- A **gastrostomy** is a surgically created opening in the stomach.

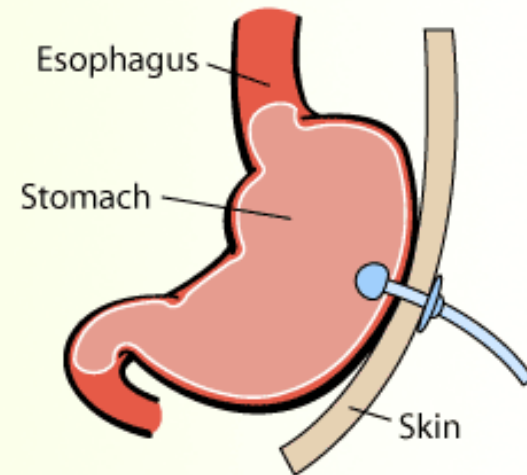


- This opening is also referred to as the **stoma**.
- The gastrostomy tube enters the stomach through this stoma and tract.
- The **tract** is the channel-like formation between the stomach and the skin where the G-tube/button is located.

The Method of Placement:

The gastrostomy is created and the gastrostomy tube placed during one of these methods:

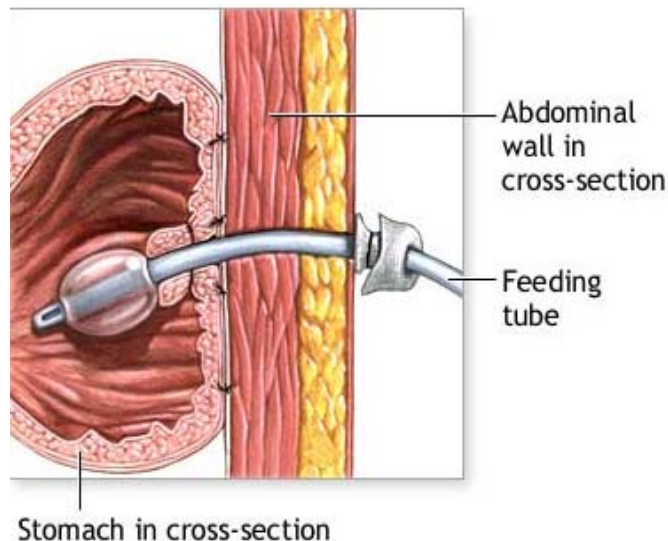
1. Surgical
 - a. Open procedure
 - b. Laparoscopic
2. Endoscopic
3. Radiological



Gastrostomy Tube Placement

Primary vs Secondary Devices:

- **Primary devices:**
 - Placed during the original gastrostomy surgery
 - *The tract is new*
- **Secondary devices:**
 - Placed **after** conversion of the primary tube



- The goal of the surgery is for the stomach to adhere to the abdominal wall, creating a **tract** where the tubes will be placed.
- The tract takes time to mature*:
 - 6-8 weeks for tubes/ buttons in which the stomach was sutured to the abdominal wall
 - 12 weeks for tubes/buttons not sutured like the PEG tube

*** This is an approximate time**

Gastrostomy Primary Tubes

- **Surgical tube**

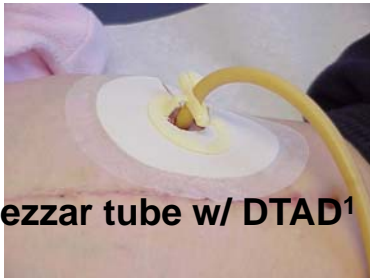
- Placed by a surgeon during open surgery
- The stomach is sutured to the abdominal wall
- Often done w/ Nissen Fundoplication
- Tube needs stabilization
- Changed to the button in 6-8 weeks

- **PEG tube**

- Placed generally by Gastroenterologist (sometimes with a surgeon)
- Has an external bolster
- Stomach not sutured
- Changed to a G-button in 3-6 months

- **Primary G-button**

- Laparoscopic or endoscopic placement
- Limited manipulation for the 1st 2 weeks



