NASOGASTRIC TUBE INSERTION

PURPOSE
Practice support document for the safe insertion of a nasogastric or orogastric tube.

POLICY STATEMENTS
Nasogastric tubes are contraindicated or used with extreme caution in people with particular predispositions to injury from tube placement. These may include:

- Patients with sustained head trauma, and with associated maxillofacial injury, or anterior fossa skull fracture. Inserting a Nasogastric (NG) tube without image guidance through the nose has potential of passing through the cribriform plate, thus causing penetration of the brain. An oral gastric tube may be considered in these cases.
- Patients with a history of esophageal stricture, esophageal varices, alkali ingestion are at risk for esophageal perforation/hemorrhage.
- Patients with a decreased level of consciousness have the potential of vomiting during an NG insertion procedure, thus require protection of the airway (appropriate positioning as per process below and ensure suction and oxygen equipment is readily available for use at bedside) prior to placing the NG tube.
- Patients with severe thrombocytopenia or mucositis.
- Patients with suspected cervical spine injury.
  - Excessive manipulation or movement by the patient during placement including coughing or gagging may potentiate cervical injury.

SITE APPLICABILITY
Applicable to all clinical areas where nasogastric/orogastric tubes may be inserted.

PRACTICE LEVEL/COMPETENCIES
Insertion of nasogastric/orogastric tubes is a foundational competency for Registered Nurses (RN) and Registered Psychiatric Nurses (RPNs). This skill is not within the scope of practice for Licence Practical Nurses (LPN).

DEFINITIONS
Types of Nasogastric Tubes:

PVC Tube (made of a non-collapsible soft rubber or plastic (usually PVC) with a single lumen and holes at the tip and along the distal side) is typically used for decompression, lavage or for short-term feeding. Prolonged use of these tubes may result in stiffening of the tube which may increase risk of perforation.

Replace tube every 72 hours.
Polyurethane feeding tube without guidewire is ideal for long-term Nasogastric (NG) feeding.

Replace tube every 30 days.

Enteral Feeding Tube with guidewire (made of silastic, silicone or polyurethane, with or without weighted ends) is used for long-term enteral feeding. These tubes should generally be used when weighted ends are required or if guidewire is needed for insertion or if nasojejunal/transpyloric feeding is ordered/anticipated.

Replace tube every 30 days.

Guide wires are used to stiffen soft pliable tubes as they travel through the nares to the stomach. Infants and small children have a short esophagus and there is less distance for the tube to travel. Therefore, in infants and children these tubes may be inserted without the use of the guide wire.

Salem sump tube is ideal for continuous suctioning because it does not adhere to and irritate the stomach’s mucosal surface. It has 2 lumens, the blue lumen serves as an air vent and allows atmospheric air to continually flow into the stomach, preventing the tip of the tube from adhering to the gut wall. Read package insert for instructions. This tube is not used for feeding.

Replace PVC salem sump tube every 72 hours. Prolonged use of PVC tubes may result in obstruction of the tube due to the buildup of secretions in tubing. Replace silicone salem sump tube every 30 days.

EQUIPMENT

Guidelines (consultation with the physician may be required for specific patient cases)

<table>
<thead>
<tr>
<th>Age Categories</th>
<th>Feeding Tube</th>
<th>Salem Sump</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborns/Infants (0 – 1yrs)</td>
<td>#6Fr to # 8Fr</td>
<td>#8Fr to 10Fr</td>
</tr>
<tr>
<td>Toddlers (1yrs – 4 yrs)</td>
<td># 8Fr to #10Fr</td>
<td>#10Fr to 12Fr</td>
</tr>
<tr>
<td>School Age (5yrs – 12yrs)</td>
<td>#10Fr</td>
<td>#12Fr to #14Fr</td>
</tr>
<tr>
<td>Adolescents (13yrs +)</td>
<td>#12Fr</td>
<td>#14Fr to #18Fr</td>
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</tbody>
</table>

- 2 X 10 mL syringe filled with sterile water if using feeding tube with guidewire
- gloves
- incontinence pad, towel and emesis basin
- water-based lubricating jelly
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- glass of water with straw if patient able to drink
- adaptor if required for attaching to suction tubing
- 3 - 5mL syringe for aspirating (small syringe produces less negative pressure when aspirating)
- 20-60 mL syringe for flushing (large syringe produces less positive pressure when flushing)
- pH testing strip to test aspirate
- Duoderm, tegaderm tape or tube securement device
- waterproof tape and safety pin
- permanent marker

