



NURSES' GUIDE TO TUBE FEEDING

PRESENTED BY:

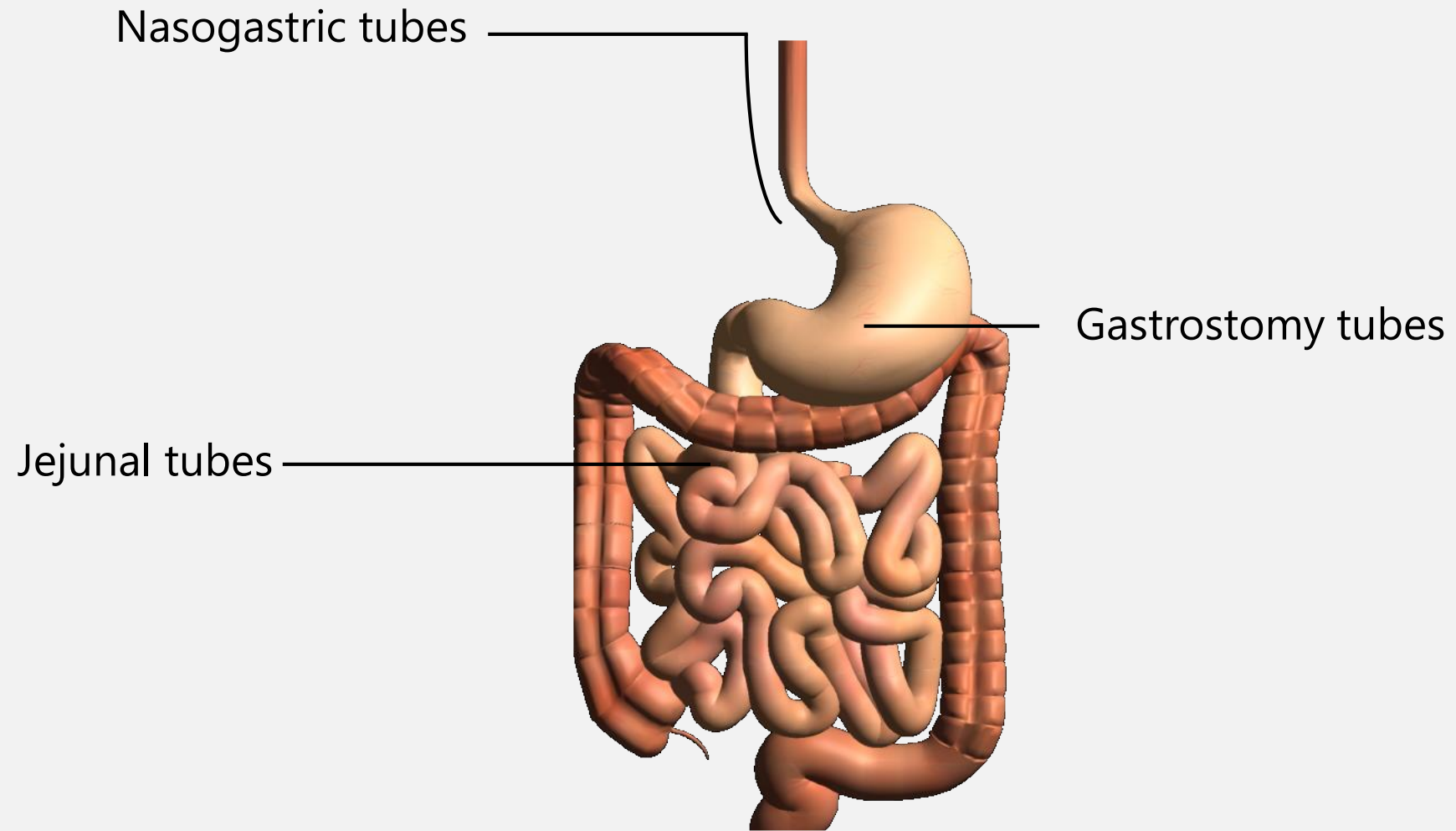
JEFF SOUZA, FNP
CAPITAL NURSING EDUCATION



OBJECTIVES

- Identify types of feeding tubes and accessories
- Recognize enteral devices with ENFit® connectors
- Demonstrate appropriate techniques for formula and medication administration
- Describe optimal tube site care
- Recognize and troubleshoot complications of tube feeding
- Nutrition Screening

FEEDING TUBES



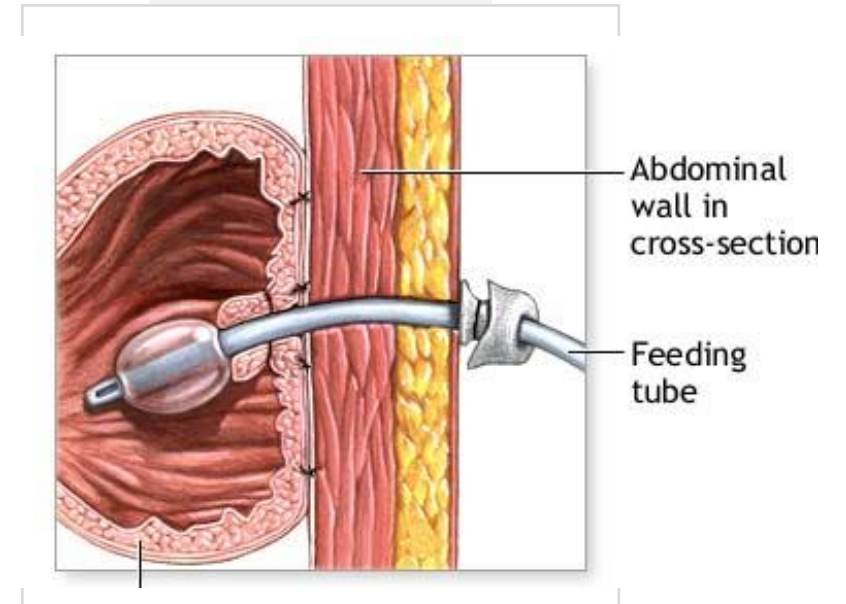
NASOGASTRIC TUBES

- Bedside or radiology insertion
- Indicated for short term use
 - Some patients use for long term
- Contraindications
 - Aspiration risk
 - Persistent vomiting/reflux
 - Delayed gastric empty



