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Tummy Time: Mastering Pediatric Enteral Tubes

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Objectives

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- Indications and uses of enteral tubes
- Discuss different types of enteral tubes
- Nursing assessment
- Complications
- Feeding types
- Nursing considerations for feedings
- Teaching

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Indications for Enteral Tubes

- Unable to swallow normally
- Inadequate nutrition
- Insufficient oral intake
- Anorexia
- Malabsorption

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Common Diagnosis

- Cystic Fibrosis
- Short Bowel Syndrome
- Congenital Heart Disease
- Cancer
- Neuromuscular disorders
- Neurologic Disorders
- Crohn's Disease
- Prematurity

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Types of Tubes

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- Nasogastric (NG tube)
- Nasoduodenal (ND tube)
- Gastrostomy (G-tube)
- Gastrostomy jejunostomy (G-J tube)
- Jejunostomy (J tube)

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Nasogastric Tube Placement: Key Points

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- Healthcare provider or caregiver inserted
- Measure and note tube length utilizing NEMU (nose-ear-mid-xiphoid-umbilicus) method
- Sitting or semi sitting position
- Lubricate tube prior to insertion
- Advance the tube through the nares to predetermined length
- Confirmation of placement is required with each insertion and prior to use

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Nursing Assessment: NG tube

- Prolonged or consistent coughing
- Gaging or choking
- General color change
- Gasping
- Persistent vomiting
- Increased respiratory rate
- Change in respiratory effort
- Unexplained irritability
- Increased discomfort, restlessness, or pain
- New abdominal pain
- Change in voice or quality of cry

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Nasogastric Tube: Placement

- X-Ray is the gold standard for placement confirmation
- pH aspirate of $\leq$ 5.5
- Document numeric value at the nares or document the external measurement from the nares to the end of the feeding tube

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Strategies for NG tube insertion

- Ask child to flex head forward to help close the airway and open the esophagus
- Babies can use a pacifier
- If child can safely swallow, have them sip on water through a straw as tube is advanced
- If resistance is met, try to rotate the tube gently, never force the tube

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Types of NG tubes

Decompression
- Double-lumen
- Rigid tube
- Large lumen used for suction
- Second lumen sump

Feeding
- Single lumen
- Soft and smaller

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Nasogastric Tube: Maintenance

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- Confirm accurate NG tube placement regularly and before instilling solution
- pH test daily: Medications, feeds, and water WILL affect test!!
- Air flush
- Increment marking on the tube or measuring external length of the tube prior to installation of feed/medication administration

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Nasogastric Tubes: Nursing Care

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- Assess skin integrity on face, around and inside nares.
- Assess patency of nares
- Change tube at recommended frequency based on manufacturer's recommendations
- Alternate nares with each change
- Flush tube after every feed and medication to prevent blockage

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Troubleshooting:
Unable to obtain pH sample

- Flush tube with 2-5 mL of air
- Turn patient to the left side
- Use larger syringe to aspirate

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Troubleshooting:
Blocked NGT

- Check for kinks, re-secure tube
- Flush the tube with of warm water
- Using a pulsating push-and-pull motion, attempt to flush through fluid

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Nasoduodenal Tubes (ND Tube)

- Provider inserted
- Short-term enteral nutrition (4 to 6 weeks)
- Continuous feeds
- X-ray confirmation

Indications

- Gastroesophageal reflux
- Gastroparesis
- Gastric outlet obstruction
- Pancreatitis

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Gastrostomy Tube

- Surgically placed, one of the most common procedures in pediatric hospitals
- Long term use
- Permanently or temporary

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Types of GT: Long Tube

- Initial type of tube place
- Can be changed to low profile at 12 weeks
- Can be maintained long term (2-5 years)
- Retention disc is pushed down along the outside of the tube. The disc rests against the skin of the belly. When the balloon and retention disc are in the correct position, the tube is held tightly in place.

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Types of Types: Low Profile

- Button
- Lays on top of the abdominal wall and is kept in place in the stomach by a water-filled balloon.
- Extension tube is attached when administering medicines or feedings
- Balloon is maintained with sterile or distilled water as per manufacturer's recommendations
- Changed every 3 months

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GT Balloon Maintenance

- Water in balloon should be checked once a week
- Compare water present in balloon with manufacturer's instructions
- In water amount present is less than recommendations, fill appropriately
- For refilled balloons, recheck 20 min to 1 hour later
- If balloon has lost water in that time, change GT

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GT Extension

- Right angle connector and y port extension most common
- Straight bolus extension for venting the G-tube or for large volume bolus
- Remove extension set from GT when not in use
- Change every week
- Secure the extension set to the skin with tape to prevent pulling on the G-tube for feeds over an hour
- Flush after every feed/medication administration

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G-Tube and Extension Connection

- Align the black line of the extension set with the black line on the feeding port.
- Insert the connector into the feeding port.
- Rotate it clockwise to lock it in place.

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G-Tube Change

- Remove water from old tube, and gently slide out
- If the new GT has a balloon, test the balloon's integrity before insertion by inflating and deflating it
- Lubricate the distal tip of the new GT
- Insert the GT gently into the stoma
- Assess for proper GT placement by visualizing gastric contents and flushing g-tube.
- If the GT has a balloon, follow these steps:
  - Inflate the balloon by instilling the appropriate volume
  - Pull back gently on the GT until slight resistance is noted.
- Apply the GT closure and clean GT site

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Nursing Assessment: G-Tube Site

- Significant weight gain/loss
- GT pinches or feels tight
- GT feels loose and/or stoma is leaking
- Stoma is irritated or the patient complains of discomfort
- GT does not rotate during regular maintenance (feels stuck or buried)

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G-Tube: Nursing Care

- Keep the G-tube and the stoma clean and dry
- Clean the skin around the G-tube 1 to 2 times each day with soap and water
- Rotate the GT after cleaning
- Preventative Dressing
- The G-tube is replaced about every 3 months.

