Tube Feeding: Large Bore Enteral Feeding

Site Applicability

PHC Critical Care and High Acuity Units

PHC Acute Care – medication administration ONLY

Skill Level:

Basic: Registered Nurses

Policy Statements

- Enteral FEEDING via large bore tube (e.g. Salem Sump/Levin) is only permitted in the critical care and high acuity areas.
- Large bore feeding tube should be confirmed by x-ray before administering any fluids, nutrition, or medications.
- Gastric pH and or auscultation while injecting air are not acceptable methods to confirm placement prior to use, but can be used by staff immediately upon insertion (prior to x-ray).
- Amount and frequency of flushes, as well as rate of feed must be ordered by Physician/Nurse Practitioner(NP) or Dietitian

Quick Links:

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Need to Know

- This guideline does not include management of large bore (Salem Sump/Levine) tubes for decompression
- If oro- or nasogastric tube is inserted for decompression purposes, follow most responsible provider (MRP) orders for direction of care.
- Polyethylene Glycol is to be given via large bore tube to patients with Cystic Fibrosis (CF) who have a differential diagnosis of Distal Intestinal Obstruction Syndrome (DIOS) See Appendix C.
- DIOS protocol for CF patients is nursing time intensive – nurse MUST alert charge nurse that workload is needed
- Orogastric is preferred over nasogastric placement to decrease risk of sinusitis for intubated patients.
- Large bore tubes are for short-term use only (less than 2 weeks) and need to be changed to a small-bore nasoenteric feeding tube (e.g. Entriflex)prior to transfer out of critical care for continued enteral feeding.
- For FEEDING, large bore tubes are inserted only in critical care when the patient is not able to meet their nutritional needs by mouth.
- Large bore tubes are not appropriate for feeding on long term care, or acute care wards.
- In acute care wards large bore tubes can only be used for short-term suction and/or for short-term administration of Polyethylene Glycol **with an order** when the patient has NOT been able to tolerate oral Polyethylene Glycol.
- Only 60 mL syringes may be used for flushing
- Physician/NP order is needed to remove feeding tubes

Equipment and Supplies

Insertion:

- Large bore appropriate size tube
- Non sterile gloves
- Water soluble lubricant
- Glass of water with straw
- Permanent marker and tape measure
- Towel or absorbent pad

Post-insertion

- Barrier film
- Fixation device
- Tape

Feeding Patient

- Enteral feeding pump
- Prescribed tube feed formula

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- Feed/flush set
- Fixation device

Mouth Care

- Toothpaste
- Toothbrush
- Mouth moisturizer
- Suction toothbrush
- Mouth wash

Ongoing re-verification of placement of feeding tube position

- Unsterile Gloves
- Measuring tape

Procedure

Insertion of Large Bore Feeding Tube (Adapted from ASPEN guidelines)

1. Place patient in a sitting position. If patient not able to sit place them in a right lateral decubitus position.
2. Explain procedure to patient.
3. Performed necessary hand hygiene steps and put on necessary Personal Protective Equipment (PPE) as necessary.
4. Neck flexed slightly and head of the bed is elevated to at least 45°.
5. Estimate the distance for placement into the stomach by measuring the length from the tip of the nose (or mouth) to the earlobe and then from the earlobe to the xiphoid process of the sternum. For adults: Add 10 cm to that measured length. Observe markings on the shaft of the tube for guidance.
6. Preferred route in critical care is Orogastric (OG) (for intubated patients), if Nasogastric (NG) route, select the nare with the most airflow. (This can be determined by having the patient breathe through their nose while occluding one of their nares).
7. Lubricate the end of the tube.
8. Begin inserting the tube through the oropharanx, if using the nare position the curved end pointing down.
9. If not contraindicated by patient's diagnosis they can swallow water to help the passage of the tube.
10. As you advance the tube check the back of throat for coiling of the tube.
11. Continue to advance the tube. If the patient begins to cough, gag, or choke, withdraw the tube.
12. Once you have inserted the tube to your pre-measured length, placement should be confirmed by x-ray before administering any fluids, nutrition, or medications.
13. Once placement is confirmed by X-Ray document cm marking at the exit from nares (for NG tubes) or at teeth/gums (for OG tubes) as well as the external length of the tube.

