★ NGN NCLEX 2026 — GASTROINTESTINAL

GI Diagnostics *Overview*

A complete map of the tests that visualize, sample, and analyze the GI tract — from **endoscopy and colonoscopy** to **imaging, lab studies, biopsies, and paracentesis**. Master the NPO rules, sedation safety, post-procedure positioning, and red-flag complications.

HIGH-YIELD | PROCEDURE SAFETY | NCJMM INTEGRATED | MED-SURG • GI BLOCK

1 Definition & Why It Matters

FOUNDATIONAL CONCEPT

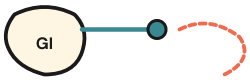
GI diagnostics = procedures & studies that *visualize, sample, or measure* the gastrointestinal tract to identify bleeding, masses, motility issues, infection, malabsorption, or organ dysfunction.

Three Categories: *Endoscopic* (EGD, colonoscopy, ERCP), *Imaging* (barium, US, CT, MRI/MRCP, HIDA), and *Lab/Specimen* (FOBT, stool studies, H. pylori, LFTs, biopsy, paracentesis).

NCLEX Reality: Expect questions on *NPO timing, informed consent, gag reflex, sedation safety, post-procedure positioning*, and *recognizing perforation/bleeding*. The "first action" answer is almost always assessment-driven.

2 How GI Diagnostics Work

PROCEDURE PATHWAY — PRE → INTRA → POST



PRE
Prepare
Consent, NPO, bowel prep, IV access, baseline VS, allergy & anticoag review.

INTRA
Procedure
Sedation/anesthesia, scope or contrast advanced, biopsy or imaging captured.

POST
Recover
Monitor VS, LOC, gag reflex, bleeding, pain. Position per procedure.

EVAL
Outcome
Diagnosis confirmed, follow-up scheduled, patient teaching reinforced.

🔬 ENDOSCOPIC
DIRECT VISUALIZATION

EGD
Mouth → stomach → duodenum

Colonoscopy
Anus → cecum (full colon)

Sigmoidoscopy
Anus → sigmoid only

ERCP
Bile/pancreatic ducts via duodenum

Capsule endoscopy
Pill camera — small bowel

🩻 IMAGING
INDIRECT VISUALIZATION

Upper GI series
Barium swallow → esophagus/stomach

Lower GI / Barium enema
Colon outline

Abdominal US
Gallbladder, liver, ascites

CT abdomen/pelvis
Tumors, abscess, perforation

MRCP / HIDA
Biliary tree & gallbladder function

🧪 LAB & SPECIMEN
TISSUE, FLUID, & CHEMISTRY

FOBT / FIT
Occult blood in stool

Stool C&S, O&P, C. diff
Infection workup

H. pylori
Urea breath, stool antigen, biopsy

LFTs / amylase / lipase
Liver, pancreas function

Liver biopsy / Paracentesis
Tissue / ascitic fluid

3 Post-Procedure Red Flags
WHEN TO WORRY — NOTIFY HCP STAT

EARLY
Perforation
Sudden severe abd pain, rigid abdomen, ↑ HR, ↓ BP, fever, shoulder

EARLY
Hemorrhage
Hematemesis, large rectal bleeding, melena, ↓ Hgb, hypotension,

EARLY
Aspiration
Crackles, hypoxia, coughing, fever after EGD — gag reflex returned too

EARLY
Post-ERCP Pancreatitis
Severe epigastric pain radiating to back, N/V, ↑ amylase & lipase. Most

pain (referred). Most feared after EGD, colonoscopy, ERCP.

tachycardia. Especially after biopsy or polypectomy.

late or fed too soon. NPO until gag returns!

common ERCP complication — occurs hrs to 24+ hrs post.

LATE

Peritonitis

Rebound tenderness, board-like abd, fever, ↑ WBC. After paracentesis or perforated organ — surgical emergency.

LATE

Liver Biopsy Bleed

Tachycardia, hypotension, RUQ/shoulder pain. Position **RIGHT side ≥2 hrs** for compression. Bedrest 12–24 hrs.

LATE

Hypovolemia post-Paracentesis

Hypotension, tachycardia, ↓ urine output. Removing >1–1.5 L → fluid shift; albumin often given to support BP.

LATE

Bowel Prep Issues

Dehydration, electrolyte imbalance (↓ K^+, ↓ Na^+), dizziness in elderly after PEG/GoLYTELY. Inadequate prep = repeat colonoscopy.

