

GASTROINTESTINAL · NUTRITION · MED-SURG

Enteral *Feeding*

Nutritional support delivered directly to a functioning GI tract — through tubes that bypass the mouth, esophagus, or stomach to keep the gut working when oral intake fails.

NG · OG · NJ · NI

PEG · PEJ · G-TUBE · J-TUBE

ASPIRATION RISK

REFEEDING SYNDROME

TUBE PATENCY

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Definition & Overview

WHAT IT IS — AND WHY WE USE IT

Enteral feeding = nutrition delivered into the GI tract via a tube when a client cannot safely or adequately eat by mouth, but the gut still works.

The phrase **"if the gut works, use it"** is the cornerstone — enteral nutrition preserves villi, gut immunity, and prevents bacterial translocation seen with TPN.

Routes range from short-term **NG/OG tubes** (≤ 4 weeks) to long-term **PEG/PEJ surgical tubes** (> 4 weeks).

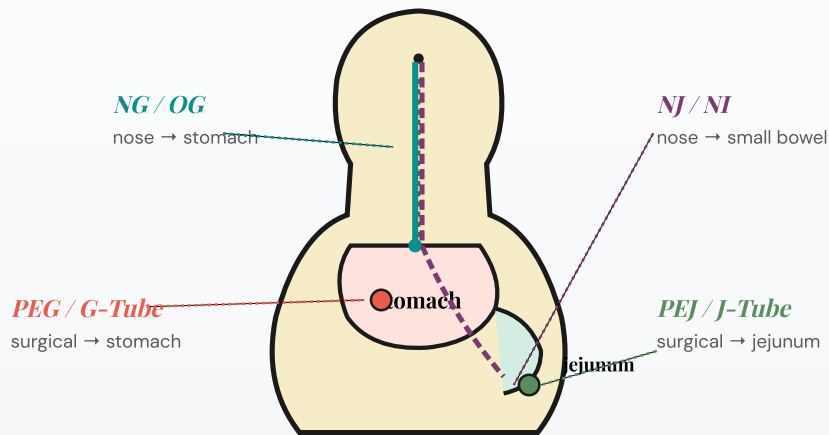
Why It Matters

- ◆ Aspiration is the #1 deadly complication — kills more clients than the underlying disease
- ◆ Tube placement must be verified *every* time before feeding or meds
- ◆ Refeeding syndrome can drop K^+ , Mg^{2+} , PO_4^{3-} to lethal levels in malnourished clients
- ◆ NCLEX loves prioritization questions — HOB, residual, and verification appear constantly

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Types of Enteral Tubes

SHORT-TERM VS. LONG-TERM ACCESS



SHORT-TERM · ≤ 4 WEEKS

NG • Nasogastric

Nose → esophagus → stomach

Most common short-term tube. Used for feeding, decompression, gastric lavage, and medication. Salem sump (double-lumen) prevents mucosal damage.

Replace q 2–3 weeks. Max suction 25 mm Hg.

SHORT-TERM · ≤ 4 WEEKS

OG • Orogastric

Mouth → esophagus → stomach

Preferred when nasal route is contraindicated — facial trauma, basilar skull fracture, deviated septum, or in intubated/sedated clients.

Skull fracture? NG is contraindicated → use OG.

POST-PYLORIC • ASPIRATION RISK

NJ / NI • Nasojejunal / Nasointestinal

Nose → past pylorus → small bowel

Bypasses the stomach — used when client is at high aspiration risk, has gastroparesis, or persistent high gastric residuals. **Continuous feed only** (no bolus).

No bolus. Small bowel cannot hold large volumes.

LONG-TERM • > 4 WEEKS

PEG / G-Tube • Gastrostomy

Surgical stoma → stomach

Placed endoscopically (PEG) or surgically. Allows bolus or continuous feeds. Daily site care; rotate the tube ¼ turn daily to prevent skin adherence.

Tube falls out? Cover with sterile gauze, notify HCP — stoma closes within hours.

LONG-TERM • > 4 WEEKS

PEJ / J-Tube • Jejunostomy

Surgical stoma → jejunum

Continuous feeding only. Used when stomach must be bypassed (severe reflux, gastric surgery, recurrent aspiration). No checking gastric residual — bowel doesn't pool.

Pump-controlled continuous feed — never bolus a J-tube.

