GASTROINTESTINAL SYSTEM | NGN NCLEX 2026 | PHYSIOLOGICAL ADAPTATION | HIGH-YIELD

Bowel Obstruction
Mechanical & Paralytic

A disruption in the forward flow of intestinal contents. The bowel can be physically blocked (**mechanical**) or functionally paralyzed (**paralytic ileus**) — both can progress to bowel ischemia, perforation, peritonitis, and hypovolemic shock if not recognized early.

CATEGORY	PRIORITY	#1 COMPLICATION	FRAMEWORK
GI Emergency	ABC + Fluids	Perforation	NCJMM Aligned

01 — Definition & Overview

FOUNDATION

TYPE 1

M Mechanical

TYPE 2

P Paralytic (Ileus)

A **physical blockage** that prevents intestinal contents from moving forward. The bowel still tries to push — which is why the pain is **colicky/crampy** and bowel sounds are initially **hyperactive and high-pitched**.

- → Think: "The pipe is clogged"
- → Small bowel obstruction (SBO) is more common than large bowel
- → Often requires **surgical intervention**
- → Classic scenario: post-op adhesions, incarcerated hernia, tumor

A **functional / neurogenic** failure of peristalsis — no physical blockage, but the bowel stops moving. Pain is **constant & dull**, and bowel sounds are **SILENT from the start**.

- → Think: "The pipe is open but the pump is off"
- → #1 cause = **post-operative** (especially abdominal surgery)
- → Usually treated **medically**, not surgically
- → Classic scenario: post-op day 2–3, opioids, low K^+

02 — Pathophysiology Simplified

MECHANISM

Mechanical Cascade

1. **Physical blockage** in bowel lumen (adhesion / tumor / hernia)
2. Gas & fluid **accumulate proximal** to the obstruction
3. Bowel **distends** → increased peristalsis (colicky pain + high-pitched sounds)

Paralytic Cascade

1. **Insult to autonomic nervous supply** (surgery, opioids, ↓K^+, peritonitis)
2. **Peristalsis stops** — bowel becomes flaccid & silent
3. Gas & fluid **pool** in non-moving bowel → distension

4 **Capillary leak** into bowel wall & lumen → **third-spacing** → hypovolemia

5 **Venous compression** → ischemia → **strangulation & necrosis**

6 🧯 PERFORATION → peritonitis → septic shock

4 Distension → **pressure on diaphragm** → dyspnea & atelectasis

5 **Fluid / electrolyte imbalance** (especially ↓ K^+ worsens the cycle)

6 If untreated → **ischemia, perforation**, same endgame as mechanical

03 — Common Causes

ETIOLOGY

LOCATION / TYPE	MECHANICAL CAUSES	PARALYTIC CAUSES
Most Common	**Adhesions** (post-surgical) #1 SBO	**Post-operative** (especially abdominal surgery)
Structural	Hernias (incarcerated/strangulated), volvulus, intussusception, strictures, fecal impaction	Spinal cord injury, trauma, retroperitoneal bleed
Oncologic	**Tumors** #1 LBO — colorectal cancer, mass effect	Neurotoxic chemo — **Vincristine, Cisplatin** (paralytic ileus from neuropathy)
Metabolic	—	**Hypokalemia**, hypomagnesemia, uremia, hypercalcemia
Pharmacologic	—	**Opioids**, anticholinergics, antipsychotics, TCAs

Inflammatory	IBD strictures (Crohn's), radiation enteritis	Peritonitis, pancreatitis, sepsis, appendicitis

04 — Signs & Symptoms

RECOGNIZE CUES

🔴 Mechanical

PAIN

- **Colicky, crampy, wave-like** — comes & goes
- Localizes near site of blockage

BOWEL SOUNDS

- **Early:** hyperactive, high-pitched, tinkling
- **Late:** diminished → absent (bowel fatigues)

VOMITING

- **Early & projectile** if proximal (SBO)
- **Fecal emesis** if distal SBO 🚩
- Minimal / late if LBO

OTHER

- Obstipation (no stool / flatus)
- Abdominal distension — more pronounced if LBO
- Visible peristaltic waves (late/thin pts)

🔵 Paralytic

PAIN

- **Constant, dull, diffuse** — NOT colicky
- Often described as "uncomfortable fullness"