4 Priority Nursing Actions by Procedure

PRE / INTRA / POST — THE BIG MAP

PROCEDURE	PRE-PROCEDURE	POST-PROCEDURE	PRIORITY WATCH
EGD UPPER ENDOSCOPY	NPO 6–8 hrs. Consent. Remove dentures. IV access. Topical anesthetic to throat (cetacaine/lidocaine spray).	NPO until **gag reflex returns**. Position semi-Fowler's or side-lying. Sore throat = expected.	Aspiration, perforation (chest/back pain, crepitus), bleeding.
Colonoscopy	Clear liquids 24 hrs before. **Bowel prep** (PEG/GoLYTELY) — output should be clear yellow. NPO after midnight. Hold iron 3–4 days prior.	Monitor for bleeding, abd pain. Flatus expected (CO_2 insufflation). Resume diet when alert.	Perforation (severe pain, distention), bleeding (esp. after polypectomy).
ERCP	NPO 6–8 hrs. Consent. IV access. Coag labs. Sedation prep. Stop anticoag per protocol.	NPO until gag returns. Monitor amylase/lipase, abd pain. Bedrest until alert.	**Pancreatitis** (#1), perforation, cholangitis, bleeding.
Sigmoidoscopy	Light meal day before. Enema or 1–2 Fleet enemas morning of. No full bowel prep needed. May not need sedation.	Resume diet. Monitor for bleeding. Mild cramping & flatus normal.	Perforation rare; bleeding if biopsy done.
Capsule Endoscopy	NPO 8–10 hrs. Swallow capsule with water. Wear sensor belt. **No MRI** until capsule passes!	Light meal 2 hrs after. Confirm capsule passed in stool (~24–72 hrs). No strenuous activity.	Capsule retention (esp. with strictures); bowel obstruction.

Upper GI Series BARIUM SWALLOW	NPO 8 hrs. Remove jewelry. Confirm not pregnant. Hold iron/bismuth.	Push **fluids** & encourage **laxative/stool softener**. Stools will be chalky white 24–72 hrs.	Barium impaction → constipation/obstruction. Aspiration in elderly/dysphagic.
Barium Enema LOWER GI	Clear liquids 24 hrs. Bowel prep (laxative + enema). NPO 8 hrs.	**Fluids & laxatives**. Chalky stools expected. Rest.	Barium impaction; perforation (rare).
Abdominal US	NPO 8–12 hrs (esp. for gallbladder). Full bladder for pelvic US.	No special care. Resume diet.	None — non-invasive, no contrast/radiation.
CT with Contrast	NPO 4–6 hrs. Check creatinine/eGFR. **Iodine/shellfish allergy?** Hold metformin (lactic acidosis risk).	Push fluids to flush contrast. Monitor for delayed allergic reaction.	Contrast nephropathy, anaphylaxis, metformin + contrast = lactic acidosis.
HIDA Scan	NPO 4–6 hrs. No opioids 6 hrs before (cause sphincter spasm).	Resume diet. Radiotracer cleared in 24 hrs — push fluids.	None significant; review pregnancy status.
Liver Biopsy	Coag panel (PT/INR, platelets). NPO 6 hrs. Consent. Type & screen. Hold anticoag.	**RIGHT side-lying ≥2 hrs** (compress site). Bedrest 12–24 hrs. VS q15 min × 1 hr, then per protocol.	Hemorrhage (#1), bile peritonitis, pneumothorax.
Paracentesis	**Have patient void** first (avoid bladder puncture). Baseline VS, weight, abd girth. Coags.	Monitor VS, dressing, urine output. Albumin if >1–1.5 L removed. Daily weights, girth.	Hypotension/hypovolemia, peritonitis, persistent leakage.
Stool Studies FOBT, O&P, C. DIFF	For FOBT: **3 days no** red meat, NSAIDs, vit C, horseradish, turnips.	No special care. Send specimen promptly.	False positive/negative if prep not followed.
H. pylori Testing	**Hold PPIs 1–2 wks**, antibiotics 4 wks, bismuth 2 wks (cause false negatives).	Resume meds per HCP. Treatment = triple therapy.	Accuracy of result depends on holding meds correctly.

