NGN NCLEX 2026 • STUDENT'S STUDY SERIES

# GI Procedures

Endoscopic, radiologic, and invasive diagnostics — with full pre-procedure & post-procedure nursing care

GASTROINTESTINAL SYSTEM

## 1. Definition & Overview

**What they are:** Diagnostic and therapeutic procedures used to visualize, biopsy, treat, or decompress structures of the gastrointestinal tract — from oropharynx to rectum, plus accessory organs (liver, gallbladder, pancreas).

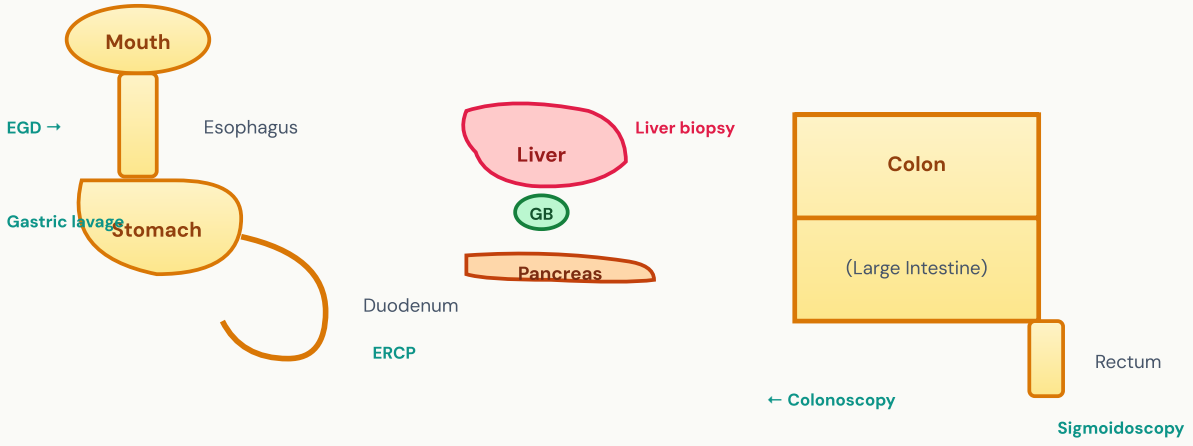
**Why they matter:** The NCLEX heavily tests *which procedure requires what prep, what the priority post-op assessment is*, and *which complication is life-threatening*. Confusing pre- and post-op care is the #1 student error.

**Universal principle:** Most invasive GI procedures require **NPO 6–12 hours**, **signed informed consent**, and **baseline VS** before. Most require **gag reflex check** or **VS monitoring** after.

**NCJMM focus:** Recognize the post-procedure red flag → bleeding, perforation, aspiration, peritonitis. The classic NCLEX trap is *resuming food before the gag reflex returns*.

## 2. The GI Tract — Procedure Map

### Where Each GI Procedure Visualizes




*Endoscopic procedures enter through natural orifices (mouth or rectum); invasive procedures (paracentesis, liver biopsy) cross the abdominal wall.*

# 3. Endoscopic Procedures

## EGD *(Esophagogastroduodenoscopy)*

UPPER ENDOSCOPY

*Visualize esophagus, stomach, duodenum • Biopsy • Cauterize bleeding • Remove polyps*

### PRE-PROCEDURE

- **NPO 6–8 hours** before to prevent aspiration
- Verify **signed informed consent**
- Remove dentures, partial plates, eyeglasses
- Establish IV access for sedation (midazolam/Versed, fentanyl)
- Baseline VS, allergies, anticoagulant review
- Topical anesthetic to throat (lidocaine spray) — numbs gag reflex

### POST-PROCEDURE

- **NPO until gag reflex returns** — touch back of throat with tongue blade
- Monitor VS q15min until stable, then per protocol
- Position **side-lying** until alert (prevent aspiration)
- Expect **mild sore throat** — saline gargles, lozenges once gag returns
- Assess for bleeding, fever, abd/chest pain (perforation)
- Driver required — sedation impairs judgment 12–24 hr

**RED FLAGS:** Sharp chest/abdominal pain, fever, dyspnea, subcutaneous emphysema, bloody emesis, hypotension = **perforation**. Notify HCP immediately.