Pezzar tube w/ DTAD¹



PEG tube



¹Drainage Tube Attachment Device
²Percutaneous Endoscopic Gastrostomy Tubes

Gastrostomy Button

- AKA: low profile tube, skin level device
- 2 main types:
 - Balloon
 - Non-balloon
- Placement:
 - Primary-placed with initial gastrostomy surgery
 - Laparoscopic
 - PEG (One step)
 - Secondary to a longer G-tube after the tract has matured ¹
 - 4-6 weeks after open surgical tube placement
 - 3 -6 months after PEG tube placement
- Needs feeding extension to administer feedings/medications

¹ these are approximate times

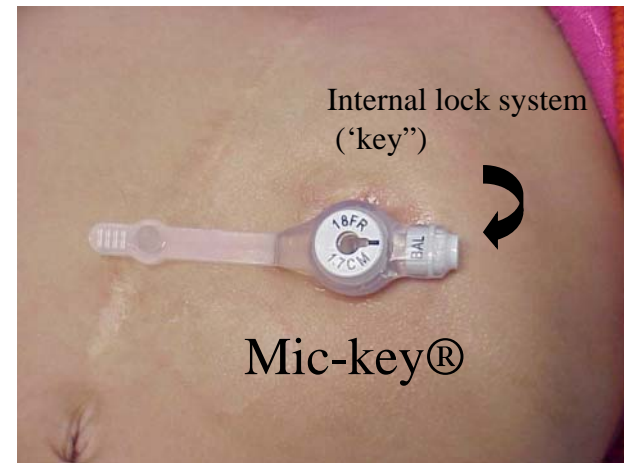
Comparison of Types of G-Buttons:

	Balloon	Non-balloon
Advantages	<ul style="list-style-type: none">■ Easily replaced @ home■ Comes in multiple sizes	<ul style="list-style-type: none">■ Lasts longer (sometimes up to several years)■ No balloon to break■ Not as likely to be accidentally dislodged
Disadvantages	<ul style="list-style-type: none">■ Balloon breaks, needs more frequent replacement■ Easier to dislodge	<ul style="list-style-type: none">■ Has to be changed by provider or nurse w/ advanced training■ Not available in as many sizes as balloon type■ May need sedation to place■ Some devices need size specific extensions and separate decompression extension (BARD button)

Physician preference and availability of buttons may direct what is placed

Balloon-Type G-Buttons

- Brands:
 - Mic-key®
 - Mini®, Mini ONE balloon®
 - Nutriport™
- Multiple Sizes: Mini ONE balloon®
 - **Fr:** 12,14,16,18,20,24
 - **Cm:** 0.8 – 5.0 cm
- Balloon
 - 5 mL on most buttons (4 mL for neonates or 12 Fr . buttons)*
 - over inflation can obstruct pylorus or cause gastric erosions
 - Use sterile /distilled water and preferably 6-10 mL slip tip syringe
- Extensions are not size specific within each brand.