5 Pharmacology — Sedation, Prep & Reversal

DRUGS YOU'LL SEE ON THE TRAY

DRUG	CLASS & USE	KEY NURSING CONSIDERATIONS
Midazolam VERSED	Benzodiazepine — moderate (conscious) sedation, anxiolysis, amnesia.	Monitor RR, SpO_2, LOC. Causes **respiratory depression**. Reverse with *flumazenil*.
Fentanyl	Opioid — analgesia during procedure. Often paired with midazolam.	Monitor RR & SpO_2. Risk of respiratory depression, chest wall rigidity. Reverse with *naloxone*.
Propofol DIPRIVAN	Anesthetic — deep sedation for endoscopy/colonoscopy.	Anesthesia provider only. Rapid onset/offset. Monitor BP (hypotension), apnea. **No reversal agent.**
Cetacaine / Lidocaine spray	Topical anesthetic — numbs throat for EGD.	NPO until gag reflex returns. Risk of *methemoglobinemia* with overuse (cetacaine).
Polyethylene Glycol PEG, GOLYTELY, MIRALAX	Osmotic laxative — bowel prep for colonoscopy.	4 L over 2–4 hrs (or split-dose). Drink chilled, with straw. Stool clear yellow = ready. Watch electrolytes in elderly/CKD.
Magnesium Citrate	Saline laxative — alternate bowel prep.	**Avoid in renal failure** (hypermagnesemia). Drink chilled. Watch for cramping, dehydration.
Bisacodyl DULCOLAX	Stimulant laxative — adjunct to bowel prep.	Don't crush; don't give with milk/antacids (premature dissolution → cramping).
Simethicone	Antifoaming agent — reduces gas bubbles for clearer scope view.	Given before EGD or colonoscopy. Safe.
Flumazenil ROMAZICON	**Reversal:** benzodiazepine antagonist.	For midazolam over-sedation/respiratory depression. Short half-life — re-sedation possible. Risk of seizures.
Naloxone NARCAN	**Reversal:** opioid antagonist.	For fentanyl/opioid respiratory depression. Short half-life — repeat dosing may be needed. Watch for withdrawal & pain rebound.

Albumin 25%	Plasma volume expander — given post-paracentesis if >1–1.5 L removed.	Prevents fluid shift, hypotension, hepatorenal syndrome. Monitor BP, urine output.
Iodinated Contrast	Imaging contrast — CT, ERCP, barium studies (for some).	Check creatinine & allergies. **Hold metformin** 48 hrs (lactic acidosis). Push fluids post.

6 NCLEX Test Traps

WRONG VS. RIGHT — THE WORDING THAT FOOLS STUDENTS

✗ WRONG	VS	✓ RIGHT
"Offer ice chips immediately after EGD to soothe the throat."	VS	"Keep **NPO** until **gag reflex returns**. Then start with sips of water."
"Position patient supine after a liver biopsy."	VS	"**RIGHT side-lying for ≥2 hrs** to compress the biopsy site against the chest wall."
"Mild post-procedure abdominal pain after a colonoscopy is concerning — call the HCP."	VS	Mild cramping/flatus (CO_2) is *expected*. **Severe, sudden, or persistent** abd pain = perforation → notify HCP STAT.
"After a barium study, encourage clear liquids and rest."	VS	Push **fluids AND a laxative/stool softener** to prevent *barium impaction*. Stools will be chalky white 24–72 hrs.
"Have patient stay in bed; bladder fullness doesn't matter for paracentesis."	VS	**Have patient void FIRST** — full bladder = puncture risk. Position upright/Fowler's during procedure.
"Continue metformin the morning of a CT with iodinated contrast."	VS	✓ RIGHT

Hold metformin 48 hrs after contrast (until renal function confirmed) to prevent *lactic acidosis*.

✗ WRONG
"FOBT diet restrictions don't really matter — collect anytime."

VS

✓ RIGHT
Avoid **red meat, NSAIDs, vit C, turnips, horseradish × 3 days** before. Otherwise = false positive/negative.

✗ WRONG
"Patient on PPIs can have H. pylori urea breath test today."

VS

✓ RIGHT
Hold **PPIs 1–2 wks**, antibiotics 4 wks, bismuth 2 wks before testing → otherwise false negative.

