DAY 5 — NUTRITION / HYDRATION STUDY GUIDE

Basic Care & Comfort • NGN NCLEX 2026 Master Review

NG / TUBE FEEDING | DYSPHAGIA | THERAPEUTIC DIETS | TPN | I&O | SPECIAL POP. DIETS

CRITICAL / EMERGENCY | PATHOPHYSIOLOGY | SAFE / EXPECTED | COMPLICATIONS | NCLEX TRAPS | PROCEDURES | PT EDUCATION

FOUNDATIONS — NUTRITION IS VITAL SIGN #6

Nutritional status drives wound healing, immunity, recovery from surgery, drug response, and growth. The NCLEX expects you to recognize **aspiration risk, fluid overload/deficit, refeeding syndrome, and therapeutic diet teaching**.

> **Key targets:** Adult fluid 30 mL/kg/day (or 2–3 L); protein 0.8 g/kg (1.2–1.5 with wounds, post-op, sepsis); 25–35 g fiber/day; calorie needs vary with activity/illness.

NG TUBE PLACEMENT & VERIFICATION

PLACEMENT (INSERTION)

1. High-Fowler (HOB 90°) with chin tucked toward chest while advancing tube
2. Measure NEX (nose → earlobe → xiphoid); mark
3. Lubricate tip; insert through nostril, advance during swallow (sips of water if able)
4. If client coughs/turns blue → withdraw immediately (tracheal placement)
5. Confirm placement BEFORE first use with X-ray (gold standard)

ONGOING VERIFICATION (EACH USE)

- Check tube length / external markings
- Aspirate gastric contents → assess color (green/clear, off-white) + pH (1.0–5.5 = gastric)
- Visual inspection
- **Auscultation of air bolus is NO LONGER acceptable** as the sole verification method (poor reliability)

> **Always confirm placement before bolus, irrigation, or medication administration.**

TUBE FEEDING & ASPIRATION PREVENTION

- HOB elevated **≥30° (ideally 45°) during and 30–60 min after** bolus or continuous feeds
- Flush tube with 30 mL water before/after meds and feeds; q4h with continuous feeds
- Hang time: open system 4–8 h max; closed system per manufacturer (typically 24–48 h)
- Refrigerate opened formula; warm to room temp before infusing
- Record I&O carefully; weights at least weekly

GASTRIC RESIDUAL VOLUME (GRV)

- Current ASPEN guidance: hold feed for GRV > 500 mL **only with intolerance signs** (vomiting, distension, pain, no bowel sounds)
- Don't auto-hold for routine "high" GRVs without clinical correlation
- Return aspirated contents to stomach (electrolytes/HCl)

ASPIRATION S/SX

- New cough, dyspnea, tachypnea
- Wet/gurgly voice, drooling, choking
- Crackles in **R lower lobe** (most common — gravity + R bronchus angle)
- Fever, ↓ SpO_2, leukocytosis

DYSPHAGIA PRECAUTIONS

- Upright at 90° during all PO intake

- **Chin-tuck** while swallowing closes airway
- Stay upright 30–60 min after meals
- Small bites, slow pace, no talking during chewing
- Thickened liquids (nectar, honey, pudding) per SLP recommendation
- Soft/pureed/mechanical diet as ordered
- SLP swallow eval before initial PO intake post-stroke
- Suction at bedside

Trap: Thin liquids are HARDER to control with dysphagia → use thickened. Caregivers often think water is "easiest" — it's actually highest aspiration risk.

THERAPEUTIC DIETS — HIGH-YIELD MATRIX

DIET	FOR	KEY FEATURES
DASH	HTN, HF	↑ fruits/veg/whole grains/lean protein/low-fat dairy; ↓ sodium <1500–2300 mg, ↓ saturated fat
Heart-healthy / Cardiac	CAD, post-MI	↓ sodium, saturated/trans fat, cholesterol; Mediterranean pattern
Low-residue / Low-fiber	Diverticulitis ACUTE, IBD flare, pre-colonoscopy	White rice, white bread, eggs, lean protein. AVOID nuts, seeds, raw fruits/veg, whole grains
High-fiber	Diverticulosis (no flare), constipation	25–35 g fiber/day; gradual ↑; adequate water
CKD pre-dialysis	Renal failure no HD	↓ protein, ↓ K, ↓ phos, ↓ Na, fluid restrict
CKD on hemodialysis	HD	ADEQUATE protein (1.2 g/kg — losses during HD), ↓ K, ↓ phos, ↓ Na, fluid restrict
Diabetic	DM	Consistent carb counting, balanced meals, ↑ fiber, limit added sugars/alcohol
Low-purine	Gout	Avoid organ meats, anchovies, sardines, beer; limit red meat, shellfish
Gluten-free	Celiac	Avoid wheat, barley, rye; oats only if certified GF; LIFETIME
Low-fat	Cholecystitis, pancreatitis	Limit fried, creamy, fatty foods