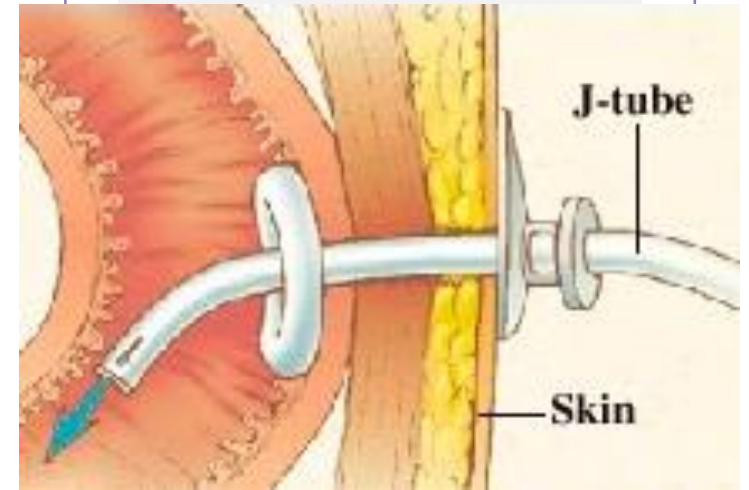
GASTROSTOMY TUBES (G-TUBES)

- Percutaneous Endoscopic Gastrostomy (PEG)
 - Placed using endoscopic technique
 - Internal and external bolsters
- Surgical Gastrostomy tubes



JEJUNAL (J-TUBE)

- Percutaneous Endoscopic Jejunostomy (PEJ)
- Needle Catheter Jejunostomy
 - Most commonly used surgically-placed J-tube
- Percutaneous Endoscopic Gastro-Jejunostomy (PEGJ)



BALLOON TUBES

- Replacement Balloon G-tubes/J-tubes
 - Once gastrostomy tract matures
 - Approximately 3 months
- Low Profile G-tubes/J-tubes
 - Anti-reflux valve prevents leakage of gastric contents in case cap comes off
 - Requires extension tubing for use



NASOENTERIC TUBES

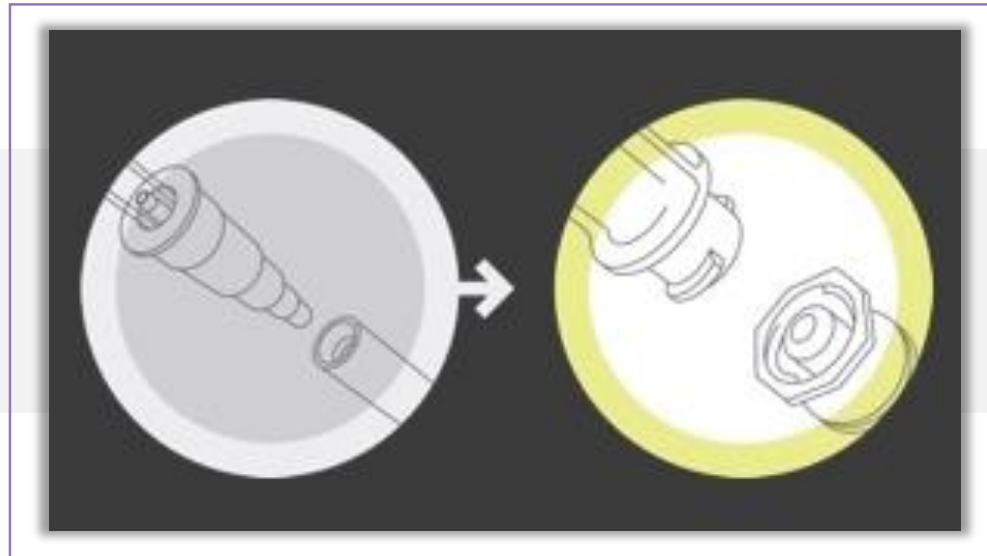
- Nasogastric/jejunal (NG/NJ-tube)
 - Bedside or radiology insertion
 - Placement confirmed by radiography
 - Also known as transpyloric (TP)
- Nasogastric-jejunal (NG-J)
 - Double-lumen tube
- Nasoduodenal tubes (ND)
 - More common in infants/children



ENfit ®

ENTERAL CONNECTION

- Misconnections between enteral devices and non-enteral devices (IV, respiratory, urinary, etc.) can cause patient harm and death.
- ENFit® is an FDA-approved solution from safety organizations and manufacturers.



ENFit®

With the ENFit® connector, enteral feeding devices will only connect with other enteral feeding devices.