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Applying Fixation Device to Secure Feeding Tube

1. For orogastric tubes, add tape and pinch around the OG before secure the taped tube to the oral endotracheal tube (ETT).
2. For Nasogastric tubes secure with 'fixation device'.
    - Use skin prep on the bridge of the nose, apply 'fixation device' to bridge of nose.
    - Close the plastic clip around the tube.
    - Make sure it is not occluding the tube and secure tube in place.
    - Ensure that the tube is not pressing up on the inside of the nose as this can cause skin breakdown.
    - Change every 'fixation device' 3 to 5 days or PRN.
3. Mark the tube where it exits the mouth/nare with marker around the circumference of the tube.
4. **For PHC critical care only**: Secure a 'Lopez valve' to the end of the tube
5. Place blue end of anti-reflux valve onto blue line of large bore feeding tube

Procedure for Ongoing Re-verification of Feeding tube Position

1. Verify the correct patient using two identifiers.
2. Observe for signs and symptoms of respiratory compromise during feeding (e.g., coughing, choking, reduced oxygen saturation level).
3. Inspect tube integrity.
4. Measure external length of the tube (length of tubing from the insertion site at mouth/nares to the end of the tube port). Record and compare this length to the actual length measured at the time of insertion.
5. Note permanent marker mark on tube where the tube enters the nostril.
6. Assess back of throat for coiling.

Large bore Feeding Tube Checklist (every shift)

- ☐ Tube is in correct position. Mark on tube is at exit of nares/mouth
- ☐ Fixation Device is in place
- ☐ Check skin inside mouth
- ☐ Do mouth care
    - Check Mouth: inside of mouth should be moist and pink
    - Check for skin break down on the nares
    - Encourage patient to moisten lips with lubricant OR do for the patient
    - For intubated patients, brush with Suction Toothbrush at the beginning of a 12-hour shift (08:00 & 20:00). Clean mouth with suction set swabs every 4 hours thereafter. Suction out any secretions and swab oral mucosa with chlorhexidine applied to a dry sponge every 4 hours between mouth cleaning
    - For non-intubated patients mouth care BID and PRN, assist if required
- ☐ Gastric residuals replacement as per Critical Care Enteral Feeding Guidelines Algorithm (Appendix B)

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- ☐ Skin around nares checked (pink, moist) and cleaned if needed
- ☐ Patient as upright as possible for feeding (HOB 45°)
- ☐ Correct formula is infusing at correct rate
- ☐ All supplies changed daily at 0600 (tube feed bag, syringe, cylinder) and are labeled with date and time
- ☐ Weigh patient daily or as ordered
- ☐ Flush with sterile water only or as per prescribers order (physician or dietitian), pre & post feeding, and pre & post medication
- ☐ Ensure suction equipment at bedside is set up and functional

Flushing the Feeding Tube

- Flushing the feeding tube is the key to keeping the tube free of blockages. The tube can be flushed using sterile water for immunocompromised patients.
- Normal Saline **should not** be used unless ordered.
- Flushing should be done**:**
  - According to specific prescribers orders (at least every 4 hours)
  - Pre & post medication administration
  - Pre & post feeding (if intermittent)

Feeding the Patient

1. Gather needed supplies and bring to bedside
2. Wash hands
3. Wash top of formula cans with water or alcohol swab
4. Close roller clamp on feeding bag
5. Pour formula or into feeding bag (no more than 4 hours' worth)
6. Hang the bag on the IV pole
7. Load a Pump Set and **AUTO PRIME** if applicable
8. Raise the head of the patients bed as upright as possible (at least 45°)
9. Flush the tube (as per procedure)
10. Connect the feeding bag tubing to the nasogastric tube
11. Set the drip rate
    a. Program the kangaroo pump with prescribed feed and flush rate
12. Increase feeding rate to goal rate as per 'Critical Care Enteral Feeding Guidelines Algorithm' see Appendix B
13. Record amount of formula and flushes.
14. Change feeding bag, syringe, and cylinder every day at 0600
15. For open systems, change feeding bag, syringe, and cylinder every day at 0600. For closed systems change feeding bag and tubing every 48 hours at 0600.

Closed System Feeding Bag:

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Medication Administration

- In order to keep the tube un-blocked you must flush before and after you give medications with at least 30 mL of sterile water
- Use liquid preparations of medications whenever clinically appropriate, to decrease the chance of blocking the tube. Consult a pharmacist and/or MRP to have all medications in the most appropriate form.
- **Do Not** mix medications with the feeding formula, or in the feeding bag.
- **Do NOT** use hot water to improve and/or hasten the dissolving of medications, as this can affect medication efficacy.
- **Do NOT** crush the following:
    - Extended release medication
    - Medications with enteric coating
    - Cytotoxic medications.
- Prepare each medication individually: If it is suitable to crush medication, make sure it is crushed as finely as possible. This will help prevent the tube from blocking
- Check that tube is still in the right place by looking at the mark at the exit of the nares
- Connect the syringe to the Lopez valve on the feeding tube (if applicable)
- Check that tube is still patent; Flush with 30 mL of sterile water (If tube is not patent-see Appendix A)
- Connect the syringe to the Lopez valve and gently push the medication through
- Flush the tube with 5 mL of sterile water
- Administer next medication
- Flush the tube with at least 30 mL of sterile water when all medications have been given
- Resume feeding if appropriate to do so as per the specific patient plan of care.

