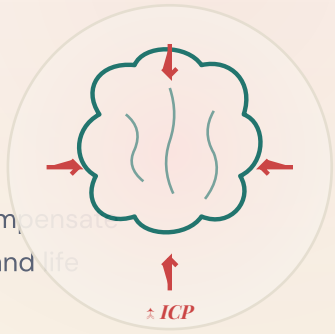
NCLEX 2026 · CLINICAL JUDGMENT SERIES

Increased *Intracranial* Pressure

A neurological emergency where the rigid cranial vault can no longer compensate for rising volume — threatening cerebral perfusion, brainstem function, and life itself.



System · Neurological | Clinical Judgment · High-Stakes | Priority Topic

NORMAL ICP	CRITICAL ICP	TARGET CPP	HOB ELEVATION
5–15 mmHg	>20 mmHg	60–70 mmHg	30° neutral
Baseline range in a supine adult	Requires urgent intervention	CPP = MAP − ICP	Head midline · no neck flexion

01 Definition & Overview

THE WHAT & THE WHY

What is it?

Increased Intracranial Pressure (ICP) is a **sustained pressure** inside the cranial vault greater than **20 mmHg**, caused by swelling, bleeding, a mass, or excess cerebrospinal fluid.

Because the skull is a **fixed, rigid box**, any added volume *must* displace something else — or pressure rises and the brain suffers ischemia.

Left untreated, rising ICP leads to **cerebral herniation and death**. Early recognition is the single most important nursing responsibility.

🧠 The Monro–Kellie Doctrine

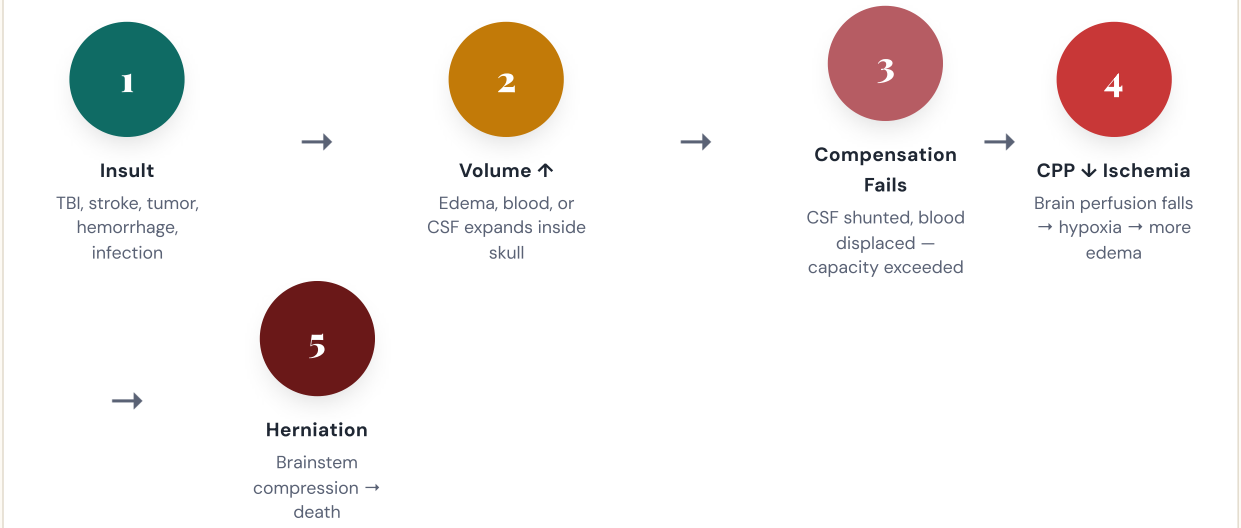
Brain + Blood + CSF = Constant Volume

- **Brain tissue** — ~80% · swells with edema/tumor
- **Blood** — ~10% · rises with hemorrhage or ↑ CO_2
- **CSF** — ~10% · accumulates with hydrocephalus

Initial compensation is good — then it runs out. That's when ICP rises fast.

02 Pathophysiology

MECHANISM OF INJURY



⚡ **KEY CONCEPT —** The brain cannot shrink. Once CSF and venous blood have been pushed out as much as possible, **every additional milliliter of volume raises ICP steeply**. That's why a patient who "looks fine" can crash within minutes.