Renal failure post-MI bedside	—	Combine principles when comorbid
Vit-K consistent	Warfarin	Consistent (not eliminated) green leafy intake; INR stability
Low-tyramine	MAOI use	Avoid aged cheese, smoked/cured meats, wine, soy sauce, fermented foods (HTN crisis)
Neutropenic	Immunocompromised (chemo, HIV, transplant)	No raw fruits/veg, raw meat/fish/eggs, deli meats, soft cheeses; well-cooked, washed

REFEEDING SYNDROME

Refeeding occurs when severely malnourished clients (anorexia nervosa, prolonged starvation, chronic alcoholism, post-bariatric, NPO > 7–10 days) are aggressively re-fed.

PATHOPHYSIOLOGY

- Carbohydrate reintroduction → insulin surge → cellular uptake of K, Mg, phosphate
- Serum ↓ K, ↓ Mg, ↓ phos → arrhythmias, respiratory failure, seizures, heart failure

PREVENTION

- Start at 25–50% of estimated needs; advance slowly (over 4–7 days)
- Check baseline electrolytes, replace deficits BEFORE feeding
- Thiamine before glucose (Wernicke prevention in alcoholics)
- Daily electrolytes (K, Mg, phos) for 5–7 days; cardiac monitoring

I&O — COUNTS WHAT & CONVERSION

INTAKE (COUNTS)

- Oral fluids, IV fluids, IV meds, tube feeds, irrigation if not returned, ice chips (1/2 measured volume)
- Gelatin, broth, popsicles, ice cream

OUTPUT (COUNTS)

- Urine, emesis, liquid stool, NG/wound drainage, blood loss, drains (JP, Hemovac, chest tube)

CONVERSIONS

- 1 oz = 30 mL · 1 cup = 240 mL · 1 tsp = 5 mL · 1 Tbsp = 15 mL
- Standard glass of water 240 mL · ice cream cup 120 mL
- Small juice container 120 mL; "regular" 240 mL

TPN (TOTAL PARENTERAL NUTRITION)

- Hypertonic dextrose, amino acids, lipids, electrolytes, vitamins
- Requires **central line** (high-osmolarity solution; peripheral = vein damage)
- Use dedicated lumen; do not piggyback meds; in-line filter
- Strict aseptic dressing changes; assess site each shift
- Monitor BG q6h initially; check daily weight, electrolytes, glucose, BUN
- Don't stop abruptly → rebound hypoglycemia (taper 1–2 h or hang D10W)
- Refrigerate; protect from light; warm to room temp before infusing
- Maximum hang time: 24 h (lipids 12 h)

Catheter sepsis: sudden fever + chills + ↑HR + ↓BP during/after TPN → STOP infusion, send tip for culture, draw central blood cultures, notify provider.

SPECIAL-POPULATION DIETS

POPULATION	KEY TEACHING
Infant < 1 y	NO cow's milk (anemia, GI bleed), NO honey (botulism), NO whole grapes/nuts/popcorn (choking). Iron-fortified cereal at 4–6 mo. Solids one at a time, 3–5 days apart.
Toddler / preschool	Picky eating normal. Offer small portions, variety, no force-feeding. Avoid choking foods.
Pregnancy	Folic acid 400–800 mcg, iron, calcium. AVOID raw fish/sushi, deli meats unless heated, soft cheeses, high-mercury fish, alcohol, unwashed produce.

Lactation	+500 kcal/day; continue prenatal vitamin; limit caffeine; avoid alcohol or "pump and dump" if consumed.
Older adult	↓ caloric needs but same nutrient density needs; ↑ protein for sarcopenia (1.0–1.2 g/kg); ↑ vitamin D, B12, calcium; hydration (mental status = best early hydration indicator).
Religious — Ramadan	Fast sunrise–sunset. Reschedule meds and tube feeds; encourage sufficient fluids/calories overnight; honor preference; involve dietitian and imam if needed.
Religious — Kosher / Halal	No pork, no shellfish (kosher); halal slaughter; separate dairy/meat (kosher). Provide compliant meals.
Religious — Hindu / Buddhist / Jain	May be vegetarian/vegan; some no root vegetables (Jain).