Documentation

Document every shift and PRN:

- Type and location of tube
- Type of formula and rate; include frequency and amount of flushes
- Signs or symptoms of intolerance.
- Any interventions and patient's response.
- Frequency and consistency of bowel movements

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Prior to Transfer out of Critical Care Considerations:

If patient will continue to require tube feeding when outside of critical care the following is recommended and requires a prescriber's order:

1. Remove large bore feeding tube
2. Have a Registered Dietitian, Physician or trained RN insert a small bore feeding tube (placement must be verified by x-ray).

Related Standards & Resources:

1. B-00-07-1009 – Enteral Feeding Interdisciplinary Guidelines
2. B-00-13-10043 - Tube Feeding: Long-Term Enteral Feeding
3. B-00-13-10045 - Tube Feeding: Small Bore Enteral Feeding
4. B-00-12-10005 - Kangaroo EPump Enteral Feeding Pump
5. *Enterostomy Feeding Tubes: Care and Management (G- tubes, J-tubes or GJ-tubes) – In development*
6. *Enteral Tube Feeding – Dietitian Guidelines (in Acute Care) – In development*

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Persons/Groups Consulted

Practice Lead Coastal Community of Care, VCH

Practice Consultant, Professional Practice, PHC

Respirologists

Clinical Nurse Leader Cystic Fybrosis Clinic

Nurse Educators - Medicine

Nurse Educators - ICU

Nurse Educator - HAU MSJ

Nurse Educator - CSICU

Nurse Educators - Surgery

Nurse Educator - PACU SPH

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Appendix A: Tube Feeding Trouble Shooting Guide

Problem	Nursing Intervention
Tube is out of place The mark is not where it should be (e.g. at the exit of the nares) Check for tube displacement if patient: • Is confused and pulling at tubes • Is coughing, or has been vomiting	1. Stop infusion immediately 2. Disconnect feeding bag from large bore tube 3. Remove large bore tube (displaced tubes should not be reinserted for infection control and correct placement) 4. Reinsert a new large bore tube 5. Keep patient seated as upright as possible, encourage deep breathing and coughing if appropriate
Tube is Blocked The tube is clogged and very little or no fluid is able to pass through the tube. Possible Causes: 1. Poor flushing 2. Thick formula 3. Poorly crushed medications 4. Tubing is kinked	1. Go along the length of the tubing, starting at the nares or mouth, to check for kinks. If there is a kink, unbend the tubing to fix it. 2. If there is no kink. Take a 60 mL syringe aspirate as much of the contents out of the tube as possible and throw away the fluid 3. Draw up 10 mL of warm tap water (if immune-compromised used sterile water) in the 60 mL syringe and using a back and forth motion apply pressure for 1-minute to help clear the blockage 4. Clamp the tube for 5 to 15 minutes 5. Try to aspirate and flush with warm water again If tube remains clogged remove the tube and reinsert a new large bore tube. ** Do not instill any type of soda pop into the tube. The sugar in the pop can cause a greater blockage or provide a place for bacterial growth.
Diarrhea Possible Causes: 1. Contaminated feeding formula 2. Lack of fiber 3. Antibiotics, prokinetic agents, medication elixirs containing sorbitol 4. Hypoalbuminemia 5. Malabsorption 6. C-difficile toxin 7. Fecal impaction with overflow incontinence 8. Laxatives 9. Intolerance of tube feed formula	• Always change all of the feeding equipment every 24 hours at 0600 for open systems and every 48 hours at 0600 for closed systems. • Notify the most responsible physician and the dietitian that the patient is experiencing diarrhea • Document the diarrhea in the nursing flow sheet and interdisciplinary notes or in your unit specific documentation system.

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Signs and Symptoms of Tube Feeding Intolerance	
• Nausea • Vomiting • Feeling of bloating • Diarrhea • Constipation • Abdominal distension • Abdominal pain	• If your patient is having any of these symptoms document them on the 24-hour flow sheet or your unit specific documentation system • Communicate these issues to the other members of the medical team i.e. Physician and Dietitian

