NGN NCLEX 2026 · GI / DIAGNOSTIC PROCEDURES

Gastrointestinal *Procedures*

Endoscopic, radiologic, and invasive GI diagnostics — pre-procedure preparation, intra-procedure considerations, post-procedure nursing care, complication recognition, and clinical judgment for the Next Generation NCLEX.

EGD · Colonoscopy · ERCP | Barium Studies | Liver Biopsy · Paracentesis | NCJMM Framework | Priority & Safety

1 Definition & Overview

What GI procedures are and why nurses must master them.

GI procedures are diagnostic and therapeutic interventions used to visualize, biopsy, treat, or decompress the gastrointestinal tract. They range from non-invasive radiologic studies to invasive endoscopic and percutaneous procedures requiring sedation and sterile technique.

The nurse's role spans **pre-procedure preparation** (consent, NPO, bowel prep, allergies, baseline VS), **intra-procedure monitoring** (sedation, positioning, airway), and **post-procedure surveillance** for the major GI emergencies: **perforation, hemorrhage, aspiration, and post-ERCP pancreatitis**.

PROCEDURE CATEGORIES

Upper Endoscopy: EGD, ERCP

Lower Endoscopy: Colonoscopy, Sigmoidoscopy

Radiologic: Barium Swallow (UGI), Barium Enema (LGI)

Invasive: Liver biopsy, Paracentesis

Tube/Lavage: NG insertion, Gastric analysis & lavage

2 Pathophysiology & Procedure Rationale

Why each procedure matters — and how complications develop.

The **major risks** of GI procedures share a common mechanical pathway: the GI tract is a hollow, vascular, bacteria-rich organ system. Any instrumentation creates risk of **perforation** (tearing), **hemorrhage** (vascular injury), **infection/peritonitis** (bacterial spillage), and **aspiration** (sedation + diminished gag).

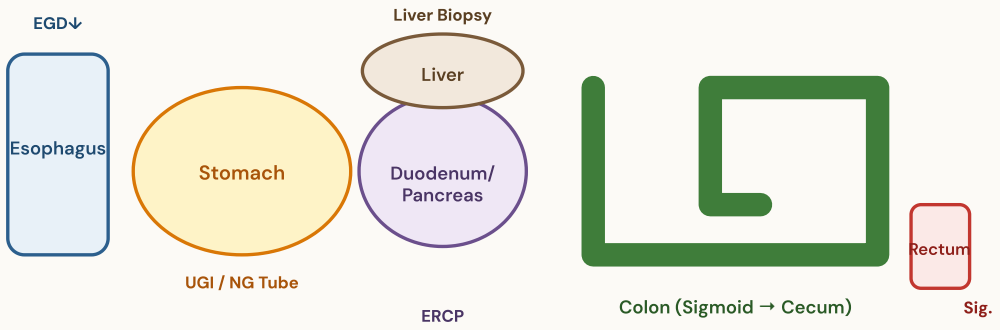
Instrumentation → Scope, needle, or barium introduced

Tissue Trauma → Mucosal injury, vessel rupture, capsule puncture

Bleed / Leak → Hemorrhage, perforation, bile/enzyme release

Systemic Effect → Shock, peritonitis, pancreatitis, sepsis

GI Tract Reference — Where Each Procedure Visualizes



3 The Procedures · Pre & Post Care

Each procedure with purpose, prep, recovery, and red flags.

EGD — Esophagogastroduodenoscopy

UPPER ENDOSCOPY

Visualizes esophagus, stomach, duodenum · biopsy, polyp removal, varices banding, foreign body retrieval, ulcer treatment.

PRE-PROCEDURE

- **NPO 6–8 hr** before procedure
- Signed informed consent & review allergies (especially lidocaine)
- Remove dentures & partials before procedure
- IV access for moderate sedation (midazolam, fentanyl) + topical throat anesthetic
- Baseline VS, O_2 sat; have suction, ambu bag, naloxone/flumazenil ready

POST-PROCEDURE

- **Withhold food/fluids until gag reflex returns** (priority — risk of aspiration)
- Position **side-lying** until alert
- VS q15min × 1 hr, then per protocol
- Mild sore throat normal — saline gargles, lozenges after gag returns
- Driver required; no driving × 24 hr after sedation

RED FLAGS: Severe abdominal/chest pain, fever, dyspnea, subcutaneous emphysema in neck, bloody emesis, hypotension → suspect **perforation or hemorrhage**. Notify HCP immediately.