## Colonoscopy

LOWER ENDOSCOPY

*Visualize entire colon to cecum • Polyp removal • Cancer screening (recommended q10yr starting age 45)*

### PRE-PROCEDURE

- **Clear liquid diet 24–48 hr** before (no red, purple, orange dyes)
- **NPO 6–8 hr** before procedure
- **Bowel prep**: PEG (GoLYTELY), magnesium citrate, or sodium phosphate — until stool runs clear/yellow
- Hold iron supplements 5–7 days prior (stains colon)
- Hold anticoagulants per HCP order
- Signed informed consent; baseline VS; IV for moderate sedation

### POST-PROCEDURE

- VS q15min until stable
- Expect **flatus and mild cramping** from air insufflation — encourage ambulation
- Resume diet gradually once alert; advance as tolerated
- Monitor for rectal bleeding (small streak normal after biopsy)
- Assess for **severe abdominal pain, distention, rigid abdomen**
- Driver required; no driving/decisions × 24 hr

**RED FLAGS:** Severe abdominal pain, distention, rigidity, fever, frank rectal bleeding, hypotension, tachycardia = **perforation or hemorrhage**.

## Sigmoidoscopy

LOWER ENDOSCOPY

*Visualize sigmoid colon and rectum only (~60 cm) • Less prep than colonoscopy*

**PRE-PROCEDURE**

- Clear liquid diet day before
- Two cleansing enemas morning of procedure (or per HCP)
- Usually **no IV sedation** needed (shorter scope)
- Signed consent; position **left Sims/left lateral**
- Privacy, drape appropriately

**POST-PROCEDURE**

- Resume normal diet/activity (no sedation = quick recovery)
- Expect mild flatus, cramping
- Small amount of rectal bleeding may occur if biopsy taken
- Monitor for severe pain, persistent bleeding, fever

## ERCP *(Endoscopic Retrograde Cholangiopancreatography)*

HIGH-RISK ENDOSCOPY

*Visualize pancreatic & common bile ducts • Stone removal • Stent placement • Sphincterotomy*

**PRE-PROCEDURE**

- **NPO 6–8 hr**
- Signed consent; explain contrast/dye is used (assess **iodine/shellfish allergy**)
- IV access; baseline VS, amylase, lipase
- Moderate sedation (versed + fentanyl) or anesthesia
- Hold metformin 24–48 hr (contrast risk)

**POST-PROCEDURE**

- **NPO until gag reflex returns**, then clear liquids → advance
- VS q15min × 2 hr; monitor closely for **post-ERCP pancreatitis** (#1 complication)
- Monitor amylase & lipase trends
- Position side-lying until alert
- Assess for severe abd/back pain, fever, bleeding, jaundice

**RED FLAGS:** Severe epigastric pain radiating to back + ↑ amylase/lipase = **post-ERCP pancreatitis**. Also watch for cholangitis (Charcot triad: fever + jaundice + RUQ pain) and perforation.

# 4. Radiologic / Contrast Procedures

## Barium Swallow / Upper GI Series

RADIOLOGIC

*Visualize esophagus, stomach, duodenum via swallowed contrast • Detects strictures, hiatal hernia, ulcers*

**PRE-PROCEDURE**

- **NPO 8–12 hr** before
- Hold opioids/anticholinergics (slow GI motility)
- No smoking morning of test (stimulates secretions)
- Inform: chalky barium drink, may flavor it
- No consent typically needed (non-invasive)

**POST-PROCEDURE**

- ↑ **Fluids** to flush barium and prevent impaction
- Administer **mild laxative** (e.g., milk of magnesia) per order
- Inform stools will be **chalky white for 24–72 hr** — normal
- Resume normal diet
- Monitor for constipation/impaction (especially elderly)

**RED FLAG:** Failure to expel barium → **fecal impaction or barium obstruction**. Persistent abdominal distention, no BM, no flatus = notify HCP.

