DIANE'S NGN NCLEX 2026 VISUAL STUDY LIBRARY

Craniotomy Nursing Care *Left vs. Right Hemisphere*

A side-specific guide to positioning, neuro assessment, and clinical judgment for the post-craniotomy patient — built around the highest-yield NCLEX distinctions between left and right hemispheric surgery.

NEUROLOGICAL SYSTEM | PERIOPERATIVE | NCLEX 2026 TEST PLAN

Source note: Craniotomy nursing care is not covered in Diane's uploaded reference notes. Content here is drawn from standard NGN NCLEX 2026 references — Saunders Comprehensive Review for the NCLEX-RN, ATI Nursing Care of Adult Clients, Lippincott Nursing Procedures, and AANN (American Association of Neuroscience Nurses) clinical guidelines.

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Definition & Overview

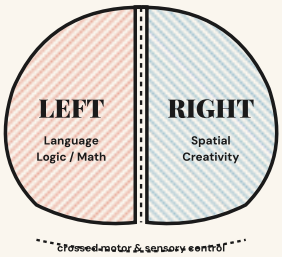
WHAT IT IS · WHY IT MATTERS

- **Craniotomy** = surgical opening of the skull (bone flap removed → replaced) to access the brain. Used for tumor resection, hematoma evacuation, aneurysm clipping, AVM repair, abscess drainage, or seizure foci removal.
- **Craniectomy** = bone flap is *removed and NOT replaced* (often for decompression after TBI or stroke). The patient is permanently vulnerable on that side until cranioplasty.
- **Why side matters:** Positioning, expected deficits, communication strategies, and safety risks all differ based on which hemisphere was operated on. Side errors are a top NCLEX trap.

GOLDEN RULE Position the patient on the side **OPPOSITE** the surgical site (the unaffected side) — unless contraindicated by the type of craniotomy.

Hemisphere Map

CROSSED CONTROL: BRAIN L ↔ BODY R



BRAIN L CONTROLS BODY R · BRAIN R CONTROLS BODY L

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Pathophysiology Simplified

WHY POST-OP DEFICITS + ICP RISK HAPPEN

1
Skull opened, brain tissue manipulated → **localized inflammation & edema**

→

2
Edema in a rigid skull → **↑ intracranial pressure (ICP)** (Monro-Kellie doctrine)

→

3
↑ ICP compresses surrounding tissue → **focal deficits** on the side opposite the operation

→

4
If unchecked → **brain herniation, Cushing's triad, death**

MONRO-KELLIE The skull is a closed box. If brain tissue swells, blood or CSF must give way. When it can't, ICP rises — fast.

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Signs & Symptoms by Side

EXPECTED DEFICITS · RED FLAGS

Hemispheric deficits show up on the **opposite** side of the body. The pattern of behavior differs by hemisphere — this is gold on NGN case studies.

LEFT Craniotomy

RIGHT-SIDED BODY DEFICITS

- **Aphasia** — expressive (Broca's), receptive (Wernicke's), or global. Language is the hallmark.
- **Right-sided hemiparesis / hemiplegia**
- **Right-sided sensory loss** (paresthesia, ↓ proprioception)
- **Right homonymous hemianopsia** (loss of right visual field)
- Slow, cautious, organized behavior
- **Aware of deficits** → depression, anxiety, frustration
- Difficulty with math, reading, writing, analytical thinking

RIGHT Craniotomy

LEFT-SIDED BODY DEFICITS

- **LEFT-sided neglect (hemineglect)** — ignores left side of body and environment
- **Left-sided hemiparesis / hemiplegia**
- **Anosognosia** — denial / unawareness of deficits
- **IMPULSIVITY, poor judgment, ↑ fall risk** 🚨
- Left homonymous hemianopsia (loss of left visual field)
- Visuospatial deficits — gets lost easily, can't dress correctly
- Emotional lability, euphoria, flat affect, or disinhibition

🚨 RED FLAGS — UNIVERSAL ↑ ICP

- **Decreasing LOC — earliest and most sensitive sign**
- **Cushing's triad (LATE): ↑ systolic BP with widening pulse pressure + bradycardia + irregular respirations (Cheyne-Stokes)**
- **Pupil changes — unilateral dilation, sluggish response, fixed pupil on operative side**
- **Projectile vomiting without nausea**
- **Severe / worsening headache**
- **Posturing — decorticate (flexion) → decerebrate (extension) → flaccid (worst)**
- **Seizures — new onset post-op**
- **CSF leak — clear drainage from nose/ear, halo sign on gauze, glucose-positive**