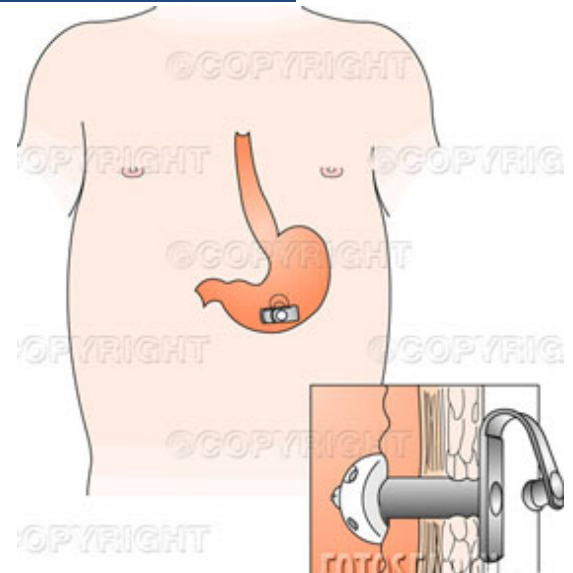


Mini ONE balloon G-button

***Read manufacturer guidelines**

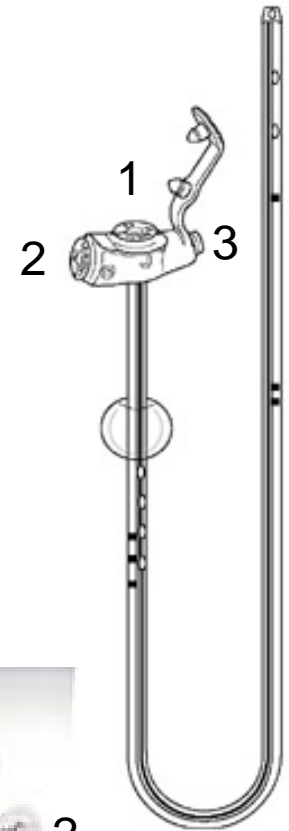
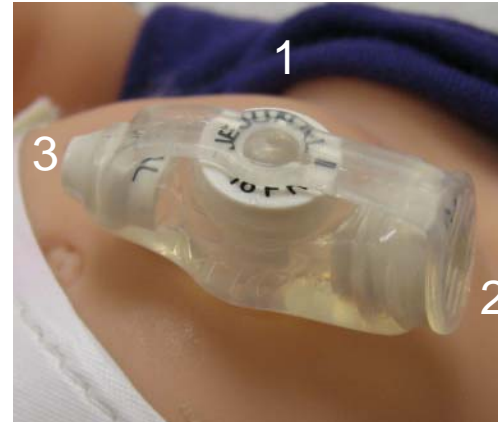
Non-balloon Type G-Button

- Has a silicone mushroom or basket-type tip inside to keep the G-button from coming out
- Placed with an obturator¹ or special insertion device to stretch out the internal bolster
- Brands:
 - BARD® or Microvasive®,
 - Mini ONE® non-balloon
 - Entristar®
- Sizes:
 - Varies, more limited than balloon-type
- BARD/Microvasive® buttons have separate decompression tubes, size-specific extensions



G-J tubes/buttons

- The (G-J) tube is actually 2 tubes in one and is placed through a gastrostomy tract.
- The jejunal portion is advanced into the intestine to bypass the stomach for feedings. (under fluoro)
- The feedings go through the jejunal port while the medications are to be administered through the gastric port
- Continuous feedings are given for usually 18-24 hours. Bolus feedings are not usually given in order to prevent dumping syndrome.



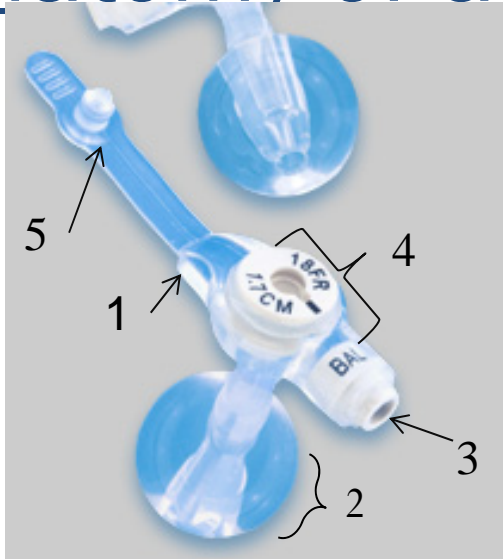
There are 3 ports:

1. **Jejunal** (intestine)
2. **Gastric** (stomach)
3. **Balloon**

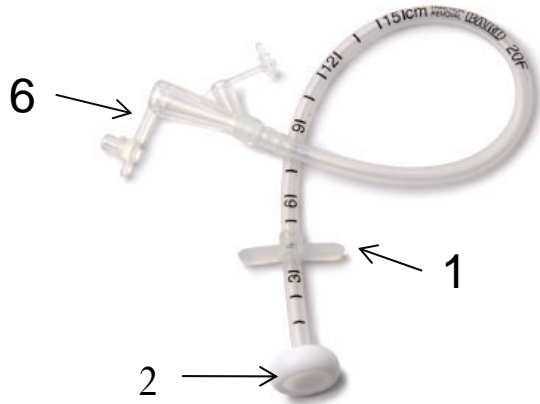
Special Uses

- Sometimes a button is placed in the cecum in the first part of the colon for the administration of laxatives in a child with bowel problems.
- This is called a cecostomy button. The same feeding buttons are used as are used with gastric feedings.
- The button will usually be located in the RLQ.
- Care is similar to the gastrostomy button.

