Intubation

• Intubation: placement of a tube into a body structure

• Types of intubation
  – Orogastric: mouth to stomach
  – Nasogastric: nose to stomach
  – Nasointestinal: nose to intestine
  – Ostomy: surgically created opening
Question

• Is the following statement true or false?

Orogastric intubation is the insertion of a tube through the nose into the stomach.
Orogastric intubation is the insertion of a tube through the mouth into the stomach.

Answer

False.
Intubation (cont’d)

- Gastric or intestinal tube uses include:
  - Performing gavage
  - Administering oral medications
  - Sampling sections for diagnostics
  - Performing a lavage
  - Compression/decompression
Types of Tubes

- Gastrointestinal tubes
  - Orogastric tubes
  - Nasogastric tubes
    - Some have more than one lumen
    - Gastric sump tubes (double-lumens)
Types of Tubes (cont’d)

- Nasointestinal tubes
  - Longer than nasogastric tubes
  - Feeding, decompression

- Transabdominal tubes
  - Gastrostomy tube
  - Jejunostomy tube
Question

• Is the following statement true or false?

A nasointestinal tube is a tube placed through the nose and advanced to the stomach.
Answer

False.

A nasointestinal tube is inserted through the nose for distal placement below the stomach.
## Types of Gastrointestinal Tubes

<table>
<thead>
<tr>
<th>Table 29-1</th>
<th>Types of Gastrointestinal Tubes</th>
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<tr>
<td><strong>TUBE</strong></td>
<td><strong>PURPOSE</strong></td>
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<tr>
<td>Oesophageal</td>
<td>Lavage</td>
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<tr>
<td>Nasojejunal</td>
<td>Lavage</td>
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<td>Gavage</td>
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<td></td>
<td>Decompression</td>
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<td>Diagnostics</td>
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<td>Salem sump</td>
<td>Decompression</td>
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<tr>
<td>Serpentine-Blakemore</td>
<td>Compression</td>
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<td></td>
<td>Drainage</td>
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<tr>
<td>Nasointestinal</td>
<td>Gavage</td>
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<td>Keofeed</td>
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<tr>
<td>Master</td>
<td>Intestinal decompression</td>
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<tr>
<td>Transabdominal</td>
<td>Gavage; may be used for decompression while the client is fed through a jejunostomy tube</td>
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<tr>
<td>Gastrostomy</td>
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<tr>
<td>Jejunostomy</td>
<td>Gavage</td>
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Nasogastric Tube Management

- Insertion assessments:
  - Level of consciousness; weight
  - Bowel sounds; abdominal distention
  - Nasal/oral mucosa integrity
  - Swallow, cough, gag ability
  - Nausea or vomiting present?
Question

• Is the following statement true or false?

Assessing abdominal distention is part of preintubation assessment conducted by the nurse.
Answer

True.

Assessing abdominal distention is part of preintubation assessment conducted by the nurse.
Tube Measurement and Placement

- NEX measurement
  - Length from nose to earlobe to xiphoid process, marking tubing for reference
- Insertion should cause as little discomfort as possible
- Determine proper placement using:
  - Fluid aspiration inspection
    - Visual inspection; pH testing; abdominal auscultation
Nasogastric Tube Management

• Gastric decompression
  – Suction continuously or intermittently
    o Vented tubing protects stomach mucosa
  – Promote/restore patency
    o Administer ice chips or sips of water sparingly
    o Irrigation (by physician order only)
Inserting a Nasogastric Tube

(Refer to Skill 29-1 in the textbook.)
Assessing the pH of Aspirated Fluid

NURSING GUIDELINES

Assessing the pH of Aspirated Fluid

1. Wash hands or perform an alcohol-based handrub (see Chap. 10). Hand hygiene reduces the transmission of microorganisms.

2. Don gloves. They provide a physical barrier between the nurse’s hands and body fluids.

3. Aspirate a small volume of fluid from the tube with a clean syringe. Doing so ensures valid test results.

4. Drop a sample of gastric fluid onto an indicator strip. This step initiates a chemical reaction on contact and saturation.