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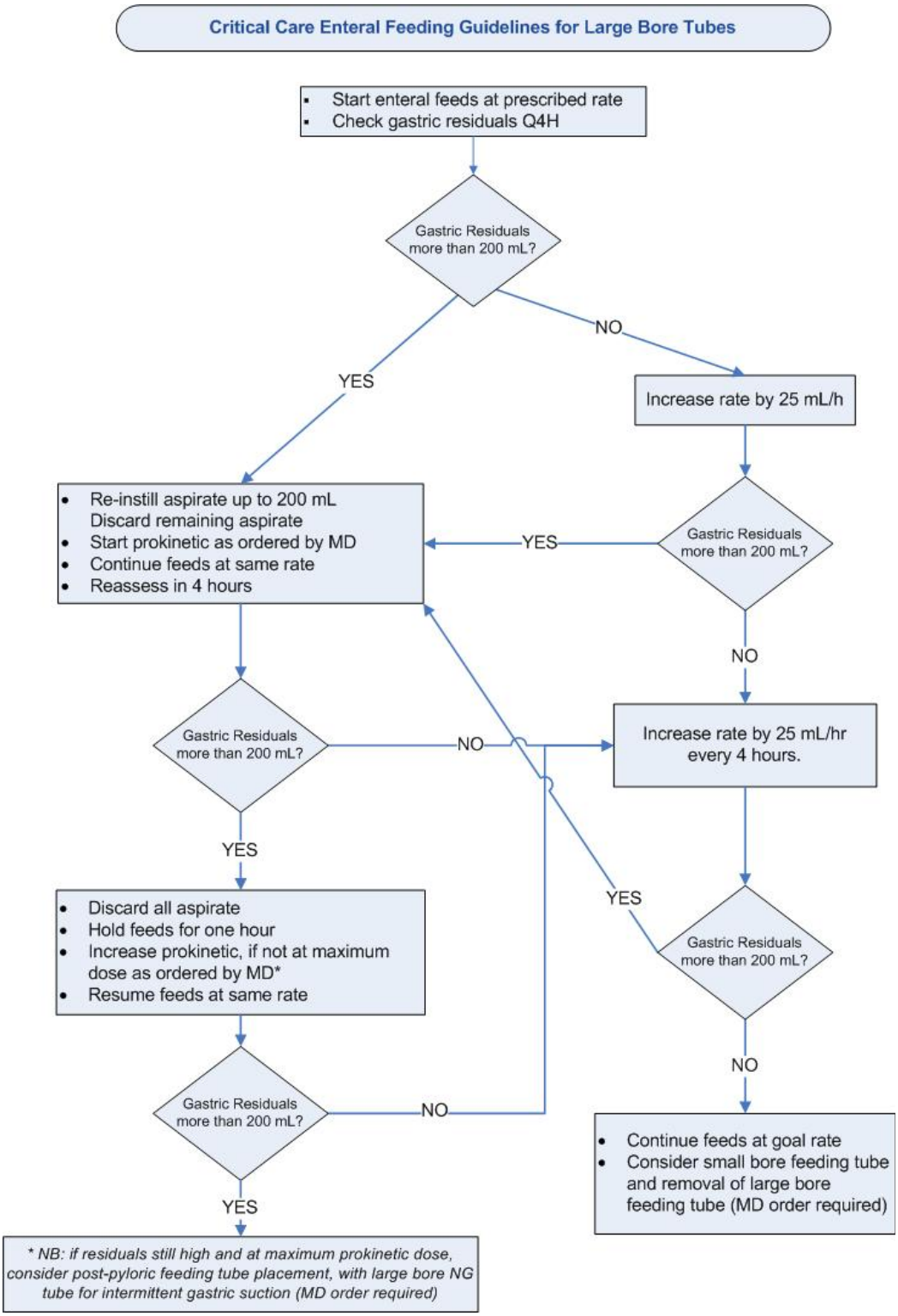
Appendix B



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APPENDIX C: Nursing Care for Distal Intestinal Obstruction Syndrome (CF Patients Only)

Initial assessment

- History of DIOS or constipation in the past
- Time and onset of symptoms
  - Abdominal pain and distension
  - Palpable mass in right lower quadrant
  - Nausea and vomiting
  - Symptoms are usually more acute and of shorter duration than typical constipation
- Use of enzymes

Ongoing Assessment:

As per orders or minimum twice per shift assess:

- Abdomen for bowel sounds
- Abdomen for distension
- Pain Levels
- Presence of flatus
- Frequency and consistency of bowel movements
  - Goal is for the bowel movements to be liquid and clear
- Presence of nausea and or vomiting
  - Toleration of Polyethylene Glycol treatment
- Status of appetite

Administering Polyethylene Glycol

1. Gather needed supplies and bring to bedside
2. Wash hands
3. Close roller clamp on feeding bag
4. Pour Polyethylene Glycol into feeding bag
5. Hang the bag on the IV pole
6. Load a Pump Set and **AUTO PRIME** if applicable
7. Raise the head of the patients bed as upright as possible (at least 45°)
8. Flush the tube (as per procedure)
9. Connect the feeding bag tubing to the nasogastric tube
10. Set the drip rate
    a. Program the kangaroo pump with prescribed volume and flush rate
11. Increase feeding rate to goal rate as per physician's orders
12. Record amount of solution or medication given and flushes.

IF none of the interventions are successful and there are signs of peritoneal involvement then the physician may request a surgical consult and to put the NG to suction (decompression)

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