Large Bore Nasogastric Tubes: Insertion & Management Outside of Critical Care

Site Applicability

PHC Acute Care Inpatient Units – medication administration and gastrointestinal decompression ONLY.

Practice Level

Basic:

Registered Nurses: insertion, management and medication administration, removal.

Licensed Practical Nurses: management and medication administration, removal.

Requirements

- Physician/NP order is needed to insert and remove nasogastric tubes.

An x-ray must be performed and read by provider to confirm placement of nasogastric tube before administering any fluids or medications.

Need to Know

- Outside of critical care areas large bore nasogastric tubes can only be used for:
  - Gastrointestinal decompression and subsequent medication administration or gastrograffin contrast ordered via NG.
  - The administatration of Polyethylene glycol to patients with Cystic Fibrosis (CF) who have a differential diagnosis of Distal Intestinal Obstruction Syndrome (DIOS). Refer to DST "Tube Feeding: Large Bore Enteral Feeding"
- Enteral feeding via large bore tube is not permitted outside of critical care areas.
- Aspiration of gastric contents, and/or auscultation while injecting air are not acceptable methods to confirm placement prior to instilling fluid or medication.
- Aspiration of gastric contents is only used for initial verification of placement upon insertion, prior to x-ray confirmation.
- If intended purpose is decompression only, patient may be placed on suction as per orders if gastric contents observed (bilious- green). However, no substances are to be instilled until x-ray and provider confirmation have been completed.
- There are two types of large bore nasogastric tubes (See Appendix A):
  - A Salem Sump tube has two lumens. During gastric decompression, the main lumen removes gastric contents while the blue secondary lumen allows air to vent. This prevents gastric mucosa from being suctioned into the holes at the distal tip of the tube. For gastric

decompression with a Salem Sump tube, a prescriber's order for low continuous suction (less that 80 mmHg) is required.
    - A Levin tube has only one lumen with holes near the tip. If ordered for gastric decompression, this tube must be connected to low intermittent suction (less than 80 mmHg). This will prevent the tube from adhering to the gastric mucosa. Note, not all regulators offer intermittent suction. Please access alternate regulators if Levin tube is used.
- Only 50 to 60 mL catheter tip syringes may be used for flushing.
- Ensure mouth care is completed BID and PRN, assist if necessary.

Contraindications

- In patients with esophageal strictures, due to potential esophageal perforation.
- In patients with facial fracture or basilar skull fracture, due to risk of intracranial malpositioning.
- In patients with esophageal varices or a bleeding disorder, due to risk of bleeding.

Equipment and Supplies

Insertion:

- Large bore nasogastric tube (select smallest size appropriate for the intended purpose)
- Clean gloves, gown, eye protection
- Water soluble lubricant
- Glass of water with straw
- Permanent marker or tape
- Tape measure
- Towel or absorbent pad
- Facial tissues
- Emesis basin
- Skin prep
- Fixation device
- Tape
- Safety pin
- 50 to 60 mL syringe with catheter tip
- Anti-reflux valve

Ongoing re-verification of nasogastric tube position

- Clean Gloves
- Measuring tape

Removal

- Clean Gloves, gown, eye protection
- Towel or absorbent pad
- 50 to 60 mL syringe with catheter tip
- Facial tissues
- Oral hygiene supplies

Procedures

Insertion of Large Bore Nasogastric Tube

1. Perform hand hygiene and don Personal Protective Equipment (PPE) as necessary.
2. Verify the correct patient using two identifiers.
3. Assess patient's ability to follow commands and level of consciousness.
4. Explain procedure to patient.
5. Ask patient if they have a history of nasal procedures, deviated septum or any other concerns in either nare.
6. Place patient in high-Fowler position with pillows behind head and shoulders.
7. Apply towel/absorbent pad on patient's chest.
8. Estimate the distance for placement into the stomach by measuring the length from the tip of the nose to the earlobe and then from the earlobe to the xiphoid process of the sternum. Add 15 cm (6 in) to that measured length. Mark this measurement with a piece of tape or marker.
9. 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. Allow patient to blow their nose if necessary.
10. Lubricate the end of the tube.
11. Ask patient to flex their neck slightly.
12. Begin inserting the tube through the nare ensuring the curved end of tube is pointing down. Slide the tube along the posterior floor of the nasal cavity. Aim downwards, towards the patient's ear to stay below the nasal turbinate. If resistance is felt, retract tube slightly, further aim downwards finding the opening to the nasopharynx and advance tube.
13. As tube nears opening of nasopharynx have patient tip head forward in chin tuck position, this helps close off upper airway and open esophagus.