ENFit®
Syringe



ENFit® Bolus
Feeding Port

ENFit® Feeding
Set Tip

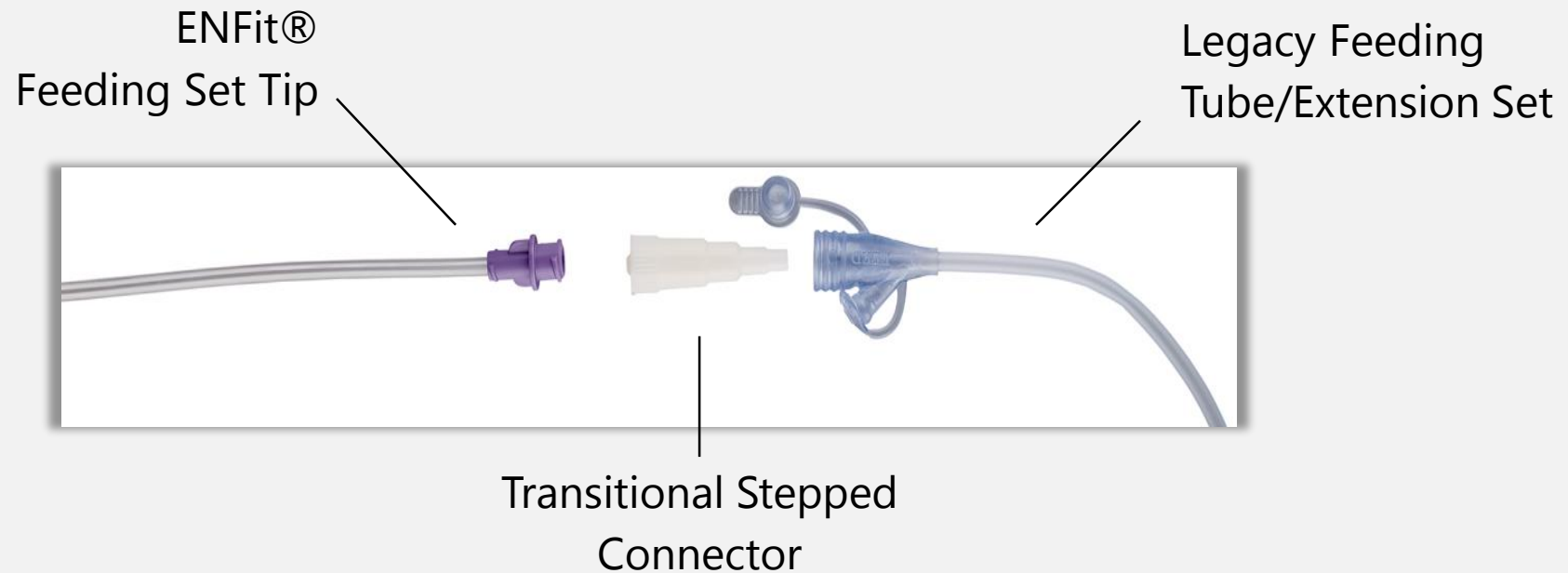


ENFit® Continuous
Feeding Port

ENfit®

FEEDING SETS

Enteral feeding sets already have an ENFit® tip with a transitional stepped connector.



ENfit® FEEDING SETS

PUMP



GRAVITY



**ENFIT® TIP W/TRANSITIONAL
STEPPED CONNECTOR**



ENfit® SYRINGES



CATHETER TIP SYRINGE



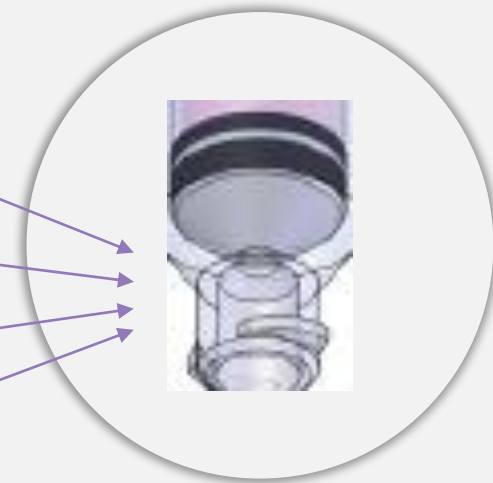
LUER LOCK SYRINGE



LUER SLIP SYRINGE



ORAL SYRINGE



ENfit® SYRINGES

Syringes are currently available with ENFit® tip for use with or without a transitional stepped connector.



ENfit®

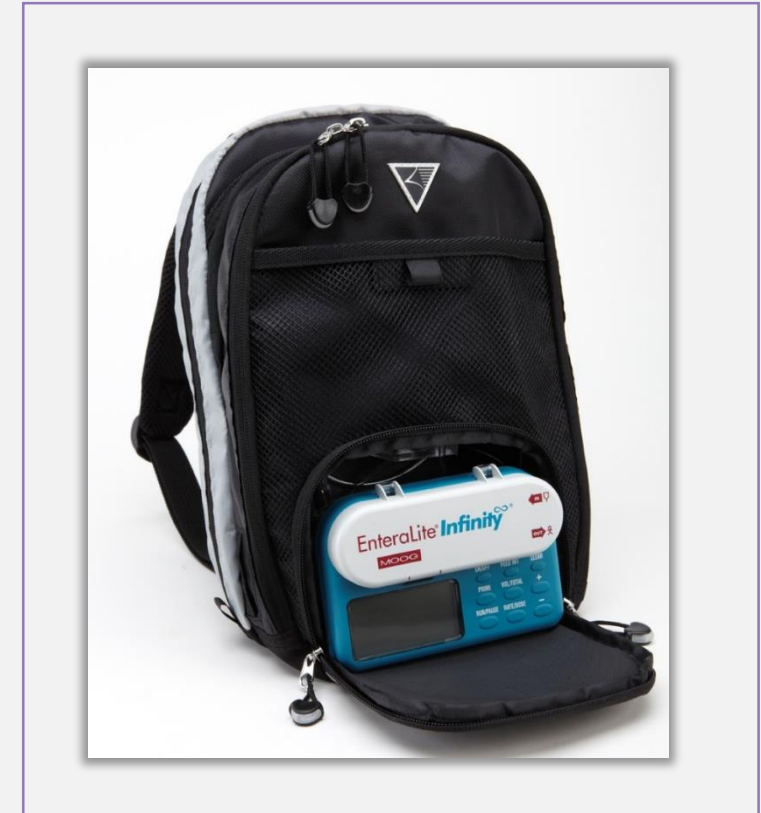
FEEDING TUBES AND EXTENSION SETS

Feeding tubes and extension sets are available with Enfit®.