BOWEL SOUNDS

- **ABSENT or hypoactive from the start**
- "Silent abdomen" — listen ≥ 5 minutes before documenting

VOMITING

- Late & gradual — often just gastric contents
- Rarely fecal

OTHER

- **No flatus, no stool** — hallmark post-op finding
- Uniform, symmetric distension
- Dyspnea (diaphragm elevation)
- Often $\downarrow K^+$, $\downarrow Mg^+$ on labs

- Metabolic **alkalosis** (from vomiting HCl)

🚨 Sudden, severe, constant pain = strangulation / perforation

🚨 No return of flatus by post-op day 3–4 → evaluate

🚨 PRIORITY RED FLAGS — RECOGNIZE THESE IMMEDIATELY

Signs of Strangulation & Perforation

These findings mean the bowel has lost blood supply or ruptured. They require IMMEDIATE notification of the HCP and prep for emergency surgery.

Sudden pain change

Colicky pain suddenly becomes **constant, severe, unrelenting** — or pain vanishes with worsening distension (bowel ruptured).

Rigid / Board-like abdomen

Involuntary guarding + **rebound tenderness** = peritonitis until proven otherwise.

Fever + Tachycardia

Temp > 101°F, HR > 100, ↑ WBC, rising lactate → **ischemia / sepsis**.

Hypotension / Shock

Third-spacing + vomiting = hypovolemia. Watch for ↓ BP, ↓ urine output (< 30 mL/hr), cool/clammy skin.

Bloody / Coffee-ground emesis

Suggests mucosal necrosis or ischemic bowel — notify HCP immediately.

Free air under diaphragm

Classic X-ray finding of **perforation**. Requires emergent surgery.

05 — Priority Nursing Interventions

TAKE ACTION

A

Airway

Keep **HOB elevated 30–45°**. Vomiting + distension = **aspiration risk**. Suction available at bedside.

B

Breathing

Distension pushes on diaphragm → ↓ tidal volume. Monitor SpO_2, RR, lung sounds. Encourage deep breathing.

C

Circulation

IV fluids (LR or NS) — aggressive replacement for third-spacing. Large-bore IV × 2. Monitor BP, HR, urine output.

D

Decompress

NG tube to low intermittent suction (≤ 25 mm Hg). Relieves distension, prevents vomiting, "rests" the bowel.

NPO BOWEL REST	Maintain **strict NPO status**. Nothing by mouth — no ice chips, no sips. Provide oral care every 2 hours for comfort.
NG Tube DECOMPRESSION	Insert per order → **low intermittent suction**. Verify placement (measure nose→ear→xiphoid, check pH, auscultate). Measure & record output q shift. Salem sump preferred (vented lumen prevents mucosal damage).
Fluids VOLUME REPLACE	IV crystalloids (**0.9% NS or LR**) — often 2–3 L bolus then maintenance. Expect **K^+ replacement** (hypokalemia is both cause & consequence). Monitor for fluid overload in older/cardiac pts.
Monitor Q1–4 HR	**Vitals, I&O (strict), abd girth** (measure at same spot daily), bowel sounds (5 min/quadrant), pain, NG output, labs (K^+, BUN/Cr, lactate, WBC). Target urine output ≥ 30 mL/hr.
Position COMFORT + SAFETY	**Semi-Fowler's (30–45°)** to ease breathing & reduce aspiration risk. For paralytic: **early ambulation** is the key intervention to restore peristalsis.
Pain CAUTIOUS	Non-opioid or low-dose opioid. **Avoid heavy opioid use** — worsens ileus. Never give pain meds in a way that masks perforation signs before diagnosis.
Surgery Prep MECHANICAL	For complete mechanical obstruction or strangulation: **consent, labs, type & crossmatch, NPO confirmed, pre-op antibiotics**. Procedures include adhesiolysis, herniorrhaphy, resection ± colostomy.

Peritonitis Watch PRIORITY

Assess q2–4 hr for rigid abdomen, rebound tenderness, ↑ temp, ↑ HR, ↓ BP, changing LOC. **Notify HCP IMMEDIATELY** if these develop — this is a surgical emergency.