NCJMM Clinical Judgment Scenario

RECOGNIZE → ANALYZE → ACT

Case: *A 64-year-old man underwent ERCP 6 hours ago for suspected choledocholithiasis. Vital signs were stable post-procedure. He now reports 9/10 epigastric pain radiating to his back, has vomited twice, and his abdomen is tender with mild guarding. VS: BP 96/58, HR 118, RR 24, T 38.4°C, SpO_2 94% on room air. Labs just resulted: amylase 920 U/L, lipase 1,240 U/L, WBC 16,200.*

① RECOGNIZE CUES

Severe Pain + Lab Spike

Epigastric pain radiating to back, ↑ amylase & lipase, fever, tachycardia, hypotension, ↑ WBC — all in the post-ERCP window.

② ANALYZE CUES

Most Likely Diagnosis

Post-ERCP pancreatitis — the #1 complication. Cholangitis (Charcot's triad) and perforation must also be on the differential.

③ PRIORITIZE HYPOTHESIS

Hemodynamic Instability

BP 96/58, HR 118 → fluid resuscitation is priority along with pain control. Risk of progression to SIRS/sepsis if untreated.

④ GENERATE SOLUTIONS

Treatment Plan

NPO, IV crystalloids, IV opioid analgesia (avoid morphine traditionally — though current evidence shows it's acceptable), antiemetic, NG decompression if vomiting persists.

⑤ TAKE ACTION

Notify HCP STAT

Call HCP. Initiate large-bore IV access & bolus per order. Strict I&O. Reposition for comfort. Monitor q15 min until stable. Anticipate ICU transfer.

⑥ EVALUATE OUTCOME

Confirm Improvement

Goal: BP ≥ 90 systolic, HR < 100, pain ≤ 4/10, urine output ≥ 30 mL/hr, trending amylase/lipase. Reassess for organ failure (renal, respiratory).

7 Patient & Family Education

TEACH-BACK PRIORITIES

- **Bring an escort.** Sedation & anesthesia mean no driving, no major decisions, and no return to work for 24 hrs.
- **NPO timing matters.** Most procedures = nothing by mouth 6–12 hrs. Sips of water with essential meds may be allowed per HCP.
- **Bowel prep is the test.** Inadequate prep = repeat colonoscopy. Stool should be clear yellow, no solid matter.
- **Hold blood thinners** per HCP — typically 3–7 days for warfarin, 1–2 days for DOACs, 7 days for aspirin/NSAIDs (if allowed).
- **Sore throat & bloating are normal** after EGD/colonoscopy. Lozenges, warm liquids, walking help.
- **Call HCP for:** severe pain, fever >101°F, heavy bleeding, persistent vomiting, chest pain, SOB.
- **Barium → chalky white stools** for 24–72 hrs. Take a laxative as directed; push fluids.
- **Liver biopsy:** bedrest 12–24 hrs, right side first 2 hrs, no heavy lifting × 1 wk.

8 Memory Boosters & Mnemonics

PATTERN RECOGNITION

Post-EGD Priorities

"GAG-NPO"

- **G** ag reflex must return BEFORE oral intake
- **A** ssess for sore throat (expected) vs. chest pain (perforation)
- **G** auge VS — bleeding/aspiration risk × 24 hrs
- **NPO** until safe swallow confirmed

Liver Biopsy Position

"RIGHT & TIGHT"

- **RIGHT** side-lying for ≥2 hours
- **T** ighten compression — pillow under site
- **I** mmobilize / bedrest 12–24 hrs
- **G** auge VS q15 min × 1 hr, then per protocol
- **H** old breath on inspiration during biopsy itself
- **T** ype & screen pre-procedure (bleed risk)

Bowel Prep Quality

ERCP Top Complication

"CLEAR YELLOW"

- **C** lear liquids 24 hrs before
- **L** axative bowel prep — drink it ALL
- **E** lectrolyte watch (K^+, Na^+) in elderly
- **A** void red liquids (mistaken for blood)
- **R** esult goal: stool runs clear yellow

"ABCDE"

- **A** mylase & lipase ↑↑ (#1 sign)
- **B** ack-radiating epigastric pain
- **C** holangitis (Charcot's triad — fever, jaundice, RUQ pain)
- **D** amage check — perforation, bleeding
- **E** nteral rest = NPO + fluids + pain control

Universal Pre-Procedure Checklist

- **Consent** signed BEFORE sedation
- **IV access** patent
- **Dentures & jewelry** removed
- **NPO** status verified
- **Baseline VS** documented
- **Void** before paracentesis or pelvic scan
- **Allergies** — esp. iodine, latex, shellfish
- **Labs** reviewed (PT/INR, plt, BUN/Cr)
- **Anticoag** held per HCP order
- **Pregnancy test** if applicable