SPECIALIZED • DECOMPRESSION

Salem Sump & Levin

Double-lumen vs. single-lumen NG

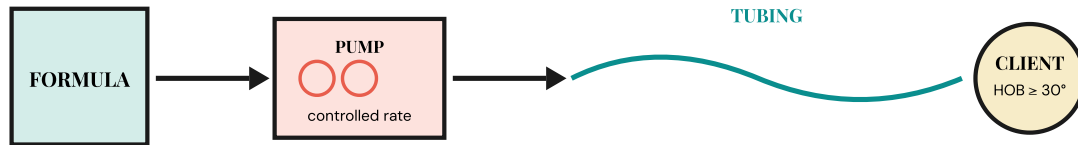
Salem Sump: blue "pigtail" air vent — keeps suction off mucosa. **Levin:** single-lumen, intermittent suction only.

Never clamp the blue pigtail — it equalizes pressure.

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How It Works • Delivery Methods

BOLUS → INTERMITTENT → CONTINUOUS → CYCLIC



B

Bolus

200–400 mL via syringe over 5–15 min, 4–6×/day.
Mimics meals. Stomach only — never small bowel.

I

Intermittent

200–500 mL by gravity drip over 30–60 min, 4–6×/day. Allows mobility between feeds.

C

Continuous

Slow pump-controlled drip over 24 hr. Required for small-bowel tubes & high aspiration risk.

N

Cyclic

Continuous over 8–16 hrs (usually nights). Allows daytime freedom — used at home.

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Placement Verification

BEFORE EVERY FEED, EVERY MED, EVERY SHIFT

1

X-ray

Gold standard immediately after insertion — **before any use**.



2

Measure External Length

Compare cm marking at nose/stoma to insertion baseline.



3

Test Aspirate pH

Gastric pH ≤ 5 (acidic). Intestinal > 6 . Respiratory > 7 .

NCLEX GOLD RULE

The **auscultation/air bolus method** ("whoosh" test) is *no longer reliable* and is NOT a sole verification method. X-ray confirmation + pH testing are the standards. NCLEX still tests this — choose pH or x-ray.

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Signs & Symptoms of Trouble

RECOGNIZE COMPLICATIONS FAST

 RED FLAG · STOP FEED NOW

Aspiration

-  New cough, choking, or gurgling
-  Sudden ↓ SpO₂, tachypnea, dyspnea
-  Crackles / wheezes on auscultation
-  Tracheal secretions match formula color
-  Fever within 24–48 hrs (aspiration pneumonia)

 RED FLAG · CHECK ELECTROLYTES

Refeeding Syndrome

-  ↓ Phosphate, ↓ Potassium, ↓ Magnesium
-  Muscle weakness, dysrhythmias, seizures
-  Confusion, respiratory failure
-  High-risk: malnourished, NPO > 7 days, anorexia
-  Start feeds **slowly** & advance gradually

 WATCH CLOSELY · ADDRESS & DOCUMENT

Tube Misplacement / Displacement

⚠ External tube length changed from baseline

⚠ Inability to aspirate gastric contents

⚠ pH > 6 when stomach was confirmed

⚠ Client coughing, gagging, or color change

⚠ Resistance when flushing

⚠ WATCH CLOSELY · GI INTOLERANCE

Feeding Intolerance

⚠ Diarrhea (most common — formula too fast / cold / hyperosmolar)

⚠ Nausea, vomiting, abdominal distention

⚠ Cramping, hyperactive or absent bowel sounds

⚠ High gastric residual volumes (GRV)

⚠ Constipation (insufficient water flushes)

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Priority Nursing Interventions

ABCS · SAFETY · MAINTENANCE

Verify Placement BEFORE Every Use AIRWAY

- 01** Check external tube length, aspirate pH, and confirm x-ray after initial placement. *Never assume* — verify every shift, every feed, every med.

Elevate HOB 30–45° During & 30–60 min After Feeding AIRWAY

- 02** Single most important aspiration-prevention intervention. Keep elevated even for continuous feeds. If supine is required, **stop the feed first**.

Check Gastric Residual Volume (GRV) SAFETY

- 03** Per facility protocol (commonly q 4 hr). **Hold feed if GRV > 500 mL** (or per policy, often > 250 mL on first check). *Return aspirate* to the stomach to preserve electrolytes & HCl.

Flush Tube to Prevent Clogs MAINTENANCE

- 04** Flush with 30 mL warm water: *before* and *after* each med, between meds, q 4 hrs during continuous feeds, and after intermittent/bolus feeds.

Hang Time: Limit Open-System Formula SAFETY

- 05** Open system: ≤ 4–8 hrs. Closed system: 24–48 hrs per manufacturer. Discard formula above the line — do not "top off." Date and time every bag/bottle.