Colonoscopy

LOWER ENDOSCOPY

Visualizes entire colon to cecum · polyp removal, biopsy, screening (q10yr starting age 45).

PRE-PROCEDURE

- **Clear liquid diet 24–48 hr** prior — **NO red, purple, or orange dyes** (mimic blood)
- **NPO 6–8 hr** before procedure
- Bowel prep: PEG (GoLYTELY), magnesium citrate — until rectal effluent runs **clear/yellow**
- Hold iron 5–7 days prior (stains colon black)
- Hold anticoagulants per HCP; signed consent; IV for sedation

POST-PROCEDURE

- VS q15min until stable; monitor for sedation effects
- **Encourage flatus** (air insufflated during scope) — ambulation helps
- Mild cramping is expected; small streak of blood OK if biopsy taken
- Resume diet gradually once alert
- No driving × 24 hr

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

Sigmoidoscopy

LOWER ENDOSCOPY

Visualizes sigmoid colon & rectum (~60 cm) · less prep, often no sedation needed.

PRE-PROCEDURE

- Clear liquid diet day before
- 2 cleansing enemas the morning of procedure (or per HCP)
- Usually **no IV sedation** needed
- Position **left Sims (left lateral)**; signed consent; drape for privacy

POST-PROCEDURE

- Resume diet/activity quickly (no sedation = quick recovery)
- Expect mild cramping & flatus
- Small amount of bleeding OK if biopsy
- Monitor for severe pain, persistent bleeding, fever

ERCP — Endoscopic Retrograde Cholangiopancreatography

UPPER ENDOSCOPY · BILIARY

Visualizes biliary tree & pancreatic duct · stone removal, stent placement, sphincterotomy, contrast injection of ducts.

PRE-PROCEDURE

- **NPO 6–8 hr** before procedure
- **Verify iodine/shellfish allergy** — contrast medium used
- Signed consent; baseline VS, O_2 sat
- IV moderate sedation; topical throat anesthetic
- Baseline lipase & amylase ordered

POST-PROCEDURE

- Withhold food/fluids until **gag reflex returns**
- VS q15min; monitor for sedation reversal needs
- **Watch for post-ERCP pancreatitis** (#1 complication, ~5%)
- Trend amylase/lipase; assess for severe epigastric pain radiating to back
- Side-lying position until alert

RED FLAGS: Severe epigastric pain radiating to back, ↑ amylase/lipase, fever, chills, jaundice = **post-ERCP pancreatitis or cholangitis.** Perforation also possible.

Barium Swallow / Upper GI Series

RADIOLOGIC · UPPER GI

X-ray contrast study of esophagus, stomach, duodenum · evaluate dysphagia, ulcers, strictures, hiatal hernia.

PRE-PROCEDURE

- **NPO 8–12 hr** (after midnight)
- Hold opioids/anticholinergics (slow GI motility)
- No smoking or chewing gum (stimulates secretions)
- Patient drinks chalky barium contrast during fluoroscopy

POST-PROCEDURE

- **Push fluids** & administer prescribed laxative (prevent barium impaction)
- Stools will be **chalky white 24–72 hr** — document return to normal color
- Resume normal diet
- Educate: report no BM >48 hr or severe constipation/abd pain

RED FLAGS: Severe abdominal pain, no BM >48 hr, distention = **barium impaction.** Stop barium; notify HCP.

Barium Enema / Lower GI Series

RADIOLOGIC · LOWER GI

X-ray contrast study of colon & rectum via enema route · evaluate diverticulitis, polyps, strictures, IBD.

PRE-PROCEDURE

- Clear liquid diet 24 hr before
- **NPO after midnight**
- Bowel prep: laxatives + cleansing enemas until clear
- Barium administered **rectally** during fluoroscopy
- Verify no recent barium swallow done first (would obscure colon)

POST-PROCEDURE

- **Push fluids** & give prescribed laxative
- Stools chalky white until barium clears
- Rest; expect cramping/fatigue from prep
- Educate: report no BM, distention, abdominal pain

Liver Biopsy

PERCUTANEOUS · INVASIVE

Percutaneous needle sampling of liver tissue · diagnose hepatitis, cirrhosis, malignancy.