14. If not contraindicated by patient's diagnosis, ask patient to swallow water through a straw, or mimic the swallowing action to help the passage of the tube while advancing tube.
15. As you advance the tube, check the back of throat for coiling of the tube.
16. If the patient begins to cough, gag, or choke, withdraw the tube to the nasopharyngeal area and do not advance. Encourage patient to take deep breaths and when patient is able, ask patient to continue to "swallow" tube while advancing.
17. If you are unable to insert or advance the NG, stop and remove the tube, then contact the MRP.
18. Once you have inserted the tube to your pre-measured length, secure the tube with a fixation device (see below).
19. Aspirate gastric contents (green bilious) for initial confirmation of placement in the stomach (sometimes no gastric content can be aspirated).
20. For Salem sump nasogastric tubes, inject 10 to 20 mL air into the blue secondary lumen of the tube then place blue end of anti-reflux valve into blue lumen of large bore tube.
21. An x-ray must be performed and read by provider to confirm placement before administering any fluids or medications. Ensure order is placed confirming placement.
22. Once placement is confirmed:
    - Mark the position of the tube with a permanent red marker at the level it is coming out of the nares. RATIONALE: the red marker is more obvious; the mark itself lets you know if the tube has moved at any point after insertion.
    - Document cm marking at the exit from nares (internal measurement) as well as the measurement from the nare to connection where the end of NG tube attaches to the connection tubing (external measurement) in I-View. See Appendix B.

Applying Fixation Device to Secure Nasogastric Tube

1. Use skin prep on the bridge of the nose; apply 'fixation device' to bridge of nose.
2. Close the plastic clip around the tube (make sure it is not occluding the tube).
3. Secure tube in place.
4. Ensure that the tube is not pressing up against the inside of the nose as this can cause skin breakdown.
5. Change 'fixation device' as needed.
6. Apply a piece of tape around the NG tube (approximately middle length of tube) creating a flap and secure with safety pin to patient gown.

Procedure for Ongoing Re-verification of Nasogastric tube Position

To be assessed every shift & PRN

1. Assess security of fixation device and assess surrounding skin for pressure injury.

2. Note marking from permanent marker or tape on tube where the tube enters the nostril.
3. Inspect tube integrity, confirm that it is securely attached to connection tubing and to wall suction, and ensure wall suction turned on as per order (less than 80 mmHg). Inspect gastric contents in the wall canister.
4. Measure external length of the tube (from the insertion site at nares to the connection where the NG tube attaches to the connection tubing) See Appendix B. Record and compare this length to the external length measured at the time of insertion.

Medication Administration

- In order to maintain patency of the tube, flush before and after medication administration with at least 15 mL of water.
- When administering more than one medication, flush the tube with 15 mL of water in between medications.
- 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 formulation.
- **Do NOT** crush the following:
    - Extended release medication
    - Medications with enteric coating
- **Do NOT** use hot water to improve and/or hasten the dissolving of medications, as this can affect medication efficacy.
- Prepare each medication individually: If it is suitable to crush medication, make sure it is crushed as finely as possible and mix with water. This will help prevent the tube from blocking.
- Check that the tube is still in the right place by looking for the mark at the exit of the nares and confirming the documented external length before administering medications and/or fluid.
- If nasogastric tube is used for gastrointestinal decompression, clamp tube for minimum 30 minutes following medication administration to allow for absorption. Return to suction if patient experiences nausea or vomiting.

Removal

- Perform hand hygiene and don personal protective equipment (PPE).
- Verify the correct patient using two identifiers.
- Explain procedure to the patient.
- Place patient in semi or high fowlers as tolerated.
- Place towel/absorbent pad over patient's chest.
- Remove from suction (if applicable), clamp NG tube.

- Measure drainage and note contents.
- Instill 15 mL of air into the lumen of NG to clear gastric fluid from tube.
- Remove securement device.
- Instruct patient to take and hold a breath.
- Grasp NG and pull smoothly until fully removed.
- Instruct patient to breathe normally.
- Inspect tube to ensure that it is intact.
- Remove gloves, perform hand hygiene and don new clean gloves.
- Cleanse the naris. Offer tissue to patient if they want to blow their nose.
- Provide mouth care.
- Discard supplies, remove PPE and perform hand hygiene.
- Document removal in patient health care record.