ENTERAL BACKPACK

- Allows for ambulation
- Improves independence
- Enhances quality of life





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- Recognize and troubleshoot complications of tube feeding

VERIFYING TUBE POSITION

- Purpose
 - Tube can migrate upward from small bowel to stomach or from stomach to esophagus
- Methods used
 - Checking tube graduation marks
 - Aspirating gastric residuals
 - Air auscultation
 - X-ray confirmation

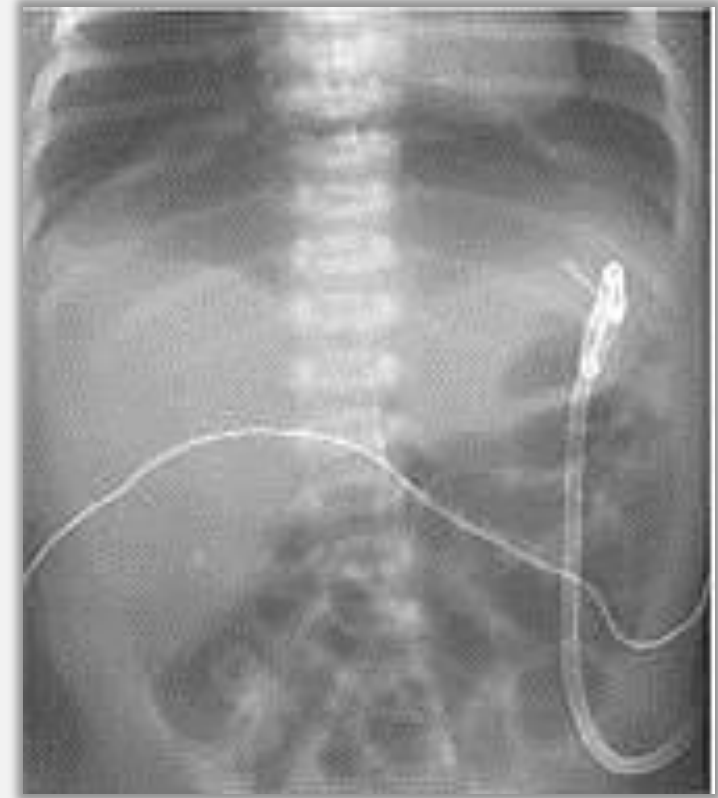
VERIFYING TUBE POSITION

- Methods used to verify tube position
 - **Checking tube graduation marks**
 - **Most effective bedside method**
- Aspirating gastric residuals
 - Sharp increase may indicate JT displaced to the stomach
 - pH of aspirate different in gastric vs small bowel
 - Negative pressure when attempting to aspirate
 - Potentially useful to detect small bowel tube migration



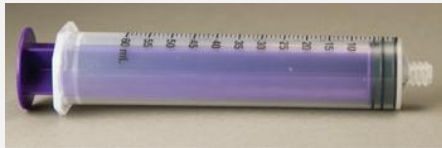
VERIFYING TUBE POSITION

- Methods used to verify tube position
 - Air auscultation
 - Not effective
 - Hard to differentiate between respiratory and gastric placement
 - **X-ray confirmation**
 - **Gold standard**
 - Always use if there is doubt