PRE-PROCEDURE

- **NPO 6–8 hr** before procedure
- **Verify coagulation labs:** PT, INR, aPTT, platelets — bleeding risk
- Type & crossmatch blood (have available)

POST-PROCEDURE

- **Position on RIGHT side × 1–2 hr** (compresses liver capsule against ribs to prevent bleeding) — high-yield NCLEX!
- Bed rest × 12–24 hr
- VS q15min × 1 hr, then per protocol — watch for hemorrhage

- Hold anticoagulants per HCP order
- Position **supine with right arm above head**; teach to **exhale & hold breath** during needle insertion

- Monitor for hypotension, tachycardia, pallor, RUQ pain, referred shoulder pain
- Avoid coughing/straining × 24 hr

RED FLAGS: Hypotension, tachycardia, pallor, severe RUQ pain, **right shoulder pain** (peritoneal/diaphragm irritation from bleed) = **hemorrhage or bile leak**. Notify HCP STAT.

Paracentesis

PERCUTANEOUS · ABDOMINAL

Removal of ascitic fluid from peritoneal cavity · therapeutic relief of dyspnea/pressure or diagnostic fluid analysis.

PRE-PROCEDURE

- **Have client VOID immediately before** — empty bladder prevents accidental puncture
- Weigh patient; measure abdominal girth at umbilicus
- Position **upright, sitting, or high Fowler's** (fluid pools in lower abdomen)
- Baseline VS; signed consent
- Coagulation labs may be ordered

POST-PROCEDURE

- VS q15min × 1 hr — monitor for **hypotension/shock** from fluid shift
- Apply dressing; assess for leakage
- Re-weigh & remeasure abdominal girth
- Albumin may be infused if >5 L removed (prevents hypovolemia)
- Document fluid color, amount, send to lab

RED FLAGS: Hypotension, tachycardia, oliguria after large-volume drain = **hypovolemic shock/fluid shift**. Fever, abdominal rigidity = **peritonitis**.

Gastric Analysis & Lavage

TUBE · GASTRIC

NG tube used to sample gastric contents (acid output) or to irrigate stomach for hemorrhage / overdose.

PRE-PROCEDURE

- **NPO 8–12 hr** before gastric analysis
- Hold anticholinergics, antacids, H2 blockers, PPIs (alter results)
- No smoking the morning of (stimulates acid)
- Insert NG tube; verify placement (pH, x-ray) before use

POST-PROCEDURE / LAVAGE

- Lavage with **iced saline** for hemorrhage (cold = vasoconstriction)
- Continue irrigation until return is **clear**
- Maximum suction **≤ 25 mmHg** (Salem sump) to protect mucosa
- Maintain accurate I&O; monitor electrolytes
- Frequent oral & nares care

Nasogastric (NG) Tube Insertion

TUBE INSERTION

Tube from nares → stomach for decompression, gavage (feeding), lavage, or medication administration.

PRE-INSERTION

- Position **high Fowler's, head slightly extended**
- Measure: **tip of nose → earlobe → xiphoid process**
- Lubricate tip with water-soluble lubricant
- Once at oropharynx, **flex neck forward** & have patient sip water/swallow

POST-INSERTION / MAINTENANCE

- **Verify placement BEFORE every use**: 1) external length, 2) pH of aspirate (gastric <5.5), 3) x-ray gold standard at initial insertion
- Frequent oral & nares care (mouth-breather)
- Replace long-term tube every 2–3 weeks
- After removal: oral hygiene + sips of water

4 Signs & Symptoms — Expected vs Red Flag

Differentiate normal recovery from emergent complications.

✓ EXPECTED / NORMAL FINDINGS

- ✓ Mild sore throat post-EGD/ERCP (lasts 24–48 hr)
- ✓ 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)
- ✓ Hoarseness post-EGD (transient)
- ✓ Small bruise/ecchymosis at biopsy site

RED FLAG / EMERGENT FINDINGS

- ⚠ **Perforation:** sharp pain, fever, rigid abdomen, subcutaneous emphysema, ↑ HR, ↓ BP
- ⚠ **Hemorrhage:** ↓ BP, ↑ HR, pallor, hematemesis, melena, frank bleeding
- ⚠ **Aspiration:** dyspnea, crackles, ↓ SpO_2, fever, productive cough
- ⚠ **Post-ERCP pancreatitis:** severe epigastric pain → back, ↑ amylase/lipase
- ⚠ **Peritonitis:** fever, rebound tenderness, board-like rigidity
- ⚠ **Barium impaction:** no BM >48 hr, distention, severe constipation
- ⚠ **Liver bleed:** RUQ pain, **right shoulder pain**, hypotension
- ⚠ **Hypovolemia post-paracentesis:** hypotension, tachycardia, oliguria

5 Priority Nursing Interventions · ABCs Framework

Action verbs for the test: assess, monitor, position, withhold, notify.