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>RATIONALE</th>
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<tbody>
<tr>
<td>1. CHECK chart for prescriber's order to insert nasogastric or orogastric tube. The order must specify indication for tube insertion. Use of a nasogastric tube is indicated to:</td>
<td>Reason for tube insertion determines type of tube to use.</td>
</tr>
<tr>
<td></td>
<td>a. Decompress the stomach by aspiration/suction of gastric contents (fluid, air, blood). b. Introduce fluids (lavage fluid, tube feeding formula, medications, activated charcoal into the stomach). c. Assist in the clinical diagnosis through analysis of substances found in gastric contents.</td>
</tr>
<tr>
<td>2. DETERMINE if there are any contraindications to tube insertion and consult with physician in these cases.</td>
<td>Prevents potential adverse events.</td>
</tr>
<tr>
<td>3. GATHER equipment.</td>
<td>Facilitates completion of procedure in a timely manner.</td>
</tr>
<tr>
<td>4. PREPARE feeding tube with guidewire by flushing the tube with 10mL of sterile water to dissolve internal lubricant. The tube may be inserted with or without the guidewire depending on clinician preference. If not using guidewire, remove it after flushing. Then flush with an additional 10 mL sterile water to remove any remaining lubricant gel and test for tube patency.</td>
<td>Eases removal of guidewire after placement.</td>
</tr>
<tr>
<td>5. IDENTIFY patient using 2 client identifiers and EXPLAIN procedure. Consider distraction techniques or accessing appropriate resources and/or therapists to help child cope with procedure as needed. Engage child life specialist as needed.</td>
<td>Failure to correctly identify patients prior to procedures may result in errors. Reduces child and family’s anxiety. Evaluates and reinforces understanding of previously taught information and confirms consent for procedure.</td>
</tr>
<tr>
<td>6. OBTAIN help of second nurse as required.</td>
<td>Routine infection control practices; reduces transmission of microorganisms.</td>
</tr>
<tr>
<td>7. PERFORM hand hygiene.</td>
<td></td>
</tr>
<tr>
<td>8. DETERMINE which nostril is most patent. A penlight may be used to check which nostril is more patent or occlude/ask child to occlude one nostril at a time and observe their breathing.</td>
<td>Eases insertion.</td>
</tr>
<tr>
<td>9. MEASURE the distance with the gastric tube from the nares to the earlobe, to a point midway between the</td>
<td>Estimate of distance from nose/mouth to stomach. Avoid using tape to mark tube as tape may</td>
</tr>
</tbody>
</table>

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- bottom of the sternum and the umbilicus. **MARK** tube with permanent ink.
- become loose, fall off and present a choking hazard or may become dislodged in nares.

**NOTE:** With weighted tubes, measure from the feeding port openings, not the end of the weight.

10. **PLACE** incontinence pad or towel on patient's chest and have emesis basin available.

11. **PLACE** patient in high fowlers or sitting position or hold patient stabilizing the head in the neutral or “sniffing” position.

**NOTE:** For patients with suspected cervical injury, please consult physician for guidance in stabilization of head and spine prior to tube insertion.

12. **DON** clean gloves and coil the end of the tube around your index finger to produce a flexible curve.

13. **LUBRICATE** tip of tube 2-4 inches.

14. **INSERT** the tube:
   - a. Instruct patient to hold head straight up with neck slightly hyper extended and facing forward or assist patient to hold this position.
   - b. Hold the end of the tube above the lubricant and with the curve pointing downward, carefully insert the tube along the floor of the nostril, on the lateral side. For oral insertion: direct to the back center of the mouth.
   - c. Offer the patient sips of water to help move the tube past the oropharynx. Infants may suck on a pacifier during the procedure.
   - d. Advance the tube each time the patient swallows until tube reaches marked length.
   - e. Observe patient throughout procedure for signs of tube mal-positioning (coughing, choking, inability to talk). Withdraw tube immediately if changes occur in patient's respiratory status, if tube coils in mouth, or if the patient begins to cough, choke or changes colour.
   - f. Gently remove guidewire (when used) and retain at bedside for future use. **Never reinsert guidewire while tube is insitu.**

15. **CONFIRM** tube placement:
   - a. Flush tube with 1-5 mL of air using a 20 - 60mL syringe. **THIS DOES NOT CONFIRM TUBE PLACEMENT. DO NOT flush with liquid until placement confirmed**
   - b. Aspirate 1-5 mL of fluid using a 3-5 mL syringe and note visual characteristics of aspirate
   - c. Place a few drops on pH test strip - gastric pH should be 5 or less
   - d. Refer to algorithm CC.12.15A if unable to obtain aspirate or if pH is 6 or above

**NOTE:** Confirming Nasogastric Tube Placement Algorithm CC.12.15A

16. Once placement in stomach is confirmed, **SECURE** tube:
   - a. Curve and tape the tube with transparent tape, **Prevents accidental dislodgement.**
or securement device, taped to the child's cheek (on same side as nostril with tube) to prevent unnecessary tugging on the nostrils. (Do not tape to the patient's forehead as this will put pressure on the nares).

b. Wrap a small piece of tape around the tube near the connection creating a tab and pin to the patient's gown/clothing.

c. Measure the length of the tube from nose (or lip for oral insertion) to hub.

17. **CLAMP** tube or **CONNECT** to suction or to feeds as ordered.

**NOTE:** If a Salem sump tube is used it is important to remember that the blue pigtail must be kept at the level of the fluid in the patient's stomach. This will prevent gastric contents from leaking back through vent lumen.

18. **REMOVE** equipment and **DISPOSE** appropriately. **PERFORM** hand hygiene.

**DOCUMENTATION**

**DOCUMENT** in appropriate record(s):
- procedure and time
- reason for tube insertion
- type and size of tube
- length of external tube from nose to hub
- nostril used
- amount and character of aspirate or drainage
- pH testing result
- the type of suction and pressure setting if applicable
- patient's tolerance to procedure
- when tube is due to be changed
- any other pertinent actions or observations

**REFERENCES**


American Association of Critical Care Nurses. Practice alert: Initial and Ongoing Verification of Feeding Tube Placement in Adults. Retrieved June 23, 2017 from [http://ccn.aacnjournals.org/content/36/2/e8.full.pdf](http://ccn.aacnjournals.org/content/36/2/e8.full.pdf)


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