Assess Bowel Sounds & Abdomen Q Shift MAINTENANCE

- 06** Hypoactive or absent sounds, distention, or pain → hold feed and notify HCP. Active bowel function is required for enteral feeding.

Monitor Glucose, Electrolytes & I&O MAINTENANCE

Hyperglycemia is common (formula has high carbs). Watch K^+ , Mg^{2+} , PO_4^{3-} for refeeding syndrome. Track strict I&O including water flushes.

08**Provide Mouth Care Every 2–4 Hrs****MAINTENANCE**

NPO clients have dry mouth and high VAP/aspiration pneumonia risk. Use chlorhexidine for ventilated clients. Lubricate lips. Inspect nares for breakdown.

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Medication Administration via Tube

CRUSH, DILUTE, FLUSH, SEPARATE

STEP 1 · FORM

Use Liquid When Possible

Liquid forms are first-line. If only a tablet exists, crush thoroughly & dissolve in 15–30 mL warm water. **Never crush:** enteric-coated, sustained-release, sublingual, or capsules with beads.

STEP 2 · ONE AT A TIME

Give Each Med Separately

Never mix multiple meds in one syringe — they may interact, precipitate, or clog the tube. Flush 5–10 mL between each medication.

STEP 3 · FLUSH BRACKET

30 mL Before · 30 mL After

Flush 30 mL warm water *before* the first med and *after* the last med. This prevents clogs and ensures full delivery of the dose.

STEP 4 · HOLD & RESUME

Phenytoin · Carafate · Quinolones

Hold feeds 1–2 hrs before & after phenytoin (Dilantin), sucralfate (Carafate), warfarin, fluoroquinolones, and levothyroxine — formula binds these meds and reduces absorption.

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NCLEX Test Traps ⚠

WHAT STUDENTS CONFUSE · THE RIGHT PRIORITY ANSWER

Trap #1 · Verifying Placement

WRONG

"Inject 30 mL of air and listen over the stomach." (auscultation is *unreliable*)

RIGHT

"Aspirate gastric contents and check pH ≤ 5 ." (X-ray is gold standard at insertion.)

Trap #2 · Client Coughs During Feed

WRONG

"Slow the feeding rate and continue to monitor."

RIGHT

STOP the feed first → assess airway → check placement → notify HCP. Airway is always priority.

Trap #3 · High Gastric Residual

WRONG

"Discard the aspirate to prevent infection."

RIGHT

Return the aspirate (preserves electrolytes & HCl), hold feed per protocol, recheck in 1 hr, notify HCP if persistent.

Trap #4 · Tube Falls Out (PEG)

WRONG

"Replace the tube immediately and resume feeding."

RIGHT

Cover the stoma with sterile gauze & **notify HCP immediately** — the tract closes within hours. Do *not* reinsert without an order.

Trap #5 • Phenytoin via Tube

WRONG

"Mix phenytoin into the formula bag for steady delivery."

RIGHT

Hold tube feed 1–2 hrs before & after phenytoin. Formula binds the drug → subtherapeutic levels → seizures.

Trap #6 • Diarrhea on Feeds

WRONG

"Stop the feed permanently — formula always causes diarrhea."

RIGHT

Check formula **temp (room temp), rate, osmolality**; check meds for sorbitol, rule out *C. diff*, then dilute or switch formula.

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Patient & Family Education

HOME ENTERAL NUTRITION • WHAT TO TEACH

1

Tube & Site Care

- Wash hands before any tube contact
- Clean stoma daily with soap & water; pat dry
- Rotate G-tube ¼ turn daily to prevent skin adherence
- Check tube length at the same landmark each day
- Cover stoma with sterile gauze if tube dislodges & call HCP

2

Feeding Routine

- Sit upright (HOB ≥ 30°) during & 30–60 min after
- Use room-temperature formula — never cold or hot
- Flush with 30 mL water before & after each feed
- Discard open formula after 4 hrs (open system)
- Date & time every formula bag

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When to Call HCP

- Tube falls out, leaks, or won't flush
- Persistent vomiting, choking, or coughing
- Fever, redness, drainage, or pain at stoma
- Diarrhea > 3 stools/day or no stool > 3 days
- Sudden weight gain or shortness of breath

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Memory Boosters & Mnemonics

LOCK THE HIGH-YIELD CONTENT INTO RECALL

FLUSH

TUBE-CARE PRIORITIES

F orm — use liquid meds when possible

L imit hang time of open formula (≤ 4 hrs)

U pright HOB 30–45° always

S eparate each medication; flush between

H old feed for high residual / aspiration signs

SAFE

PRE-FEED CHECKLIST

S ee placement (length + pH)

A uscultate bowel sounds — present?