Documentation

Document in patient health record every shift and PRN:

- Type and location of tube
- Tube function
- Internal/external measurement of tube
- Patency of tube
- Signs or symptoms of intolerance
- Type of activity such as: insert, assess, discontinue and patient's response
- Method of drainage
- Output description
- Output volume

Patient and Family Education

- Review purpose, procedure and equipment to patient and family
- Explain patient may experience temporary gagging sensation as the tube passes through back of throat
- Encourage questions

Related Documents

B-00-13-10044 – Tube Feeding: Large Bore Enteral Feeding

References:

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2. Judd, M. (2020). Confirming nasogastric tube placement in adults. *Nursing*, *50*(4), 43–46. https://doi.org/10.1097/01.NURSE.0000654032.78679.f1
3. Nasogastric or Orogastric Tube: Insertion, flushing, and Removal. Elsevier Clinical Skills. (2022). St. Louis, MO, Elsevier. Retrieved June 6, 2023 from www.Elsevierskills.com.
4. Williams NT. (2008). Medication administration through enteral feeding tubes. *American Journal of Health-System Pharmacy*, *65*(24), 2347–2357. https://doi.org/10.2146/ajhp080155

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NE's Medicine and Surgery SPH, MSJ

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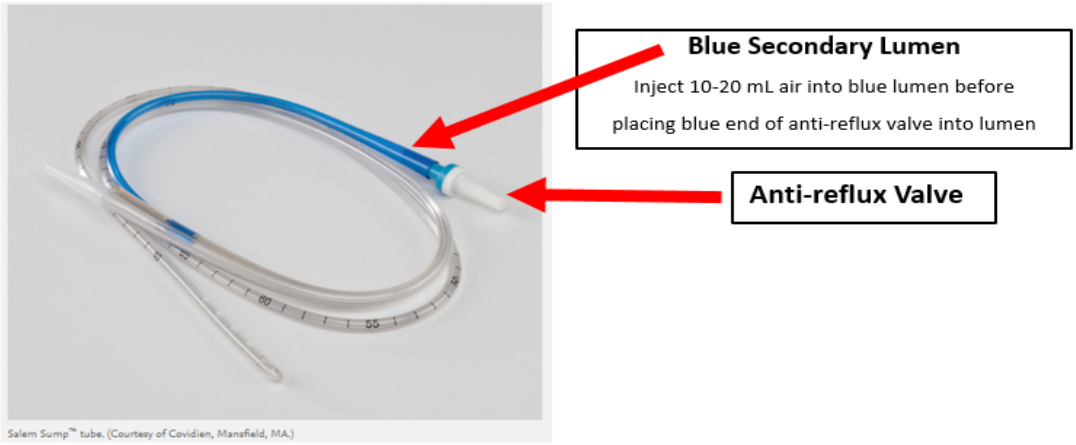
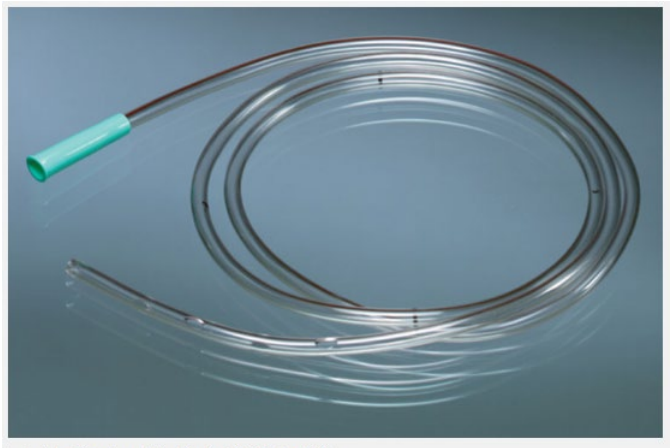
Appendix A

Salem Sump tube



Salem Sump™ tube. (Courtesy of Covidien, Mansfield, MA.)

Levin Tube


Levin tube. (Courtesy of Bard Medical, Covington, GA.)

Appendix B: External Measurement in cm

NG = Measure exit site at nare to end of tube