Anatomy of a G-tube/button



1. External bolster prevents tube/button from migrating into stoma
2. Internal bolster/retention balloon secures device internally
3. Balloon valve allows access to inflate/deflate the balloon
4. Anti-reflux valve within the feeding port of button prevents reflux of formula
5. Flap/cap over access port
6. Feeding adaptor




Daily Care and Use of the G-tube

Daily Care

- Routine Care:

- Assess the site for abnormalities
- Stabilize/secure the tube
- Clean the skin around the tube with mild soap & water if needed
- Apply topical treatment(s) if ordered
- Change dressings when soiled (if applicable)

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Reusable G-tube pads

- Post-op Period:

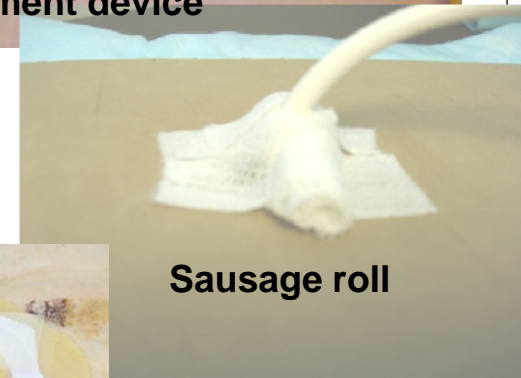
- Sutures may be present. Some of these are dissolvable and some will need to be removed in approximately 1 week by a HCP.
- There may be a mid-line incision and steri-strips in place. Let the steri-strips fall off on their own.
- **Primary G-buttons have specific care instructions:** Minimal manipulation for the first 2 weeks.

Nursing Assessment

- Assess the gastrostomy site
 - Is there redness? Is it streaky, bumpy or uniform?
 - Is there swelling/induration?
 - Is there drainage? How much? What color? Does it happen more at certain times?
 - Is there an odor?
 - Is there pain? With touching, with feeds, all the time or intermittent?
 - Does the gastrostomy device fit well? Not too loose or too tight.
- Assess the abdomen
 - Is there distension and/or firmness?
 - Is there pain?

Stabilizing the G-tube

- **Extremely important!**
 - Prevents migration of tube
 - Prevents rocking motion*
- Goal: keep tube from being pulled and maintain a 90 degree angle
 - Don't tape down too tight, no tension*
- Some tubes have a stabilization device already
- Some tubes need an external stabilizer
 - i.e. drainage tube attachment device, sausage roll, baby nipple



* Dressing the tube flat against the abdomen causes enlargement of the stoma

Protecting the Gastrostomy Tube/button

- The G-tube/button may need to be protected if the patient tries to pull on it or is very active and bumps it. It can be challenging to find the method that works for that patient. Some things that work are:
 - Stretchy gauze/netting
 - ACE bandage
 - Abdominal binder
 - Clothing like Onsie, overalls
 - Tape/Coban



Feeding through the G-tube/button

- Feedings are given continuous and/or bolus per pump, syringe or gravity bag.
- The patient should be on the right side with the HOB elevated 30° during and 30-60 minutes after feedings.
- Bolus/syringe feedings should not be given too fast. The more elevated the syringe is –the faster the formula will run in.
- Always stabilize the G-button with your fingers when attaching extensions
- Syringe feeds should be to gravity, do NOT force-ok to gently push.
- Signs of formula intolerance include abdominal distension, cramping, diarrhea and/or vomiting. *Some children have a Nissen and can't vomit.* You may need to stop feedings or slow the rate down.



Flushing Gastrostomy Devices

- Flush the gastrostomy devices with the appropriate amount of water before and after feedings and medications:
 - 10 mL unless the patient is fluid restricted then 3 – 5 mL is appropriate unless otherwise ordered per the provider.
 - Jejunal tubes require a **greater** amount of flush in order to prevent the tube from clogging¹.
 - Any gastrostomy device should also be flushed every 6 hours when receiving continuous feedings.



Your Child's Weight	Amount of flush
< 20 pounds	10 ml
20-75 pounds	15 ml
>75 pounds	20 ml

¹ Flush for jejunal tubes

Giving Medication through the G-tube/button

- Don't crush pills that are time released
- Do not give medications that dissolve under the tongue or are sustained release through the tube.
- Don't mix medications with formula or in formula bag unless ordered by the provider
- Give medications separately from each other to avoid drug interactions.
- Phenytoin should be given 1 hour before or 2 hours after enteral feeding.
- It is preferred that medications that are given through a G-button should be given through the medication port of the feeding extension instead of directly into the button because the valve can be damaged.
- Give medications through the correct port – be careful not give medications through the balloon port.