## Barium Enema / Lower GI Series

RADIOLOGIC

*Visualize colon via rectally-instilled contrast • Detects polyps, diverticula, tumors, obstruction*

**PRE-PROCEDURE**

- Clear liquid diet 24 hr before
- **NPO after midnight**
- Bowel prep: laxatives + cleansing enemas until clear
- Hold iron supplements (stains stool dark)
- **Contraindicated in suspected perforation or obstruction**

**POST-PROCEDURE**

- ↑ **Fluids** + **laxative** to expel barium
- Stools chalky white 24–72 hr — normal finding
- Rest — patients tire from prep + procedure
- Monitor for impaction, abdominal pain, distention

# 5. Invasive & Specialty Procedures

## Liver Biopsy

INVASIVE

*Percutaneous needle sampling of liver tissue • Diagnose cirrhosis, hepatitis, malignancy*

**PRE-PROCEDURE**

- **NPO 6–8 hr**; signed consent
- **Verify coagulation labs**: PT/INR, PTT, platelets, H&H, type & cross
- Hold anticoagulants/aspirin/NSAIDs per HCP
- Baseline VS
- Position **supine with right arm above head**
- Teach patient to **exhale and hold breath** during needle insertion (prevents diaphragm puncture)

**POST-PROCEDURE**

- **Position on RIGHT side × 1–2 hr** with pillow under site (tamponades bleeding)
- Bed rest 6–24 hr
- VS q15min × 2 hr, then q30min × 4 hr (per protocol)
- Monitor for bleeding (#1 complication), bile peritonitis, pneumothorax
- Assess pain — may radiate to **right shoulder** (referred)
- Avoid heavy lifting × 1 week

**RED FLAGS:** ↓ BP, ↑ HR, pallor, restlessness, severe RUQ/right shoulder pain = **internal hemorrhage**. Liver is highly vascular — bleeding is the #1 cause of death.

## Paracentesis

INVASIVE

*Removal of ascitic fluid from peritoneal cavity • Diagnostic (cytology) or therapeutic (relief of pressure)*

**PRE-PROCEDURE**

- Signed consent; baseline VS, weight, abdominal girth
- **Have client void** immediately before — prevents bladder puncture
- Position: **upright/Fowler's or sitting on edge of bed** — fluid pools in lower abdomen
- Verify coagulation labs
- Local anesthetic at site (no general sedation)

**POST-PROCEDURE**

- Apply pressure dressing to puncture site
- VS q15min × 1 hr; monitor for **hypovolemia/hypotension** (rapid fluid removal)
- Document fluid amount, color, character; send specimens to lab
- Reweigh and remeasure abdominal girth
- Monitor for leakage at site, peritonitis (fever, abd pain, rigidity)
- Albumin replacement may be ordered if >5L removed

**RED FLAGS:** Hypotension, tachycardia, pallor after fluid removal = **fluid shift/hypovolemic shock**. Fever + rebound tenderness = **peritonitis**.

### Gastric Analysis

DIAGNOSTIC

*Aspiration of gastric contents via NG tube to measure HCl acid output • Evaluates ulcer, Zollinger-Ellison*

**PRE-PROCEDURE**

- **NPO 8–12 hr**
- Hold meds that affect gastric secretion: **antacids, H2 blockers, PPIs, anticholinergics** 24 hr prior
- No smoking (stimulates acid)
- Insert NG tube; verify placement

**POST-PROCEDURE**

- Remove NG tube; provide oral hygiene + sip of water
- Resume diet and meds
- Monitor for nasal/throat irritation

### Gastric Lavage

THERAPEUTIC

*Continuous irrigation of stomach via NG tube • For poisoning/overdose, GI hemorrhage*

**PRE-PROCEDURE**

- Position **left lateral, head down** (prevents aspiration)
- Insert large-bore NG/orogastric tube; **verify placement**
- Have suction equipment ready
- For GI hemorrhage: use **iced tap water** (vasoconstriction)
- **Contraindicated** in caustic ingestion or petroleum-based poisoning

**POST-PROCEDURE**

- Continue lavage **until return is clear** (for hemorrhage)
- Save specimens for toxicology if overdose
- Monitor airway, VS, electrolytes
- Activated charcoal may follow (if non-caustic)
- Strict I&O, gastric output measurement

## 6. Signs & Symptoms of Complications

**⚠ EARLY / EXPECTED FINDINGS**

- Mild sore throat (post-EGD/ERCP)
- Mild abdominal cramping, flatus (post-colonoscopy)
- Small streak of blood in stool after biopsy
- Chalky white stool 24–72 hr after barium
- Drowsiness from sedation × 12–24 hr
- Mild puncture-site soreness (paracentesis, biopsy)