03 Signs & Symptoms

EARLY VS. LATE

Early Signs

SUBTLE · RECOGNIZE FIRST

1. **↓ Level of Consciousness (LOC)**
   #1 earliest & most sensitive indicator
2. **Restlessness, irritability, confusion**
   Behavior change precedes motor change
3. **Headache**
   Worse on waking, with cough or straining
4. **Nausea & vomiting**
   Often without nausea first
5. **Pupil changes — unilateral**
   Sluggish response on the affected side
6. **Subtle motor weakness**
   Contralateral hemiparesis, pronator drift

Late Signs 🚨

HERNIATION · EMERGENCY

1. **Cushing's Triad**
   See below — classic late finding
2. **Fixed, dilated, non-reactive pupils**
   "Blown pupil" = CN III compression
3. **Projectile vomiting (no nausea)**
   Medullary compression
4. **Decorticate → Decerebrate posturing**
   Decerebrate is worse (brainstem)
5. **Coma, flaccidity**
   Loss of brainstem reflexes
6. **Papilledema**
   Swollen optic disc on fundoscopic exam

Cushing's Triad

IMPENDING HERNIATION

The brainstem's last-ditch attempt to maintain perfusion against overwhelming pressure. When you see this — **call the provider immediately.** Do not wait for a fourth sign.

Hypertension

Systolic BP rises sharply with a **widening pulse pressure** (not narrowing).

Bradycardia

Heart rate falls as vagal tone dominates in response to the rising BP.

Abnormal Respirations

Cheyne–Stokes or irregular breathing patterns from brainstem compression.

04 Priority Nursing Interventions

ABC · SAFETY · PRIORITIZATION

DO — Reduce the Pressure

- ✓ **Airway first** — maintain patent airway; O_2 as ordered; prevent hypoxia (hypoxia = worse edema)
- ✓ **HOB 30°** with head midline & neutral — promotes venous drainage
- ✓ **Neuro checks q1h** — GCS, pupils, motor, speech; LOC is the earliest change
- ✓ **Quiet, dim environment** — cluster… no wait, *SPACE* care activities
- ✓ **Prevent fever** — cooling blanket, antipyretics (fever ↑ metabolic demand)
- ✓ **Seizure precautions** — pad rails, suction at bedside, anticonvulsants PRN
- ✓ **Stool softeners** — prevent straining (Valsalva ↑ ICP)
- ✓ **Monitor ABGs** — $PaCO_2$ 35–38 mmHg (mild hyperventilation ↓ ICP short-term)

AVOID — What Raises ICP

- ✗ **Hip flexion** & **neck flexion** — both impede venous return from the head
- ✗ **Clustering care** — back-to-back stimulation causes cumulative ICP spikes
- ✗ **Prolonged suctioning** — limit to **≤10 seconds**, hyperoxygenate first
- ✗ **Valsalva maneuver** — straining, coughing, sneezing, bearing down
- ✗ **Restraints & restlessness** — agitation ↑ ICP; treat cause, sedate as ordered
- ✗ **Hypotonic fluids** (like D5W) — worsens cerebral edema
- ✗ **Trendelenburg position** — ↑ venous congestion in the head
- ✗ **Noise, bright lights, emotional stress** — all measurable ICP triggers

05 Pharmacology

DRUG CLASS · ACTION · WATCH

DRUG / CLASS	ACTION	SIDE EFFECTS	NURSING CONSIDERATIONS
Mannitol OSMOTIC DIURETIC · FIRST-LINE	Pulls fluid from brain tissue into the vascular space → ↓ cerebral edema & ↓ ICP.	Dehydration Hypokalemia Rebound ↑ ICP	Use **filter needle** — may crystallize. Monitor I&O, serum osmolality, electrolytes, and BP.

DRUG / CLASS	ACTION	SIDE EFFECTS	NURSING CONSIDERATIONS
3% Hypertonic Saline OSMOTIC AGENT	Draws fluid out of brain cells into plasma → ↓ ICP; also supports BP and CPP.	Hypernatremia Fluid overload	Requires **central line**. Monitor sodium closely — target < 160 mEq/L.
Dexamethasone CORTICOSTEROID	Reduces inflammation and vasogenic edema — **best for brain tumors**, not TBI.	↑ Glucose ↑ Infection risk GI bleed	Accu-check q6h. Give with food or H2 blocker. Never stop abruptly — taper.
Phenytoin / Levetiracetam ANTICONVULSANT	Prevents seizures, which dramatically increase cerebral metabolic demand and ICP.	Gingival hyperplasia (phenytoin) Ataxia	Phenytoin level **10–20 mcg/mL**. IV push slowly (<50 mg/min) in NS only.
Propofol / Midazolam SEDATIVE (TITRATED)	Reduces agitation and metabolic demand → ↓ ICP. Allows ventilator synchrony.	Hypotension Propofol infusion syndrome	Titrate to effect. **Daily sedation holiday** for neuro assessment. Monitor triglycerides (propofol).
Docusate (Colace) STOOL SOFTENER	Prevents constipation and straining (Valsalva) that spikes ICP.	Well tolerated	Give routinely — don't wait for constipation. Avoid enemas if possible (vagal response).
Acetaminophen ANTIPYRETIC	Treats fever — which raises cerebral metabolic rate and ICP.	Hepatotoxic > 4 g/day	Scheduled for fever control. Add cooling blanket if temp > 38.5 °C.