Medication port of Mic-key extension

Venting the Tube

- You may need to vent the patient's tube to remove excess air or fluid. You can do this a few different ways:
 - Use a catheter-tip syringe and aspirate the excess air from stomach or hold the syringe above the stoma
 - Some non-balloon G-buttons have specific extensions for decompression (size specific), others like the balloon-type G-buttons use the regular feeding extension to vent.
- Farrell Valve[®] Gastric Pressure Relief Device is recommended to use with continuous feeds.
 - It's designed to help patients who suffer from poor gastric motility, pain and bloating.
 - New bag every 24 hours
 - www.corpakmedsystems.com/Product_Main/enteral_main.html#Farrell



Farrell Valve

Cleaning the Equipment

- Feeding extensions:
 - Wash with warm soapy water or half white vinegar/half water.
 - Flush through with warm water
 - Hang to dry or flush air through.
 - May reuse for 2 weeks*
- Rinse feeding bags/ syringes after each use



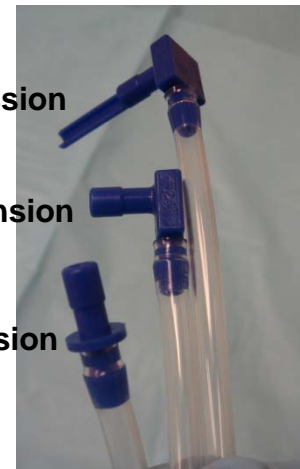
Mic-key/Mini ONE extension set



Decompression extension

Pump extension

Bolus extension



BARD® or Microvasive®

*per manufacturer's guidelines

Common Problems You May See

1. **Stoma**
2. **Skin Problems**
3. **Tube Problems**

Stoma: Leakage

- All gastrostomies leak some
- There are **multiple** causes of leakage including:
 - Any increase in intra-abdominal pressure:
 - constipation, coughing, heavy breathing, ventilated kids, crying, vomiting, change in weight or abdominal girth
 - Balloon has deflated
 - Incorrect size, improper stabilization
 - Underlying disorder like slow motility
 - Tube displacement
 - Poor wound healing
 - Body structure: scoliosis
 - Positioning
 - Spasticity
 - Inability to decompress stomach
 - Feeding intolerance
 - Recent illness/new medications

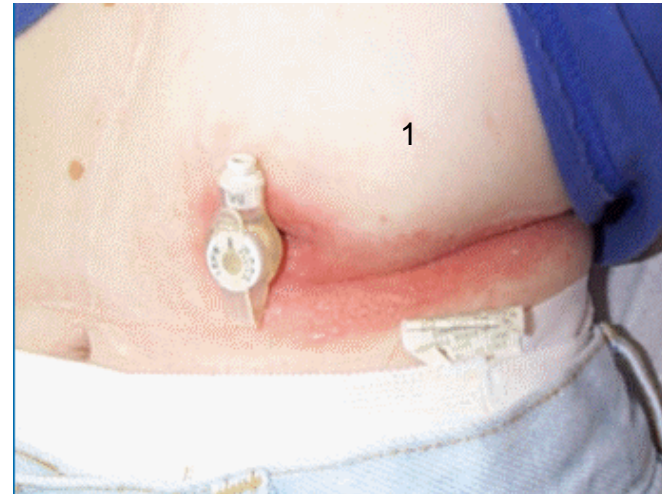
Stoma: Leakage

- Treatment:
 - Treat the underlying cause
 - Change to correct size and/or new button
 - Add more water to the balloon
 - Medication to suppress the acid in the stomach per provider
 - Protect skin
 - Barrier Products: Powder, Creams
 - Dressings: gauze, foam
 - Pouch/attach to drainage bag if leakage extreme
 - Change rate/route of feeds

Skin: Irritant Dermatitis

- Cause:

- Primarily from leakage of gastric contents ¹
- Can also be from harsh cleansers, antibacterial & other topical medications, external bolster too tight
- Sometimes skin conditions such as eczema can mimic this



- Treatment:

- Correct the cause
- Barrier products: creams, powders to protect and heal the skin
- Oral/topical medications per provider to reduce acid
- Absorptive dressings