FEEDING METHODS

BOLUS



GRAVITY

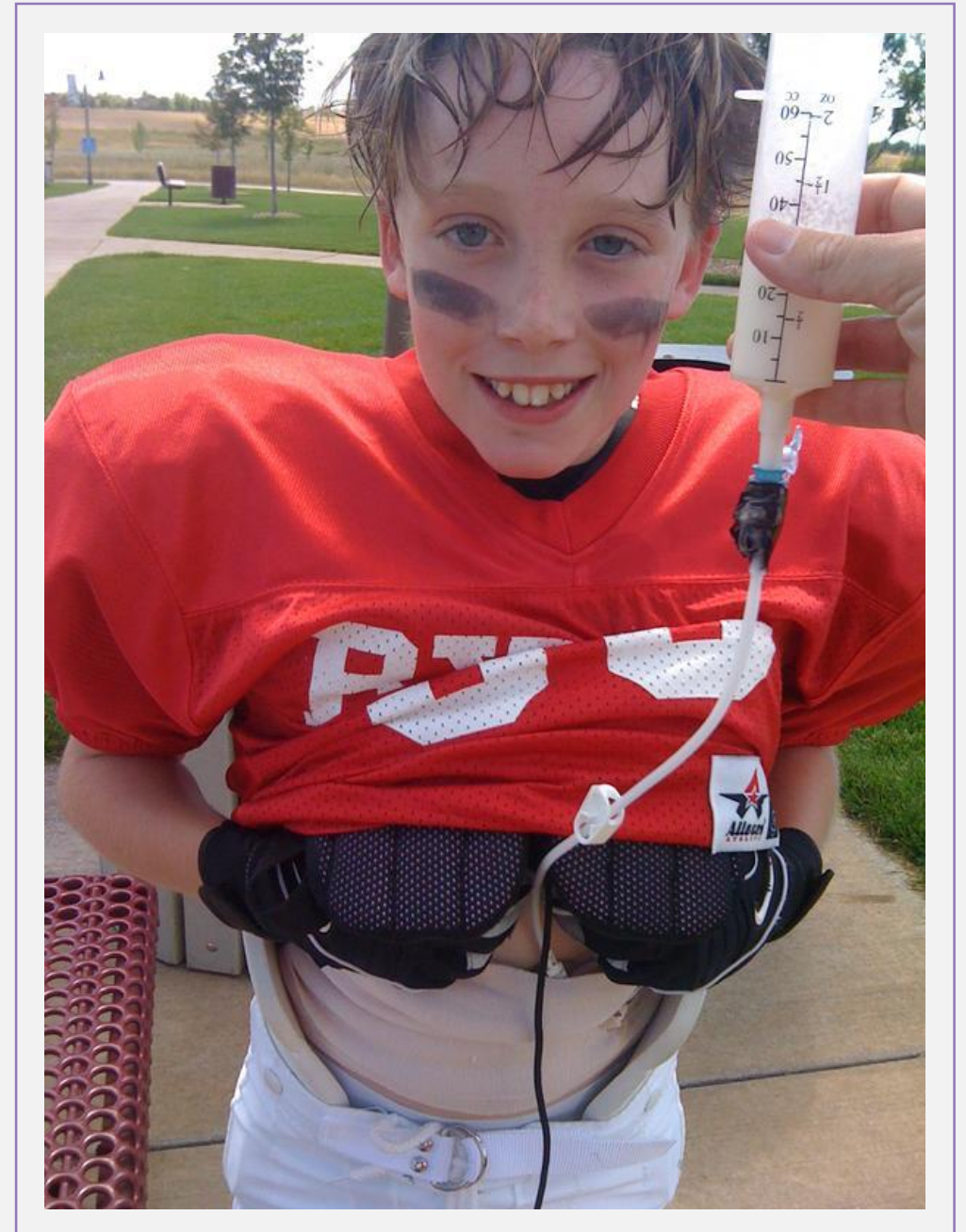


PUMP-ASSISTED



BOLUS

- Large amount of formula administered rapidly
 - Delivered over approximately 15 minutes
 - 3-8 times daily
- Appropriate for NGT and GT
- Allows for more freedom



GRAVITY

- Requires feeding bag with roller clamp
 - Delivered over 30-60 minutes
 - 3-8 times daily
- Appropriate for NGT or GT



PUMP-ASSISTED

- Continuous or Intermittent
- Over 30-60 minutes in some pediatric patients
- Delivered up to 24 hours a day
- Appropriate for JT and GT/NGT who require slower rate

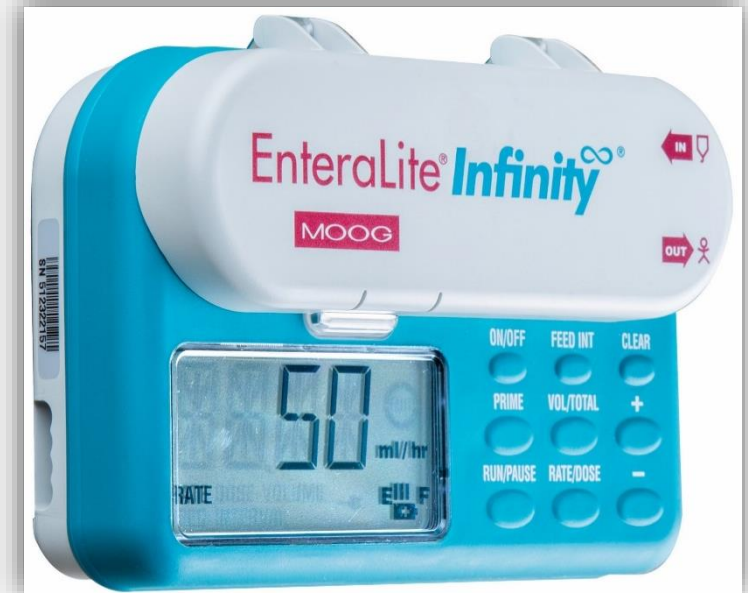


INITIATION

- Bolus/Gravity
 - 25% of goal volume in pediatric patients
 - Up to 100% of goal volume in stable adult patients
 - Divide into desired number of daily feedings
- Pump
 - Start at 10-40 mL/hr

ADVANCEMENT

- Bolus/Gravity
 - Increase volume by 25% per day until goal reached
- Pump
 - Increase by 10-20 mL/hr every 8-12 hours as tolerated until goal rate reached



ASPIRATION PREVENTION

- Proper tube position
- Head of the bed at 30-45 degrees during and 1 hour after
- Check for signs of intolerance
 - Emesis
 - Abdominal distention
 - Constipation
- Gastric Residual Volume (GRV)



GASTRIC RESIDUAL VOLUME (GRV)