F lush 30 mL warm water

E levate head of bed $\geq 30^\circ$

HALTS

WHEN TO STOP A FEEDING

High gastric residual volume

Aspiration signs (cough, ↓ SpO₂)

Loose stools / abdominal distention

Tube displaced or length changed

Supine positioning required

PHOSPHATE

REFEEDING SYNDROME TRIAD ↓

Phosphate ↓ — most specific

K — Potassium ↓

Mg — Magnesium ↓

Start slow, advance gradually

Highest risk: NPO > 7 days, malnutrition, anorexia

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Complications At-A-Glance

CAUSE → RECOGNIZE → INTERVENE

COMPLICATION	WHY IT HAPPENS	RECOGNITION	PRIORITY ACTION
Aspiration	Flat HOB, high residual, displaced tube, ↓ LOC	Cough, ↓ SpO ₂ , crackles, formula in tracheal secretions	Stop feed → suction → HOB up → notify HCP
Tube Clog	Inadequate flushing, crushed pills, formula sitting still	Resistance with flush, no aspirate return	Warm water flush + push/pull with syringe; do NOT use stylet
Diarrhea	Hyperosmolar formula, fast rate, sorbitol meds, contamination, <i>C. diff</i>	≥ 3 loose stools/day, cramping	Slow rate, room temp, check meds, rule out infection
Constipation	Insufficient free water, low fiber, immobility	No stool > 3 days, distention	↑ Free water flushes, fiber formula, encourage activity
Hyperglycemia	High carb load in formula, stress response	BG > 180, polyuria, fatigue	Glucose checks q 4–6 hr, insulin per sliding scale
Refeeding Syndrome	Rapid carb load in chronically malnourished body	↓ Phos, ↓ K ⁺ , ↓ Mg ²⁺ ; weakness, dysrhythmias	Start slow, replete electrolytes, daily labs ×7 days
Skin Breakdown	Tube pressure on nares; leakage at G-tube site	Redness, excoriation, drainage	Reposition tube, barrier cream, daily site care
Dumping Syndrome	Hyperosmolar feed dumped into small bowel (esp. J-tube)	Cramping, diarrhea, dizziness, tachycardia ~30 min after	Slow rate, isotonic formula, smaller volumes

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NCJMM Clinical Judgment Walk-Through

NCSBN SIX-STEP MODEL · 2026 TEST PLAN

Scenario: A 78-year-old client on continuous PEG feeding at 60 mL/hr suddenly begins coughing. Pulse ox drops from 96% to 88%. The nurse hears coarse crackles in the right lower lobe. The client appears anxious and the head of the bed is at 15°.

STEP 1 · RECOGNIZE CUES

What's Concerning?

New cough, SpO₂ drop 96%→88%, RLL crackles, anxiety, HOB only 15°. Continuous PEG feed is running — formula could be entering the airway.

STEP 2 · ANALYZE CUES

What Do They Mean?

The combination of low HOB + cough + desaturation + crackles strongly suggests **aspiration**. Right lower lobe is the most common site — anatomic dependent position.

STEP 3 · PRIORITIZE HYPOTHESIS

Most Urgent Concern?

Acute aspiration is the priority over comfort, anxiety, or formula intolerance. Airway compromise = highest priority on Maslow's & ABCs.

STEP 4 · GENERATE SOLUTIONS

What Are the Options?

STOP the feed → elevate HOB to 90° → suction airway → assess breath sounds & vitals → verify tube placement → notify HCP → prepare for chest x-ray & possible antibiotics.

STEP 5 · TAKE ACTION

Implement in Priority Order

1) Stop feed immediately. 2) Raise HOB to 90°. 3) Suction PRN. 4) Apply O₂ per protocol. 5) Auscultate lungs. 6) Verify tube placement (length, pH). 7) Notify HCP & document.

STEP 6 · EVALUATE OUTCOMES

Did It Work?

SpO₂ returns to ≥ 95%, breath sounds clear, no further coughing, vital signs stable. Continue elevated HOB, hold feeds until HCP clears, monitor for aspiration pneumonia × 48 hrs.

Diane's NGN NCLEX 2026 Study Series

ENTERAL FEEDING ♦ HIGH-YIELD VISUAL REFERENCE ♦ MED-SURG · NUTRITION