**LATE / RED-FLAG FINDINGS**

- **Perforation:** sharp pain, fever, rigid abdomen, subQ emphysema
- **Hemorrhage:** ↓ BP, ↑ HR, pallor, hematemesis, melena
- **Aspiration:** dyspnea, crackles, ↓ $SpO_2$, fever
- **Post-ERCP pancreatitis:** severe epigastric pain, ↑ amylase/lipase
- **Peritonitis:** fever, rebound tenderness, rigidity
- **Barium impaction:** no BM, distention, severe constipation

## 7. Priority Nursing Interventions

### AIRWAY FIRST

**Assess gag reflex** before any oral intake post-EGD/ERCP. Position side-lying until alert. Suction at bedside.

### VITAL SIGNS

Monitor q15min × 1–2 hr post-procedure, then per protocol. Watch trend, not single readings.

### BLEEDING SURVEILLANCE

**Liver biopsy = right side × 1–2 hr**. Watch for hypotension, tachycardia, pallor — earliest signs of internal bleed.

### NPO STATUS

Maintain NPO **until gag reflex returns**. Then advance: ice chips → clear liquids → diet as tolerated.

### BARIUM ELIMINATION

Push fluids + laxative post-barium studies. Document first BM and that stools are no longer chalky.

### CONSENT & SAFETY

Verify consent before sedation. Allergies (iodine for ERCP). Driver arranged. Side rails up post-sedation.

### PAIN ASSESSMENT

Differentiate **expected discomfort** (mild cramping, sore throat) from **warning pain** (sharp, severe, radiating).

### VOID BEFORE PARACENTESIS

Empty bladder immediately before — non-negotiable safety step to prevent bladder puncture.

## 8. Pharmacology — Drugs Used in GI Procedures

| DRUG / CLASS | USE | KEY SIDE EFFECTS | NURSING PRIORITY |
|---|---|---|---|
| **Midazolam (Versed)** Benzodiazepine | Moderate sedation for endoscopy | Respiratory depression, hypotension, amnesia | Monitor RR & $SpO_2$; reversal = **flumazenil** |
| **Fentanyl** Opioid analgesic | Pain control during procedure | Respiratory depression, hypotension, bradycardia | Monitor RR; reversal = **naloxone (Narcan)** |
| **Propofol (Diprivan)** General anesthetic | Deep sedation for ERCP/colonoscopy | Respiratory depression, hypotension, ↑ triglycerides | Anesthesia provider only; airway equipment ready |
| **Lidocaine spray** Topical anesthetic | Numbs gag reflex pre-EGD | Loss of gag reflex (intentional but risky for aspiration) | **NPO until gag returns** — touch tongue blade to back of throat |
| **PEG-3350 (GoLYTELY)** Osmotic laxative | Bowel prep for colonoscopy | Cramping, nausea, electrolyte imbalance | Drink 8 oz q10min until clear; chill to improve taste |
| **Magnesium citrate** Saline laxative | Bowel prep | Dehydration, hypermagnesemia (caution: renal pts) | Push fluids; monitor renal function |
| **Albumin 25%** Colloid | Volume replacement post-large-volume paracentesis | Fluid overload, allergic reaction | Monitor lung sounds, BP, JVD |
| **Activated charcoal** | Post-lavage poisoning | Black stools, constipation | **Contraindicated** in caustic/petroleum ingestion |

## 9. NCLEX Test Traps ⚠️

| ✗ WRONG | ✓ RIGHT |
| --- | --- |
| Offer the post-EGD client ice chips as soon as they wake up. | **Check gag reflex first**. Nothing PO until intact — risk of aspiration. |
| Position the post-liver-biopsy client on their LEFT side or supine. | **Right side × 1–2 hr** with pillow under site — pressure tamponades bleeding. |
| Skip voiding before paracentesis — patient says they "just went." | **Void IMMEDIATELY before** the procedure. Full bladder = puncture risk. |
| Reassure patient that white chalky stools after barium = serious problem. | White stool × 24–72 hr is **EXPECTED**. The real concern is *no* stool — impaction. |
| Document mild abdominal pain post-ERCP as "expected" and reassess in 4 hr. | Severe epigastric pain + ↑ amylase/lipase = **post-ERCP pancreatitis**. Notify HCP. |
| Hold the colonoscopy when pre-op bowel return is "yellow tinged." | Bowel prep is complete when stool returns **clear/yellow liquid** — proceed. |
| Give activated charcoal after gastric lavage for any poisoning. | **Contraindicated** in caustic substances and petroleum-based products (bigger damage on the way back up). |