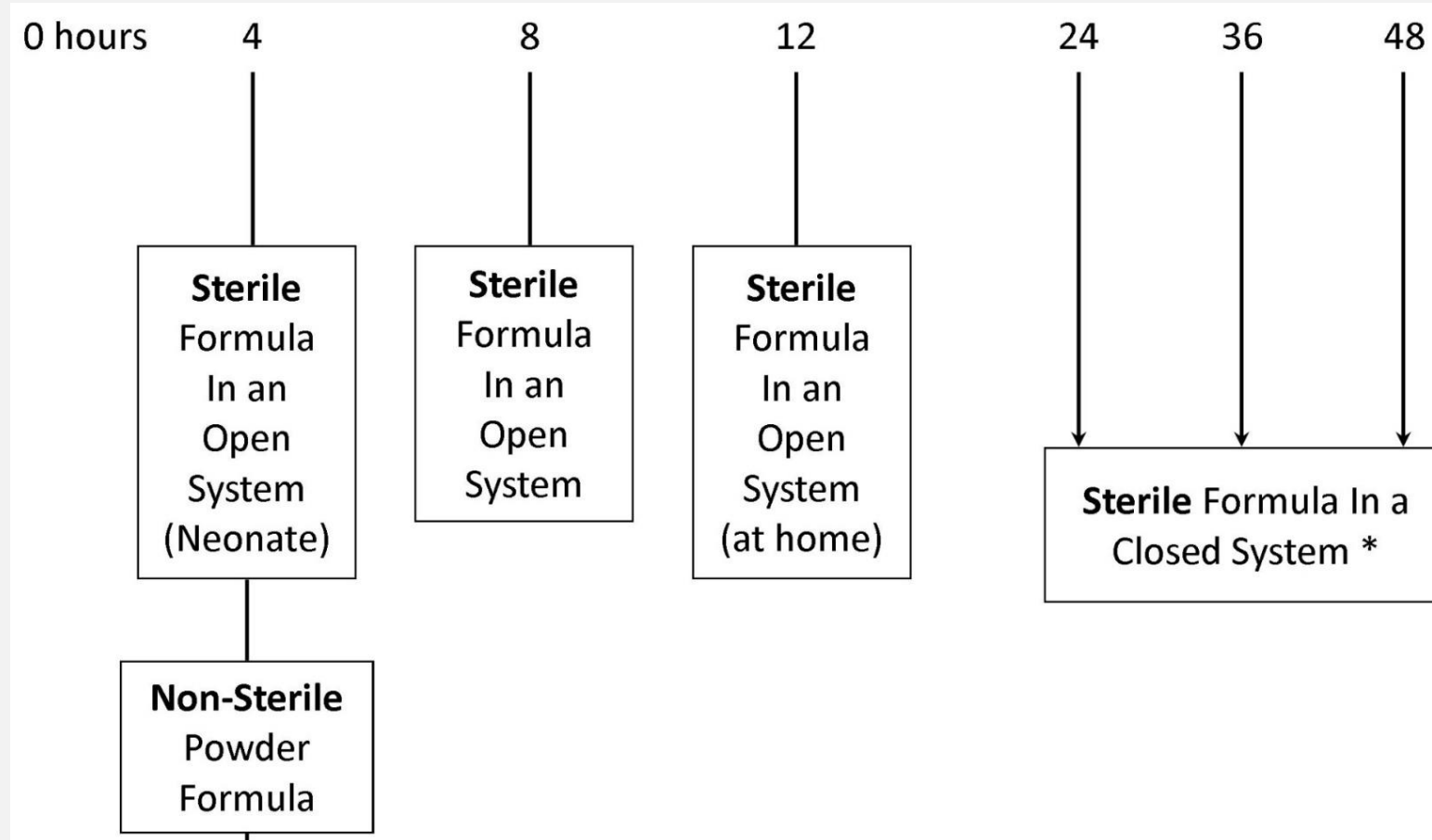
- Checking
 - Q 4 hours for the first 48 hrs
 - Q 6-8 hours once goal reached in non-critical patients
- Interpreting
 - GRV > 250ml x2 may require gastric motility agent
 - GRV > 500mL hold TF and reassess
 - GRV consistently > 500mL consider jejunal feedings

DISADVANTAGES TO CHECKING GRV

- Accuracy questionable
- Relationship to aspiration questionable
- Potential for clogging tube
- Potential for underfeeding
 - when feedings repeatedly held



RECOMMENDED FORMULA HANG TIMES



ADULT FORMULA SELECTION

- Standard Adult
 - 1.0-2.0 Kcal/mL
 - With and without fiber
- Specialty Adult
 - Disease-specific
 - Diabetes, Renal, Hepatic
 - Hydrolyzed
 - Peptamen
 - Amino acid-based
 - Vivonex



INFANT FORMULA SELECTION

- Standard Term Infant
 - Cow milk-based
 - 20 Kcal/oz
 - Similac Advance, Enfamil Premium, Gerber Good Start
- Lactose-reduced
 - Similac Sensitive, Gentlease



INFANT FORMULA SELECTION

- Premature
 - More protein, calcium phosphorus
 - and vitamin D for bones
 - 22 Kcal/oz standard dilution
 - Enfacare, Neosure
 - Can be safely used until 12 months
- Hydrolyzed-hypoallergenic
 - Alimentum, Nutramigen, Pregestimil
- Amino acid-based-elemental
 - Elecare, Neocate Infant
- *Reconstitute powdered formulas with sterile water



PEDIATRIC FORMULA SELECTION

- Standard Pediatric
 - 1.0-1.5 Kcal/mL
 - With and without fiber
 - Pediasure
 - Boost Kid Essentials
- Hydrolyzed/Peptide-based
 - Pediasure Peptide, Peptamen Jr
- Amino acid-based
 - Neocate Jr, Elecare Jr, Vivonex Pediatric



MEDICATION ADMINISTRATION

- Stop the feeding and flush tube with at least 15 mL water
- Deliver each medication separately
 - From other medications
 - From formula
 - Avoid adding medication directly to formula
- Flush tube with water before and after each medication



MEDICATION ADMINISTRATION

- Crush only those meds which are immediate-release
- Use liquid forms when available
- Dilute liquid medications to prevent clogging and diarrhea
- Use 30-60 mL oral/enteral syringes





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TUBE AND SITE CARE

- Daily
 - Check tube position
 - Check for pain, redness, irritation, leakage around exit site
 - Clean nares or exit site with water, including underneath external bolster
 - Rotate external bolster $\frac{1}{4}$ turn
 - Check external bolster height
 - Both sitting and supine position



TUBE AND SITE CARE

- Flush the tube with water*
 - Before and after each use
 - Routinely for jejunal tubes:
 - 30mL every 4 hours
 - After residual check in adult patients
 - To prevent clogged tube