5. Compare the color on the test strip with the color guide on the container of reagent strips (Fig. 29-7). The color of the test strip changes according to the hydrogen ion concentration of the liquid. Stomach fluid usually has a pH of 1 to 3—very acid on the pH scale. If the pH is 5 or 6, the client may be receiving medications to decrease gastric acidity or the fluid may be from the duodenum. A pH of 7 or greater indicates that the tube is in the respiratory tract.
Nasointestinal Tube Management

- Insertion of nasointestinal tubes
  - NEX measurement + 9 inches
- Checking tube placement
  - Initially via x-ray
  - Subsequently, modified aspiration with large volume syringe (50 mL)
Transabdominal Tube Management

- The nurse’s responsibility is to care for inserted gastrostomy and jejunostomy tubes and their insertion sites
  - Conscientious care is necessary to prevent leakage and skin breakdown
## Comparison of Feeding Tubes

<table>
<thead>
<tr>
<th>TUBE</th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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<tbody>
<tr>
<td>Nasogastric</td>
<td>Low incidence of obstruction</td>
<td>Can damage nasal and pharyngeal mucosa from pressure or friction</td>
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<tr>
<td></td>
<td>Accommodates crushed medications</td>
<td>Dilates esophageal sphincter, potentiating gastric reflux</td>
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<td></td>
<td>Facilitates bolus or intermittent feedings</td>
<td>Potential for aspiration</td>
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<td></td>
<td>Easy to check distal placement and gastric residual</td>
<td>Requires frequent replacement to ensure integrity of nasal tissue</td>
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<tr>
<td>Nasointestinal</td>
<td>Easy to insert</td>
<td>Requires x-ray to verify placement</td>
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<tr>
<td></td>
<td>Comfortable</td>
<td>Becomes obstructed easily</td>
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<tr>
<td></td>
<td>Only slight dilation of esophageal sphincter</td>
<td>Best used for continuous feeding</td>
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<td></td>
<td>Reduced danger for aspiration</td>
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<tr>
<td></td>
<td>Can remain in place for 4 weeks or longer</td>
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<tr>
<td>Gastrostomy</td>
<td>No nasal tube</td>
<td>Must wait 24 hours to use after initial placement</td>
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<tr>
<td></td>
<td>Easily concealed</td>
<td>May leak and cause skin breakdown</td>
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<tr>
<td></td>
<td>Accommodates long-term use</td>
<td>Increased incidence of infection</td>
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<tr>
<td></td>
<td>Infrequent tube replacement</td>
<td>Requires skin care at tube site</td>
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<tr>
<td></td>
<td>Client can be taught self-care</td>
<td>Can migrate or become dislodged if tube is not secured</td>
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<td></td>
<td></td>
<td>Gastric overfill and aspiration possible</td>
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<tr>
<td>Jejunostomy</td>
<td>Same as gastrostomy</td>
<td>Same as gastrostomy</td>
</tr>
<tr>
<td></td>
<td>Reduced potential for reflux and aspiration</td>
<td></td>
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</tbody>
</table>
Tube Feedings

- Enteral nutrition is provided via stomach or small intestine rather than oral route
  - Benefits and risks
    - Dumping syndrome
  - Formula type based on client’s nutritional needs
Question

• Which of the following are symptoms of the dumping syndrome? Select all that apply.
  a. Sweating
  b. Appetite loss
  c. Weakness
  d. Nausea
The symptoms of dumping syndrome are weakness, dizziness, sweating, and nausea, due to fluid shifts from the circulating blood to the intestine, and low blood glucose level related to a surge of insulin. Appetite loss is not a symptom of the dumping syndrome.
Tube Feedings (cont’d)

- Tube-feeding schedules
  - Bolus feedings
  - Intermittent feedings
  - Cyclic feedings
  - Continuous feedings
Tube Feedings (cont’d)

- Daily client assessment: weight, vital signs, intake/output, bowel sounds, lung sounds, breathing, mucosal condition, etc.
  - Regular gastric residual assessment

- Nursing management
  - Maintain tube patency; clear obstructions; provide adequate hydration; ready client for home care; address miscellaneous problems
Checking Gastric Residual