A · AIRWAY FIRST

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

B · BREATHING

Monitor **O_2 sat continuously** during sedation. Assess for aspiration: crackles, dyspnea. Have **flumazenil & naloxone** available for sedation reversal.

C · CIRCULATION

VS q15min × 1 hr post-procedure. Watch trends — hypotension + tachycardia = early hemorrhage or hypovolemia. IV access patent.

POSITION STRATEGICALLY

Liver biopsy → RIGHT side × 1–2 hr (compresses liver). **Sigmoidoscopy → left Sims**. **Paracentesis → upright**. NG insertion → high Fowler's.

VERIFY & DOCUMENT

Verify NG placement before every use (pH, length, x-ray). Verify **consent & allergies** (iodine/shellfish for ERCP). Document baselines.

SURVEILLANCE

Monitor for **perforation, hemorrhage, pancreatitis**. Track abdominal girth post-paracentesis. Document first BM post-barium. Trend amylase/lipase post-ERCP.

NPO MANAGEMENT

Maintain NPO until gag reflex returns post-EGD/ERCP. Then progress: **ice chips → clear liquids → diet as tolerated**. Push fluids post-barium.

BOWEL & BLADDER

Empty bladder before **paracentesis**. Prep colon to clear effluent before colonoscopy. Push fluids + laxative post-barium to prevent impaction.

FAMILY / DISCHARGE

No driving × 24 hr after sedation. Driver required. Educate on red flags requiring HCP/ER call. Verify follow-up appointment for biopsy results.

6 Pharmacology · Procedural & Reversal Agents

Sedation, reversal, contrast, and bowel prep medications.

DRUG / CLASS	USE	SIDE EFFECTS / RISKS	NURSING CONSIDERATIONS
Midazolam (Versed) Benzodiazepine	Moderate sedation for endoscopy	Respiratory depression, hypotension, amnesia	Continuous SpO_2; have **flumazenil (Romazicon)** at bedside
Fentanyl Opioid	Procedural analgesia	Respiratory depression, bradycardia, hypotension	Have **naloxone (Narcan)** ready; monitor RR, sedation level
Flumazenil	Reverses benzodiazepine sedation	Re-sedation, seizures (esp. in chronic users)	Continue monitoring 1–2 hr post-reversal — drug may outlast it
Naloxone	Reverses opioid sedation	Withdrawal, pain rebound, tachycardia	Re-dose if respiratory depression returns; opioid often outlasts naloxone
Lidocaine spray Local anesthetic	Numbs throat for EGD/ERCP	Suppresses gag reflex (intended); allergy	**NPO until gag returns** — aspiration risk #1
PEG (GoLYTELY) Osmotic laxative	Bowel prep before colonoscopy	Nausea, bloating, electrolyte shifts	Drink chilled; complete until effluent clear/yellow
Magnesium citrate	Bowel prep	Diarrhea, electrolyte imbalance, dehydration	Avoid in renal insufficiency; ensure hydration
Iodinated contrast	ERCP, barium alternative	**Anaphylaxis**, nephrotoxicity	Verify **iodine/shellfish allergy**; pre-medicate with steroid/diphenhydramine if hx
Albumin 25%	Volume replacement post-large-volume paracentesis (>5 L)	Volume overload (cautious in HF)	Prevents post-paracentesis hypovolemia/hypotension
Vitamin K / FFP	Reverse coagulopathy pre-liver biopsy	Allergic reaction (FFP)	Verify INR < threshold before procedure

7

NCLEX Test Traps ⚠️

Common confusions students get wrong on the exam.

TRAP 1

First action post-EGD/ERCP?

✗ WRONG
Offer ice chips to soothe throat

✓ RIGHT
Assess gag reflex first — NPO until returns

TRAP 2

Position post-liver biopsy?

✗ WRONG
Left side or supine

✓ RIGHT
Right side × 1–2 hr — compresses liver capsule

TRAP 3

Before paracentesis?

✗ WRONG
Insert Foley catheter

✓ RIGHT
Have client VOID — empty bladder prevents puncture

TRAP 4

After barium study, expected stool?

✗ WRONG
Black tarry stool = melena

✓ RIGHT
Chalky white 24–72 hr is NORMAL

TRAP 5

Worst sign post-ERCP?

✗ WRONG
Mild sore throat

✓ RIGHT
Severe epigastric pain → back = pancreatitis

TRAP 6

NG placement verification before each feed?

✗ WRONG
Auscultate air bolus only

✓ RIGHT
pH of aspirate + external length; x-ray gold standard at initial

TRAP 7

Right shoulder pain post-liver biopsy?