06 — Pharmacology

KEY DRUGS

DRUG / CLASS	ACTION	INDICATION	NURSING CONSIDERATIONS
0.9% NS / LR *Crystalloid*	Volume replacement, restores tissue perfusion	All bowel obstruction — correct third-spacing	Monitor lung sounds, I&O, edema. Caution in CHF/CKD — risk of overload.
Potassium Chloride *Electrolyte*	Replaces lost K^+; required for peristalsis	Hypokalemia (cause or consequence of ileus)	**Never IV push.** Max 10 mEq/hr peripheral, 20 mEq/hr central. Monitor ECG. Assess urine output before giving.
Ondansetron *Zofran · 5-HT_3 antagonist*	Blocks serotonin receptors in CTZ → ↓ nausea	N/V associated with obstruction	Watch for **QT prolongation**. Monitor for headache, constipation (paradoxical).
Alvimopan *Entereg · μ-opioid antagonist (GI)*	Blocks peripheral opioid receptors in gut — restores motility without losing central pain relief	**Post-op ileus** after bowel resection	Inpatient use only; limited to 15 doses. Cardiac caution — monitor for MI.
Metoclopramide *Reglan · Prokinetic*	Stimulates upper GI motility	Paralytic ileus / gastroparesis ONLY	⛔ CONTRAINDICATED in **mechanical** obstruction & perforation — can rupture bowel. Watch for EPS & tardive dyskinesia.
Neostigmine	↑ ACh → stimulates bowel contraction	Acute colonic pseudo-obstruction (Ogilvie's)	Cardiac monitor required — causes bradycardia. **Atropine at bedside.**

Cholinergic			
Broad-spectrum ABX *Piperacillin-tazobactam, etc.*	Cover gut flora + anaerobes	Suspected perforation, peritonitis, strangulation	Obtain cultures first if possible. Monitor renal function.
Opioids *Morphine, hydromorphone*	Pain control	Severe pain — use lowest effective dose	**Use sparingly** — worsens ileus & can mask peritonitis. Avoid if diagnosis still pending.

07 — NCLEX Test Traps

DON'T FALL FOR THESE

⚠ TRAP 01

"Give a stool softener / laxative"

~~Never~~ administer laxatives, enemas, or stool softeners with a **mechanical** obstruction — they ↑ pressure above the blockage and can cause **perforation**.

⚠ TRAP 02

Metoclopramide (Reglan) for every ileus

Reglan is safe for **paralytic** ileus only. Giving it in a **mechanical** obstruction can rupture the bowel. **Know which type you're treating.**

⚠ TRAP 03

"Absent bowel sounds = paralytic"

Not always. In **late** mechanical obstruction, bowel sounds also become absent (the bowel fatigues). Look at the **whole picture** — pain pattern, vomiting, onset.

⚠ TRAP 04

Sudden pain relief = "patient is better"

~~Wrong.~~ Sudden disappearance of pain + worsening distension often means the bowel has **perforated**. Notify HCP immediately.

⚠ TRAP 05

Heavy opioid for pain

⚠ TRAP 06

Auscultating for < 30 seconds

Opioids worsen paralytic ileus AND can mask the rigid abdomen of peritonitis. Use **lowest effective dose**; coordinate with surgical team.

To call bowel sounds **absent**, you must listen for a **full 5 minutes** in at least one quadrant. Short listening → false documentation.

⚠ TRAP 07

"Hyperactive sounds = patient is fine"

High-pitched, tinkling, hyperactive sounds are **early mechanical obstruction** — not normal. They signal a bowel fighting a blockage.

⚠ TRAP 08

Starting the NG before confirming placement

Always verify **placement first**: external measure, pH of aspirate (gastric < 5), auscultation, confirm with X-ray per policy before feeds/meds.

⚠ TRAP 09

Missing the K^+ connection

Hypokalemia causes paralytic ileus, and ileus worsens hypokalemia. Always check & correct K^+ — but **never IV push** potassium.

⚠ TRAP 10

Ambulating a strangulated patient

Early ambulation is great for **simple paralytic ileus**, but ~~NOT~~ for suspected strangulation / peritonitis — they need **emergency surgery**, not walking.