Skin Protection: Building a Barrier

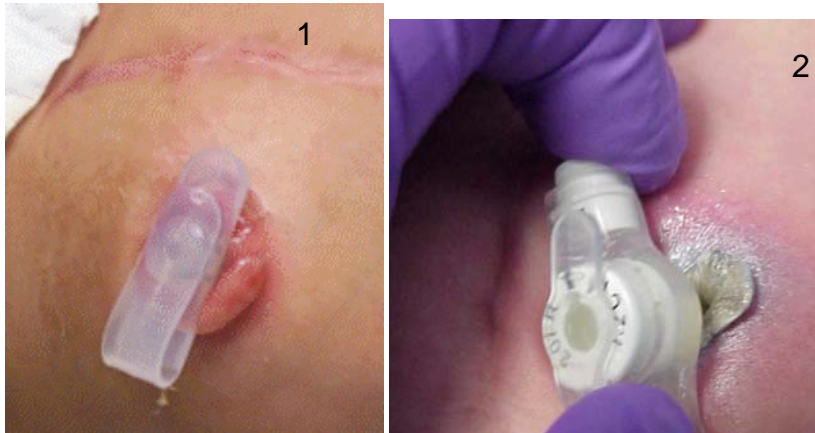
- Purpose:
 - Keeps good moisture in and bad moisture out
 - Protects the skin from caustic fluids
 - Technique as important as the products are
- Products:
 - zinc oxide, petrolatum , skin prep, barrier powder
- Technique:
 - **Put medications on first**
 - If using powder apply before barrier creams and sprays
 - Skin prep/film helps seal in powder and provide a light barrier
 - Apply creams thick like icing
 - **Layer** if needed
 - Don't wipe completely off each time, blot and reapply



Barrier Products

1. powder
2. cream
3. prep

Skin: Hypergranulation Tissue



- One of the most common problems seen-the body is trying to heal
- Extra growth of tissue; pink-red. Sometimes beefy¹ looking.
- Yellow, “snotty” and/or brown drainage
- Sometimes friable – may bleed
- May be painful
- Often mistaken for an infection

- Cause: incorrect stabilization, tube moving around in the stoma a lot, excessive moisture, Peroxide use, Dilantin, occlusive dressings
- Treatment:
 - silver nitrate application per provider/trained nurse
 - Tissue will turn gray/black and slough off². May discolor clothing and skin.
 - Steroid creams: Triamcinolone
 - Stabilize the tube, change size of button, don't leave extensions on when not in use, if extensions are needed for long periods-tape down to limit movement in the stoma.
 - Barrier powder to control moisture
 - Foam dressings

Skin: Bacterial Infection

- Appearance:
 - Red streaking, spreading erythema
 - Swelling around the site
 - Abnormal bump
- Other symptoms:
 - Increased tenderness
 - May or may not have fever, odor or green/purulent drainage



Cellulitis

- Cause:
 - MRSA common source
 - Poor hygiene
 - Tight fit of device/tension on the stoma
- Treatment:
 - Clean w/ sterile water or saline 2-3x/d
 - Antibiotics per provider
 - Silver dressings

Skin: Fungal Infection

- Appearance:
 - Red papular rash, often has satellite lesions.
- Causes:
 - Trapped moisture
 - Hot, humid environment
 - G-tube located deep in a skin fold
 - chronic moisture, immuno-suppression, cortico-steroids and diabetes
- TX:
 - Keep area clean and dry
 - Antifungal medication as prescribed per provider



Tube: malfunction

- Signs:
 - Formula leaking from the button- a small amount is acceptable
 - Balloon leaks/has a hole
 - Need to fill the balloon frequently
 - Piece of the tube/button falls off or won't work appropriately
 - Crack or hole on G-tube
- TX:
 - Replace device as soon as possible*
 - For GJ tubes/buttons they need replacement under fluoroscopy

Tube: Obstruction

- Causes:
 - Inappropriate med administration, thick formulas, failure to flush, pill fragments, solutabs, viscous medications, defective tubing
- **Prevention**
 - Flush well as recommended/ordered
 - Liquid medication administration
- TX:
 - Check for kinks, make sure clamp is open
 - Flush with warm water, use 30-60 cc syringe
 - Try Push-pull method
 - Milk the tubing
 - Change out extensions/button if possible
 - De-clogging methods per provider
 - Replacement if possible*