✗ WRONG
Apply heat to shoulder

✓ RIGHT
Notify HCP STAT — referred pain = peritoneal bleed

TRAP 8

Bowel prep effluent goal?

✗ WRONG
Until brown liquid stool

✓ RIGHT
Clear/yellow liquid effluent

8 Clinical Judgment · NCJMM Framework

Next Generation NCLEX Clinical Judgment Measurement Model applied.

Scenario: A 58-yr-old client returns from a liver biopsy 90 minutes ago. VS now: BP 92/58 (was 128/76), HR 118 (was 78), RR 22, SpO_2 95%. Client reports increasing RUQ pain and a "dull ache" in the right shoulder. Skin pale and cool.

STEP 1

Recognize Cues

Hypotension, tachycardia, pallor, cool skin, RUQ pain, **referred right shoulder pain**, position not maintained?

STEP 2

Analyze Cues

Trend = compensated → decompensating shock. Shoulder pain = peritoneal/diaphragmatic irritation from intraperitoneal bleed.

STEP 3

Prioritize Hypothesis

#1 Hemorrhage from biopsy site with possible bile leak/peritonitis. Imminent hypovolemic shock.

STEP 4

Generate Solutions

Notify HCP STAT · IV bolus NS · O_2 · type & cross blood · Hgb/Hct · keep NPO · prepare for return to OR/IR.

STEP 5

Take Action

Position right side (compress site), monitor VS q5min, large-bore IV access, transfuse PRBCs per order, prepare for emergent intervention.

STEP 6

Evaluate Outcomes

BP >90/60 maintained, HR <100, pain decreasing, Hgb stable, no further drop in MAP, urine output ≥30 mL/hr.

9 Patient & Family Education

Discharge teaching for safe recovery at home.

NPO & Sedation Recovery

Nothing by mouth until gag reflex returns. Drowsiness for 12–24 hr — no driving, decisions, alcohol, or operating machinery.

Have a Driver

Someone must drive you home and stay with you for 24 hr after sedation.

Sore Throat (Endoscopy)

Mild sore throat is normal. Use saline gargles, throat lozenges, cool fluids after gag returns.

Barium Stools

Stools will be chalky white for 24–72 hr — this is normal. Drink extra fluids; take prescribed laxative. Call if no BM >48 hr.

Activity Restrictions

Liver biopsy: bed rest 12–24 hr; no heavy lifting × 1 week. Paracentesis: rest, gradual activity. Colonoscopy: normal activity next day.

Diet

Resume regular diet gradually. Increase fluids post-bowel-prep. Soft foods if sore throat.

Wound / Site Care

Keep biopsy/paracentesis site clean & dry. Watch for redness, drainage, warmth, fever.

Medications

Resume anticoagulants only when HCP says. Resume iron 3–5 days after colonoscopy if no bleeding.

CALL HCP / 911 FOR:

Severe abdominal pain, fever >101°F, bloody vomiting, frank rectal bleeding, no BM >48 hr post-barium, severe shoulder pain, dizziness/fainting, dyspnea, persistent nausea/vomiting, signs of infection at puncture site.

10

Memory Boosters & Mnemonics

Pattern recognition for the test.

POST-ENDOSCOPY

G·A·G

- **G** Gag reflex — assess first
- **A** Airway — side-lying until alert
- **G** Give nothing PO until gag returns

LIVER BIOPSY RECOVERY

R·U·L·E·S

- **R** Right side × 1–2 hr
- **U** Urgent VS monitoring
- **L** Look for shoulder pain
- **E** Exhale & hold during insertion
- **S** Stay flat × 12–24 hr

PRE-PARACENTESIS

V·O·W

- **V** Void first
- **O** Obtain weight & girth
- **W** Watch BP closely after

POST-BARIUM CARE

F·L·U·S·H

- **F** Fluids — push them
- **L** Laxative as ordered
- **U** Urge BM monitoring
- **S** Stool color (chalky → normal)
- **H** Halt: call HCP if no BM >48 hr

ERCP COMPLICATION

P·A·I·N

- **P** Pancreatitis #1 risk
- **A** Amylase & lipase trend
- **I** Iodine allergy first
- **N** NPO until gag returns

NG TUBE VERIFICATION

C·L·E·A·R

- **C** Confirm pH <5.5
- **L** Length (external mark)
- **E** Each use → re-verify
- **A** Aspirate gastric contents
- **R** Radiograph initial gold standard