*Other liquids, especially acidic ones, can increase clogging risk

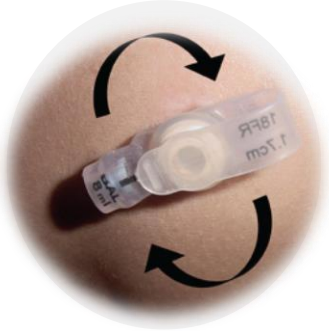


TUBE AND SITE CARE

- Weekly and before use
 - Check balloon volume and test for leaks
 - Deflate balloon by withdrawing water, noting amount
 - If >5 mL has been lost, notify physician
 - Re-inflate with recommended amount of sterile water
 - Do not use air: can seep out and deflate balloon
 - Do not use saline: can clog access port



DAILY SKIN CARE TIPS



**WASH YOUR
HANDS**

**ROTATE THE
TUBE ¼ TURN
(EXCEPT FOR J-
TUBES)**

**CHECK
EXTERNAL
BOLSTER
HEIGHT**

**SECURE THE
TUBE**

**KEEP IT CLEAN
AND DRY**





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EXCESS LEAKAGE

- Check external bolster height
 - Leakage can often be corrected by adjusting properly
- Check balloon volume
- Short term dressing to absorb drainage
- Tube replacement if stoma enlarged



DISLODGED FEEDING TUBE

- Cover with gauze and notify physician
- If cannot be replace within 2-4 hours place temporary catheter or tape tube in place to prevent stoma closure
 - Do not use temporary catheter for feeding



CLOGGED FEEDING TUBE

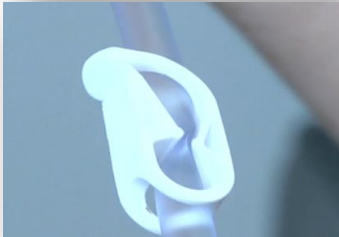


Push warm water into the tube with a 60 mL syringe



Gently push and pull the plunger to loosen the clog

NOTE: Avoid pulling back on the plunger if you have a J-tube



Clamp the tube and let the water “soak” for 15 minutes



Try gently massaging the tubing with your fingertips

STUBBORN CLOGGED FEEDING TUBE

- Enzyme
 - Viokace® (Allergan) + Sodium Bicarbonate + water
 - Clog Zapper™ kit (Halyard Health)
- Mechanical devices
 - TubeClear® (Actuated Medical)
 - PEG Cleaning Brush (Bard)
 - Enteral Feeding Tube DeClogger® (Bionix)
- Recurring clogs:
 - Evaluate medication forms and administration methods, review flushing protocol



NAUSEA/VOMITING

- Potential causes
 - High administration rate
 - High formula concentration
 - Formula contamination
 - GI dysfunction
 - Small bowel bacterial overgrowth
 - Impaction
 - Medication side effects
 - Antibiotics
 - Liquid forms containing sugar alcohols



DIARRRHEA



- Potential causes
 - High administration rate
 - High formula concentration
 - Formula contamination
 - GI dysfunction
 - Small bowel bacterial overgrowth
 - Impaction
 - Medication side effects
 - Antibiotics
 - Liquid forms containing sugar alcohols

CONSTIPATION

- Potential causes
 - Inadequate fiber or fluid intake
 - Medication side effects
- Especially narcotics
 - Inactivity
 - GI dysmotility
 - Bowel obstruction



WHO PERFORMS NUTRITION SCREEN?

- Nurses
- Registered Dietitians (RD)
- Dietetic Technicians, Registered (DTR)
- Physicians



PURPOSE OF NUTRITION SCREENING

- Identify patients at risk for malnutrition
- Refer at-risk patients to RD for further intervention
 - Nutrition assessment > Nutrition plan
- Comply with government regulations
 - The Joint Commission (TJC)
 - Home health organizations should have a system to identify patients at nutritional risk.

PROCESS FOR NUTRITION SCREENING

- Identify patients needing to be screened
 - Determined by individual organization
- Review medical information
- Identify signs and symptoms
- Identify psychosocial and economic factors



IDENTIFYING PATIENTS WHO NEED NUTRITION SCREENING

- Conditions with nutritional impact including:
 - COPD
 - Cancer
 - Renal disease
 - Gastrointestinal disorders
 - Dysphagia
- Restrictive diet
- Nutrition support: tube feeding or TPN
- Medications that may influence appetite and GI symptoms

NUTRITION SCREENING

- Review medical information
 - Diagnosis
 - History and Physical
 - Medications
 - Food allergies
 - Weight history