08 — NCJMM Clinical Judgment Framework

NGN 2026

NEXT GENERATION NCLEX · CLINICAL JUDGMENT MEASUREMENT MODEL

Apply the 6-Step Model to Bowel Obstruction

Every NGN item tests one or more of these layers. Learn to move fluently between them when a case study unfolds.

Step 1
Recognize Cues
Post-op pt, no flatus × 72 hr, abd distension, absent

Step 2
Analyze Cues
Silent + post-op + opioids → **paralytic**. Colicky + hyperactive

Step 3
Prioritize Hypotheses
Rule out perforation/strangulation

Step 4
Generate Solutions
NPO, NG decompression, IV

Step 5
Take Action
Place NG to low suction, start IVF per order, monitor q1–4h,

Step 6
Evaluate Outcomes
Return of bowel sounds + flatus, ↓

bowel sounds, N/V, ↓ K^+, ↓ urine output.	+ hernia → **mechanical**. Rigid + rebound → **peritonitis**.	FIRST (life-threat). Then differentiate mechanical vs paralytic.	fluids + K^+, pain mgmt, HOB ↑, surgical consult if mechanical / strangulation.	hold oral intake & Reglan if mechanical suspected.	distension/girth, ↓ NG output, UO ≥ 30 mL/hr, normalized K^+, pain controlled.

09 — Patient Education

TEACHING

Post-op Prevention

- ✓ Ambulate as soon as allowed
- ✓ Turn, cough, deep-breathe q2h
- ✓ Splint the incision with a pillow
- ✓ Chew sugar-free gum (may promote return of peristalsis)

Dietary After Recovery

- ✓ High-fiber, high-fluid diet (for long-term prevention)
- ✓ Advance slowly: clears → full liquid → soft
- ✓ Avoid large, heavy, fatty meals early
- ✓ Limit gas-forming foods initially

Report to Provider

- ✓ No stool or flatus > 2–3 days
- ✓ Abdominal distension or new severe pain
- ✓ Vomiting (especially if dark/bloody)
- ✓ Fever, chills, dizziness

Medication Awareness

- ✓ Opioids slow the bowel — request stool softener
- ✓ Stay hydrated while on iron/antacids
- ✓ Do NOT self-medicate with enemas/laxatives

Recurrence Prevention

- ✓ Treat hernias — don't delay repair
- ✓ Manage Crohn's / diverticular disease
- ✓ Complete colon cancer screening
- ✓ Avoid straining / heavy lifting post-op

Home Care Post-Discharge

- ✓ Keep incision clean & dry
- ✓ Track bowel movements & flatus daily
- ✓ Ostomy care if applicable
- ✓ Follow-up appointment within 1–2 weeks

✓ Review all meds with HCP

10 — Memory Boosters & Mnemonics

RETENTION

CLASSIC S/S MNEMONIC

VOMIT

- **V** — **Vomiting** (early in SBO, late in LBO)
- **O** — **Obstipation** — no stool, no flatus
- **M** — **Mass / distension** of abdomen
- **I** — **Intermittent** colicky pain (mechanical)
- **T** — **Tenderness** — rigid & rebound = peritonitis

ASSESSMENT MNEMONIC

BOWELS

- **B** — **Bowel sounds** (hyperactive → absent = mechanical; silent = paralytic)
- **O** — **Output** — NG output, urine output, stool/flatus
- **W** — **Weight & girth** — measure daily, same spot
- **E** — **Electrolytes** — K^+, Mg^{2+}, Na^+
- **L** — **Labs** — CBC (↑WBC), lactate, BUN/Cr
- **S** — **Symptoms** — pain quality, N/V, distension

🧠 **Quick Pattern Recognition:**

• **M**echanical = **M**achine/**M**etal blockage → "the pipe is clogged" → colicky pain + high-pitched sounds → think SURGERY.

• **P**aralytic = **P**aralyzed/**P**eaceful (silent) → "the pipe is open but the pump is off" → constant dull pain + silent abdomen → think POST-OP, OPIOIDS, ↓K^+.

• **The "5 F's" of post-op ileus risk:** *Fat* (obesity), *Forty+* (age), *Female*, *Fertile* (pelvic surgery), *Fentanyl* (opioids).

• **NEVER** give **R**eglan for **M**echanical — "**R**eglan + **M** = **R**upture."