06 NCLEX Test Traps

⚠ WHERE STUDENTS LOSE POINTS

1

LOC — not pupils — is the earliest sign

Students pick "fixed dilated pupil" because it sounds dramatic. Wrong. **A subtle change in LOC (restless, drowsy, confused)** is the first and most sensitive indicator.

2

Cushing's Triad = LATE, not early

If the question says "early signs," do *not* choose bradycardia + HTN + irregular respirations. That triad means **herniation is already happening**.

3

Pulse pressure WIDENS (not narrows)

4

SPACE care — don't cluster

Systolic shoots up while diastolic stays low. Example: **180/60**. A narrowing pulse pressure is shock, not ICP.

Unlike most patients where clustering = good, here **each activity spikes ICP**. Assess, then rest, then intervene, then rest.

5

Flex the neck = ↑ ICP

Keep head **midline and neutral**, HOB 30°. Also avoid hip flexion > 90° and Trendelenburg position.

6

Suction < 10 sec · hyperoxygenate first

Prolonged suctioning causes hypoxia + coughing → double ICP spike. If you must suction, **pre-oxygenate and limit to one pass**.

7

Never give D5W

Hypotonic fluids follow osmotic gradient **into** swollen brain cells. Use **0.9% NS** or hypertonic saline as ordered.

8

Decerebrate is worse than Decorticate

deCORticate = arms to CORE (flexed to the body). **deCErebrate = Extended**. Decerebrate = brainstem involvement = worse prognosis.

07 Patient & Family Education

DISCHARGE & HOME CARE

1 Warning Signs to Call 911

- Severe, sudden, or worsening headache
- Vomiting, especially projectile
- Confusion or increased drowsiness
- New weakness or trouble speaking
- Vision changes or unequal pupils
- Seizure activity

2 Daily Lifestyle Teaching

- Avoid bending, lifting > 10 lb, straining
- Prevent constipation — fluids, fiber, softeners
- Sleep with head of bed elevated
- No contact sports until cleared
- Avoid alcohol and CNS depressants
- Wear helmets (bike, ladder work, sports)

3 Medication & Follow-up

- Take anticonvulsants exactly as ordered
- Do not stop steroids abruptly — taper
- Report GI bleeding, mood changes, rash
- Keep all neuro clinic and imaging appointments
- Carry a medical ID / seizure card
- Teach family seizure first-aid

08 Memory Boosters

MNEMONICS · RECALL HOOKS

Cushing's Triad

"HBR" · the last warning

- **H** — **Hypertension** with widening pulse pressure (e.g., 180/60)
- **B** — **Bradycardia** — slow, bounding pulse
- **R** — **Respirations** — irregular, Cheyne–Stokes

Early ICP — "DRAIN"

Catch it before Cushing's

- **D** — **D**ecreased LOC (earliest!)
- **R** — **R**estlessness & irritability
- **A** — **A**ching head (worse in AM)
- **I** — **I**rregular pupils (unilateral)
- **N** — **N**ausea & projectile vomiting

Posturing — "CORE vs. Extended"

Decorticate vs. Decerebrate

- **C** — De**COR**ticate → arms flexed to the **CORE** (better prognosis)
- **E** — Dec**E**rebrate → arms **E**xtended (brainstem — worse)

Avoid — "No VALSALVA"

Anything that strains = ↑ ICP

- **V** — **V**omiting, coughing, sneezing
- **A** — **A**gitation & noise
- **L** — **L**ifting, straining, bearing down
- **S** — **S**uctioning > 10 seconds
- **A** — **A**ngle of neck or hip flexion

ONE-LINE TAKEAWAY

"Keep the head high, the room quiet, the neck straight — and never let them strain."

If you remember only one thing about ICP nursing care, it is this sentence. Everything else flows from it.

09 NCJMM Clinical Judgment

NEXT GEN NCLEX · 4-STEP MODEL

Applying the Clinical Judgment Measurement Model

NCJMM · NCLEX 2026

How the NCLEX expects you to think through an ICP scenario from cue-recognition to evaluation.

R Recognize Cues

GCS decline, headache on waking, unequal pupils, projectile vomiting, widening pulse pressure, bradycardia, abnormal posturing.

A Analyze Cues

Link findings to rising ICP and failing compensation. Distinguish early (LOC, headache) from late (Cushing's triad, fixed pupils, posturing).

P Prioritize / Act

Airway & oxygenation first; HOB 30° neutral; neuro checks q1h; mannitol / hypertonic saline as ordered; notify provider for any trend.

E Evaluate Outcomes

ICP < 20 mmHg, CPP 60–70 mmHg, stable or improving GCS, pupils equal & reactive, no seizures, no new posturing.