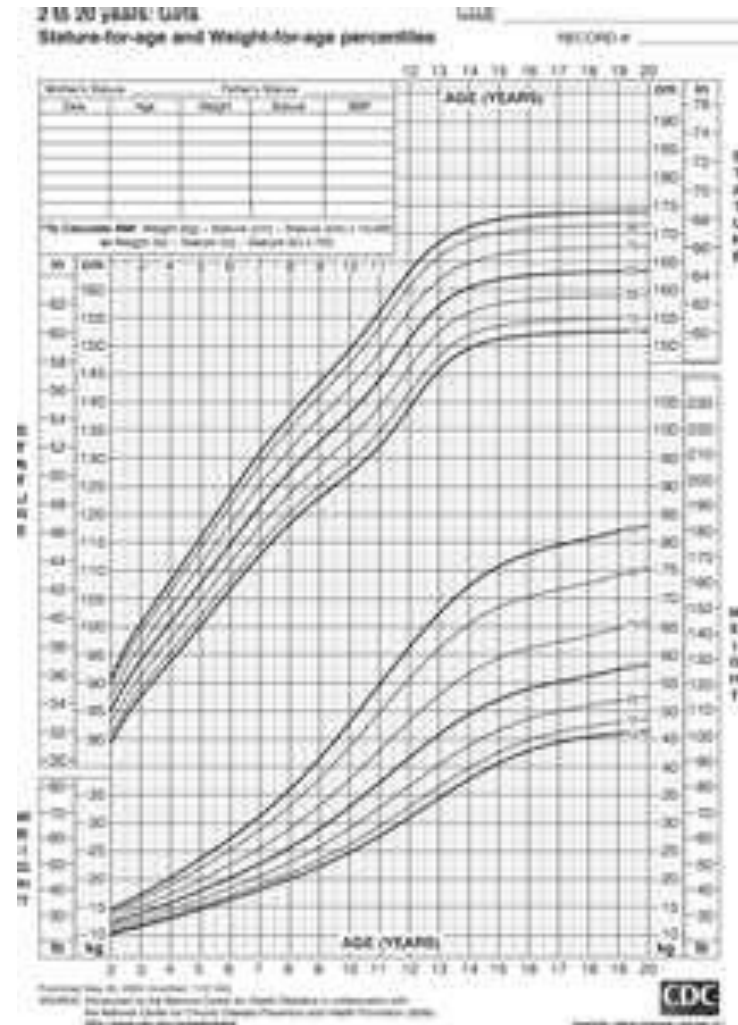
UNINTENDED WEIGHT LOSS

- Significant weight loss based on UBW
 - 2% x 1 week
 - 5 % x 1 month
 - 7.5 % x 3 months
 - 10% or 10 lbs x 6 months
- Any weight loss in children should be investigated



UNDERWEIGHT OR OBESE

- Ideal body weight
 - <80% or >130%
- Growth chart
 - Weight or weight-for-height
 - < 3rd percentile or >95th percentile



OTHER ANTHROPOMETRIC MEASUREMENTS

- Height/length
 - Head circumference
 - BMI
 - Body fat/lean body mass
 - Triceps Skinfold (TSF)
 - Measures thickness of subcutaneous adipose tissue
 - Midarm Muscle Circumference (MAMC)
 - Measures underlying muscle tissue
-

ORAL SYMPTOMS

- Chewing difficulty
 - Poor dental status
 - Ill-fitting dentures
- Swallowing difficulty
- Mouth pain/sores
- Poor suck and swallow reflex in infants



OTHER SIGNS AND SYMPTOMS

- Gastrointestinal problems
 - Nausea, vomiting, diarrhea, constipation
- Pressure ulcers
- Dehydration
 - Decreased urine output
 - Decreased skin turgor
 - Dry mucus membranes
 - Thick saliva
 - Increased pulse
 - Decreased blood pressure

VALIDATED SCREENING TOOLS

- **DETERMINE**

- **D**isease
- **E**ating poorly
- **T**ooth loss/mouth pain
- **E**conomic hardship
- **R**educed social contact/interaction
- **M**ultiple medications
- **I**nvoluntary weight loss/gain
- **N**eed for assistance with self care
- **E**lder at an advanced age



VALIDATED SCREENING TOOLS

- Subjective Global Assessment (SGA)
 - History
 - Weight change
 - Dietary intake
 - GI symptoms lasting > 2 weeks
 - Functional capacity
 - Disease
 - Physical
 - Muscle and fat loss
 - Ankle or sacral edema, ascites
 - SGA rating
 - A, B or C (normal, mild-moderate, severe)



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Pediatric Enteral Nutrition Guide

Managing Common Complications

Dealing with Gastrointestinal Issues

Your child may experience gastrointestinal symptoms while on tube feeding. In some cases, reducing the rate or the amount of formula may help. Even if your child is able to tolerate a slower rate or smaller amount, she may not be getting all of her nutrition. You may need to discuss trying a different formula or feeding plan with your health care team.

Keep in mind that gastrointestinal issues may be related to other things besides the feeding, such as medications or infection. Contact your team if your child experiences any of these issues.

Complication	Tube Feeding-Related Cause	Solution or Prevention
Diarrhea	Too much formula/too fast	Slow down the feeding rate and contact your health care team.
Constipation	Not enough water and/or fiber	Ask your health care team if you need additional fiber or water.
Nausea or vomiting	Too much formula/too fast	Sit upright or keep the head of the bed at 30 degrees or greater during the feeding.
Feeling of fullness or abdominal discomfort	Cold formula	Slow down the feeding rate and contact your health care team.
	Too much formula/too fast	Use room-temperature formula. Slow down the feeding rate and contact your health care team. If your child has a G-tube, try venting the tube (see page 6).

Your Child's Feeding Tube

Life With a Feeding Tube

When to Call Shield HealthCare

...some getting used to but you will get used to it and your healthcare team. Although you may be adjusting to it for you and your child's and your family's lifestyle.

Dealing with Gastrointestinal Issues

...ing a surgical procedure, in which a hole is made in the abdomen, this type of tube is typically used for delivering medications, formula. This tube may be used to hold it in place.

...a button tube, sits close to the skin and requires no sutures. When not in use, it snaps shut. The tube may be held in place by an adhesive. They are usually replaced.

...e doctor. If you miss a feeding, ask your healthcare team to provide a complementary enteral backpack. So that your child can receive tube feeding.

...ght. Your healthcare team will evaluate your child to make sure your child is receiving adequate nutrition. Ask your team about local support groups and the Feeding Tube Awareness Foundation.

...ies: ...at ...ter your tube ...ly. ...efore you run ...ild receive a ...ound this time

...child's ...ctor makes ...eeding plan, such as the amount of formula you

...cerns about your feeding pump: ...call 1.800.228.7150 ...all our 24-hour pump hotline at ...7)

...the information in this booklet: ...Registered Dietitian (RD) is part of our ...ield HealthCare office or call 1.800.228.7150 ...RD for questions about your tube feeding and

...d HealthCare for all of your ...ical supply needs, including: ...e ...e ...ological ...nteral ...stomy ...Wound

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