Tube: Dislodgement

- Causes:
 - Balloon deflates
 - G-button is pulled out:
 - Purposefully
 - Accidentally
- EARLY Dislodgement
 - 6-8 weeks
 - Tract not well formed
 - Forcing a tube may disrupt the stomach from the abdominal wall
- LATE Dislodgement
 - > 8-12 weeks safer but complications can still occur

FYI: The stoma can start to close in 1-2 hr

Texas BNE Statement

15.24 Nurses Engaging In Reinsertion of Permanently Placed Feeding Tubes

1. The nurse should complete training designed specifically for the type or types of permanent feeding tubes the nurse may need to replace, including overall patient assessment, verification of proper tube placement, and assessment of the tube insertion site.
2. A registered nurse or a physician who has the necessary expertise with regard to the specific feeding tube provides supervision during the training process.
3. The nurse demonstrates competency in all appropriate aspects (knowledge, decision-making, and psycho-motor skills) of performing the procedure.
4. The patient has an established tract. The established tract is not determined by the nurse.
5. The facility has resources available to develop an educational program for initial instruction of LVNs and/or RNs, as well as for ongoing competency validation.
6. Documentation of each nurse's initial education and ongoing competency validation should be maintained by the nurse and/or the employer in accordance with facility policies.
7. Regardless of training, policies and procedures of the facility must also permit the nurse to engage in the procedure.

Red Flags



- Signs of Peritonitis/Device in incorrect place:
 - Difficulty with the flow of formula or medications
 - Abdominal pain with and/or after feeding
 - Abdominal tenderness and or rigidity; fever
- Signs of feeding intolerance or aspiration:
 - Choking/gagging with feedings
 - Vomiting/abdominal pain with feedings
- Signs of an Infection within 2 weeks of initial surgery:
 - Redness with swelling around the gastrostomy
- Signs of dehydration if patient having leakage from the gastrostomy site
- Signs of dumping syndrome:
 - Nausea/Vomiting
 - Sweating, Heart palpitations, rapid heart rate
 - Weakness, fatigue , fainting or passing out
 - Dizziness, lightheadedness
 - Shakiness, feelings of anxiety, nervousness



• **STOP FEEDING**

When & Who to Call



Problem	Who to Call
<ul style="list-style-type: none">•Tube comes out/gets dislodged•Tube is clogged	<ul style="list-style-type: none">•Parent/caretaker•HCP or parent
<ul style="list-style-type: none">•Red Flags are present	<ul style="list-style-type: none">•Call the HCP and parent /send the patient to the ER if warranted
<ul style="list-style-type: none">•Abnormal findings:	<ul style="list-style-type: none">•Call the HCP and notify the parent
<ul style="list-style-type: none">•Equipment needs	<ul style="list-style-type: none">•Need more supplies- MD who writes orders for the supplies; Broken supplies- DME company
<ul style="list-style-type: none">•Questions/concerns about the patient	<ul style="list-style-type: none">•Speak to the HCP taking care of the patient
<ul style="list-style-type: none">•Education needs for nurse/parent	<ul style="list-style-type: none">•Nurse/Educator/Manufacturer resources

Important to Know:

1. Know when the original gastrostomy surgery was done and special instructions related to the care
2. Know who & when to contact
3. Stabilize/secure the G-tube
4. Know what each port is for
5. Flush with water at least after feedings and medications and during continuous feedings to prevent clogging
6. Not all G-tube sites look perfect and this does not always reflect the quality of care, know what the patient's baseline is or call the HCP.
7. See Do's & Don'ts Handout



Resources

- **American Pediatric Surgical Nurses** www.apsna.org
- **Complex Child** <http://complexchild.com/>
- **Feeding Tube Awareness** www.feedingtubeawareness.com
- **Mic-key G-button** www.mic-key.com
www.youtube.com/user/mymickeytube
- **The Oley Foundation** www.oley.org
- **Parent:** www.parent-2-parent.com
- **Special Child** www.specialchild.com



Reusable G-tube pads:

- Julia's G-tube pads: <http://store.juliasgtubepads.com/>
- My Button Buddies: www.mybuttonbuddies.com

Questions?





Play Time!