**NURSING GUIDELINES**

**Checking Gastric Residual**

1. Wash hands or perform an alcohol-based handrub (see Chap. 10). Hand hygiene reduces the transmission of microorganisms.
2. Don gloves. Gloves provide a physical barrier between the nurse’s hands and body fluids.
3. Stop the infusion of tube-feeding formula. This measure facilitates assessment.
4. Aspirate fluid from the feeding tube using a 50-ml syringe. Doing so allows collection of a large volume of fluid.
5. Continue aspirating until no more fluid is obtained. This ensures an accurate assessment.
6. Measure the aspirated fluid and record the amount. Documentation provides objective data for evaluation.
7. Reinstill the aspirated fluid. This measure returns partially digested nutrients and electrolytes to the client.
8. Postpone tube feeding and report residual amounts that exceed agency guidelines or those established by the physician. Doing so reduces the risk of aspiration.
9. Check gastric residual again in 30 minutes. This duration allows time for part of the stomach contents to empty into the small intestine.
10. Provide or resume tube feeding if the gastric residual is within an acceptable range. Doing so prevents overfeeding.
Clearing an Obstructed Feeding Tube

NURSING GUIDELINES

Clearing an Obstructed Feeding Tube

Select a syringe with a capacity of at least 50 mL. This capacity reduces negative pressure during aspiration, which could lead to collapse of the tube walls.

Wash hands or perform an alcohol-based handrub (see Chap. 10). Hand hygiene reduces the transmission of microorganisms.

Don gloves. They provide a physical barrier between the nurse’s hands and potential contact with body fluids.

Aspirate as much as possible from the feeding tube. Aspiration clears the path above the obstructing debris.

Instill 5 mL of the selected solution. Instillation allows direct contact between the irrigating solution and debris.

Clamp the tube and wait 15 minutes. This duration gives the substance in solution time to physically affect the obstructing debris.

Aspirate or flush the tube with water. Repeat if necessary. Use of negative pressure or positive pressure restores patency.
Intestinal Decompression

• Intestinal decompression: tubing introduced into the intestines to decompress in an attempt to avoid surgery

• Nursing responsibilities may include:
  – Tube insertion
  – Removal of intestinal decompression tube
    o Performed slowly, in two steps at 10-minute intervals
### Inserting an Intestinal Decompression Tube

**NURSING GUIDELINES 29-6**

- Assemble all the necessary equipment as for any nasally inserted tube. Doing so ensures organization and efficient time management.
- Follow the techniques in Skill 29-1 for inserting a nasogastric tube. The same principles are involved during initial insertion.
- Thread excess tubing through a sling of folded gauze taped to the forehead (Fig. 29-13) once gastric placement is confirmed. The sling supports the tube as it advances.
- Ambulate the client, if possible. Ambulation helps the tube to move through the pyloric valve into the small intestine.
- When the radiograph indicates that the intestinal tube has advanced beyond the stomach, position the client on the right side for 2 hours, then on the back in a Fowler’s position for 2 hours, then on the left side for 2 hours. Gravity and positioning promote movement through intestinal curves.
- Follow agency policy or physician’s instructions for manually advancing the tube several inches each hour. This advancement supplements natural peristaltic advancement.
- Observe the graduated marks on the tube. They provide a means for monitoring the tube’s progression and approximate anatomic location.
- Request x-ray confirmation when the tube has reached the prescribed distance. An x-ray provides objective evidence of the terminal location of the distal tip.
- Secure the tube to the nose once its distal location has been confirmed. This measure stabilizes the tube and prevents further migration.
- Coil the excess tubing and attach it to the client’s pajamas or gown. Coiling and attachment prevent accidental extubation.
- Connect the proximal end to a wall or portable suction source. This measure produces negative pressure to pull substances from the intestine.
Nursing Implications

- Potential nursing diagnoses:
  - Impaired swallowing and oral mucous membranes
  - Imbalanced nutrition: less than body requirements
  - Risk for aspiration
  - Diarrhea
  - Constipation
General Gerontologic Considerations

- Diminished efficiency of the gag reflex
- Precautions when tube feeding older adults related to hyperglycemia and hydration
- Tailor formula specifically to client condition
- Monitor older adults for agitation, confusion resulting in pulling tubes; change in mental status can signal electrolyte imbalance
Question

• Is the following statement true or false?

Older adults may develop hyperglycemia when tube feedings are administered.
Answer

True.

Older adults are at increased risk for fluid and electrolyte disturbances and, as a result, may develop hyperglycemia (elevated blood glucose levels) when tube feedings are administered.
General Gerontologic Considerations

- When instructing older adults or older caregivers in managing gastrostomy tube or administering tube feedings at home, allow more time for processing and include several practice sessions.

- Ethical considerations of long-term tube feedings vs. client’s desire to withdraw artificial nutrition and hydration.