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G-Tube: Nursing Care

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- Venting
  - Allows stomach to be vented or 'burped'
  - Can be done before, during or after feeds
  - If stomach contents come up, typically allow contents to return into stomach
- Flushing
  - Flush after medications and feeds- ensure the tubing is clear (2 -5 ml) for g-tube after meds/feeds
  - 5 ml Q 4 hours j-port of g-j tube **even if feeding is infusing**
- Use 5 ml syringe or greater when flushing – less negative pressure on tube

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Gastro-Jejunostomy Tube (GJ tube)

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- Used when gastric feeds not tolerated
- Placed in interventional radiology (after initial tube is placed)
- Often placed through gastrostomy tube
- Never rotate GJ tube
- One tube on outside, on inside one tube exit in the stomach and one in the jejunum
  - Gastric outlet – vented, clamped, some meds
  - Jejunal outlet – feeds, meds
    - Flush to prevent clogging

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Jejunostomy tube (J-tube)

- Placed directly into the jejunum
- Surgical procedure
- Placed when a child's probability of tolerating gastrostomy feeds is unlikely
- Do not rotate J tube
- Jejunostomy tube feeds must be given as a continuous infusion not bolus feed

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Separate G- Tube and J -Tube

- Can have both gastrostomy tube for venting and some meds and jejunostomy tube for feeds and some meds
- Important to identify what medications go in which tube and ensure feeds go to correct tube

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G-Tube Complications: Leaking at the site

- Gently pull back on tube to ensure snug against stomach wall
- May need to change button if size incorrect
- May need stabilization tube
- Check balloon for appropriate water volume

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G-Tube Complications: Skin Irritation around Stoma

Yeast
- Tiny, red bumps
- Tends to look 'moist'
- Treatment: Nystatin cream or powder

Site red, irritated
- Dampness, gastric leakage
- Dry dressing when moist – need to keep site dry
- Barrier shield wipes may be used
- Moisture barrier dressing

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G-Tube Complications: Tube Clogged

- Check for kinks
- Flush with water
- Clogged extension tubing
- G- tube change
- IF GJ tube – need to go to emergency room

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G-Tube Complications: Unplanned Removal

- "New" or established stoma
- Stoma will begin got close in first few hours
- "New" must be re-inserted in acute care/interventional radiology
- Established stoma can be replaced at home

Confirmation

- Flush and pull back for gastric content

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G-Tube Complications: Leaking at Site

- Balloon moved from stomach wall
- Balloon lost water
- Stoma larger
- Increased pressure in the stomach

- Gently pull back on the tube to ensure that the balloon or mushroom is up against the stomach wall
- Check the amount of water in balloon
- Vent tubing before and after feedings

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G-Tube Complications: Granulomas

- Looks pink to dark red, it appears open, shiny or wet, appears puffy and can be painful
- Causes: excessive movement of tube, drainage, pressure on the stoma
- Prevention: secure feeding tube to minimize movement, keep stoma clean and dry, turn frequently

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Complications: Constipation/Diarrhea

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Constipation
- Not enough water or fiber administered
- Lack of physical activity
- Medications

Diarrhea
- Medications
- Formula being fed too fast
- Tube migration into small intestine
- Formula too cold, spoiled

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Care of G-Tube site

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- New: cleaned twice daily with saline for first week
- Established: soap and water
- Tube should be rotated with each cleaning
- Tube bath/swimming allow after one week

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Enteral Tubes and Hygiene

- Mouth care important for patients not taking oral nutrition
- Brush teeth twice daily
- Mouth moist with swabs/Lip balm
- Nasogastric- wash nostrils once daily
- Use lip balm around nostril edges to moisturize

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Feeding Methods for Enteral Tubes

- Bolus
- Continuous
- Combination
- Pump
- Gravity

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Types of Feeding Strategies

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Continuous
- Overnight or 18-24 hours
- Administered via pump
- J- tube requires continuous feeds

Bolus
- Specific amount over shorter time period
- Usually 20-60 minutes
- Can give via gravity (syringe or feeding bag) or enteral feeding pump

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How to give Medications and Feedings

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Using a pump:
- Set up feeding pump with correct rate and total amount to be given
- Prepare maximum 4 hours of feed at a time
- Prime the tubing
- Place extension set on GT (if appropriate)
- Unclamp the tubing before hitting RUN

Using a bulb syringe:
- Prepare the correct amount of formula
- Place extension set on GT (if appropriate)
- Place syringe on extension set
- Unclamp the tubing and hold it higher than the stomach

Giving Medications:
- Double check all medications to be given before starting
- Place extension set on GT (if appropriate)
- Unclamp the tubing before administering and re-clamp after
- Flush with water after each medication

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Patient and Family Teaching

- Type and size of tube
- Understanding of feeding/medication schedules
- How to use equipment
- Common Complications
- When to call provider or go to emergency room
- Oral care and dental care
- Skin care
- Include child at dinner
- Emotional support

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Questions?

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