DEHYDRATION & FLUID STATUS

DEHYDRATION S/SX

- Thirst, dry mucous membranes, ↓ skin turgor (older adults skin turgor unreliable)
- ↑ HR, ↓ BP, orthostasis
- Dark urine, ↓ output (<30 mL/h)
- Mental status changes — **best early indicator in older adults**
- ↑ Hct, BUN, Na, urine specific gravity

FLUID OVERLOAD S/SX

- Crackles, dyspnea, ↑ RR
- Edema, weight gain > 2 lb (1 kg) in 24 h or 5 lb in a week
- JVD, bounding pulse, ↑ BP
- ↓ Hct, BUN, Na (dilutional)

IF / THEN — CLINICAL DECISION RULES

IF NG tube just placed	→	verify with X-ray BEFORE first use
IF wet/gurgly voice after meal	→	stop feeding; suspect aspiration
IF severely malnourished + new feeding	→	refeeding precautions; check K, Mg, phos daily

IF HD client	→	adequate protein 1.2 g/kg; restrict K/phos/fluid
IF post-cholecystectomy	→	low-fat diet at least short-term
IF child + honey or whole grapes	→	avoid < 1 y / choking risk
IF TPN with sudden fever/chills	→	stop; cultures; notify provider — catheter sepsis
IF older adult new confusion	→	assess hydration first (very common cause)

NCLEX TRAPS

Auscultation alone for NG verification
No longer acceptable. X-ray + pH + visual.

Holding feed for any "high" GRV
Per ASPEN, only with intolerance signs.

Thin liquids for dysphagia
Higher aspiration risk. Use thickened.

Eliminating greens on warfarin
Aim for CONSISTENT intake, not zero.

Renal HD = no protein
Wrong — needs adequate protein due to dialysis losses.

Honey for infant cough
Botulism in < 1 y. Never.

Stopping TPN abruptly
Rebound hypoglycemia. Taper or D10.

Diverticulitis ACUTE = high fiber
Reverse — low-residue acute, high-fiber when healed.

NCLEX PATTERNS

PATTERN: VERIFY + POSITION

- X-ray for NG initial
- HOB ≥ 30° during/after feeds
- Stay upright 30–60 min

PATTERN: SUDDEN SYMPTOMS WITH TPN/TUBE

- Fever/chills = sepsis
- SOB/chest pain = air embolism
- Clear glucose check

PATTERN: MATCH DIET TO DISEASE

- Acute diverticulitis = low-residue
- HD = adequate protein
- Celiac = lifetime gluten-free

PATTERN: OLDER ADULT DEHYDRATION

- Mental status = first sign
- Skin turgor unreliable

NGN BOW-TIE — SAMPLE SYNTHESIS

Case: 75 y/o post-stroke, R-sided weakness, dysphagia. Eats lunch with HOB 20°. Now coughing, voice gurgly, SpO_2 89%, RR 28.

TOP 2 ACTIONS	CONDITION	TOP 2 MONITOR
• STOP feeding; suction; raise HOB to 90°; supplemental O_2 • Notify provider; NPO; SLP eval; aspiration precautions	ASPIRATION EVENT	• SpO_2, RR, lung sounds, fever • CXR; aspiration pneumonia s/sx

PATIENT & FAMILY EDUCATION CHECKLIST

- ✓ Stay upright 30–60 minutes after meals or tube feeds
- ✓ Take small bites, slow pace, no talking with food in mouth
- ✓ Use thickened liquids if recommended by SLP
- ✓ Drink 6–8 glasses (1.5–2 L) of water daily unless restricted
- ✓ Read food labels for sodium, sugars, and gluten if applicable
- ✓ Take warfarin with CONSISTENT vitamin K intake — don't eliminate greens

- ✓ Avoid honey, cow's milk, whole grapes/nuts under age 1
- ✓ Report unintentional weight loss/gain > 2 lb in 24 h or 5 lb in a week
- ✓ For TPN: report fever, chills, redness or drainage at central line site
- ✓ Keep food diary if monitoring intake

DAY 5 OF 7 — BCC STUDY GUIDE SERIES

Pair this guide with the Day 5 Question Bank (20 NGN items).

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