## NCJMM 10. Clinical Judgment Scenario

***Scenario:*** *A 68-year-old client returns to the unit 30 minutes after a liver biopsy. VS on arrival: BP 128/76, HR 78, RR 16, $SpO_2$ 97%. The client is positioned on the right side with a pillow under the puncture site. One hour later, you reassess: BP 96/58, HR 116, RR 22, $SpO_2$ 95%. The client is restless, slightly diaphoretic, and reports "achy pain" in the right shoulder. Dressing is dry.*

**RECOGNIZE CUES**

↓ BP, ↑ HR, ↑ RR, restlessness, diaphoresis, right shoulder pain (referred from diaphragm/liver capsule). Dry dressing does *not* rule out internal bleed.

**ANALYZE CUES**

Pattern fits **internal hemorrhage** — liver is highly vascular. Trend of vitals from baseline is more significant than absolute values. Right shoulder pain = classic referred hepatic pain.

**PRIORITIZE / TAKE ACTION**

Maintain right-side position; **notify HCP immediately**; obtain stat H&H, type & cross; establish/verify large-bore IV; prepare for fluid resuscitation/transfusion; raise foot of bed.

**EVALUATE OUTCOMES**

BP stabilizes ≥ 90/60 after fluids; HR < 100; H&H stable; pain controlled; mental status improves. Surgery consult if hemorrhage continues.

## 11. Patient & Family Education

**BEFORE PROCEDURE**

- ✓ Follow NPO instructions strictly
- ✓ Complete bowel prep until clear
- ✓ Disclose all meds, herbals, allergies
- ✓ Arrange a driver — no driving × 24 hr

**DURING RECOVERY**

- ✓ Sore throat is normal — saline gargle, lozenges
- ✓ Mild bloating/flatus is expected
- ✓ Drink extra fluids after barium studies
- ✓ Use prescribed laxative as ordered

**WHEN TO CALL HCP**

- ✓ Severe abd, chest, or shoulder pain
- ✓ Fever > 101°F (38.3°C)
- ✓ Bloody vomit, large amounts of rectal bleeding
- ✓ Black tarry stools, dizziness, fainting

**ACTIVITY RESTRICTIONS**

- ✓ No driving × 24 hr after sedation
- ✓ No heavy lifting × 1 wk after biopsy
- ✓ Resume diet gradually
- ✓ Resume meds per HCP (esp. anticoagulants)

## 12. Memory Boosters & Mnemonics

### POST-ENDOSCOPY PRIORITY

**G.A.G.**

**G**ag reflex — check first
**A**spiration prevention — side-lying
**G**ive nothing PO until intact

### LIVER BIOPSY POSITION

**"R" RULES**

**R**ight side after
**R**oll a pillow under site
**R**est × 6–24 hours
*(Bleeding is the #1 risk!)*

### PARACENTESIS PREP

**V.O.W.**

**V**oid first (empty bladder)
**O**btain weight + girth
**W**aist up — Fowler's position

### BARIUM AFTERCARE

**F.L.U.S.H.**

**F**luids — push them
**L**axative (mild) ordered
**U**sually white stool 1–3 days
**S**tool monitoring (no BM = call!)
**H**ydration, hydration, hydration

### POST-ERCP DANGER

**"PAIN-PIE"**

**P**ancreatitis (#1 complication)
**I**nfection (cholangitis)
**E**levated amylase/lipase
*Charcot's triad: Fever + Jaundice + RUQ pain = cholangitis*

### BOWEL PREP RULE

**CLEAR**

**C**lear liquid diet 24 hr
**L**axatives until clear return
**E**liminate red/purple/orange dyes
**A**void iron supplements 5–7d
**R**eturn must be clear yellow