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Priority Nursing Interventions

ABC · SAFETY · PRIORITIZATION

A · AIRWAY / OXYGENATION

- **Maintain patent airway**, suction PRN (limit to 10 sec; pre-oxygenate — suctioning ↑ ICP)
- SpO_2 > 94%; avoid hypercapnia (CO_2 dilates cerebral vessels → ↑ ICP)

B · BRAIN / ICP CONTROL

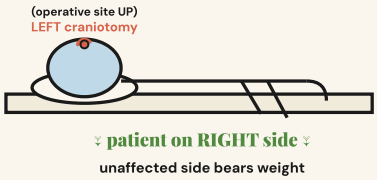
- **Neuro checks q1h** × 24 h (GCS, pupils, motor, sensation, speech)
- **HOB 30°** for **supratentorial** craniotomy → promotes venous drainage
- **HOB flat or slightly elevated** for **infratentorial** craniotomy → avoids brainstem pressure
- **Position OPPOSITE the surgical site** (unaffected side). Never on operative side. **Never on either side if craniectomy** — keep on the side with bone intact.
- Keep neck midline; avoid hip flexion > 90°; no Trendelenburg
- **Avoid Valsalva**: no straining, coughing, sneezing, heavy lifting. Stool softeners scheduled.
- Minimize stimulation, cluster care, keep room quiet & dim
- Strict I&O — monitor for **SIADH** (↓ Na, concentrated urine) or **DI** (↑ Na, dilute urine, polyuria)

C · CIRCULATION / SAFETY

- **Seizure precautions** — padded rails, suction at bedside, no oral temps
- **Maintain normothermia** — fever ↑ cerebral metabolic demand → ↑ ICP
- SCDs / TED hose for DVT prevention (no LMWH until cleared by neurosurgery)
- Monitor incision and dressing — do NOT remove initial dressing without HCP order; **circle drainage**, time, date
- **Pain control with acetaminophen** first-line; opioids cautiously (mask neuro changes, depress respirations)
- **Right-side surgery → high fall risk** from impulsivity + neglect — bed alarm, sitter, restraints last resort

Positioning Cheat

OPERATIVE SIDE = OFF THE PILLOW



patient on RIGHT side

unaffected side bears weight

LEFT CRANIOTOMY → RIGHT SIDE-LYING · RIGHT CRANIOTOMY → LEFT SIDE-LYING

HOB **Supratentorial:** 30° elevated
Infratentorial: flat or slightly elevated

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Pharmacology

DRUGS THE POST-CRANIOTOMY PATIENT GETS

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Mannitol *osmotic diuretic*	Pulls fluid from brain tissue into vascular space → ↓ ICP	Dehydration, ↓ K^+, ↑ Na^+, pulmonary edema, rebound ICP	**Use filter needle** (crystals form); strict I&O; monitor serum osmolality (target 300–320); hold if osmolality > 320
Hypertonic saline 3% *osmotic*	↑ serum osmolarity → pulls fluid from brain	Hypernatremia, pulmonary edema, phlebitis	Central line preferred; monitor serum Na q6h; hold if Na > 160
Dexamethasone *corticosteroid*	↓ cerebral edema (especially around tumors)	Hyperglycemia, GI bleed, infection risk, delayed healing	Accu-checks; PPI for GI protection; **taper — never stop abruptly**
Phenytoin / Levetiracetam *anticonvulsant*	Stabilizes neuronal membranes → ↓ seizure risk	Phenytoin: gingival hyperplasia, nystagmus, ataxia. Levetiracetam: behavioral changes, fatigue	Phenytoin therapeutic 10–20 mcg/mL; **flush only with NS** (precipitates in D5W); IV push ≤ 50 mg/min
Acetaminophen *analgesic*	Central pain inhibition, antipyretic	Hepatotoxicity at > 4 g/day	**First-line** — does not mask neuro changes or depress respirations
Docusate / Senna *stool softener*	Softens stool → prevents straining (Valsalva)	Cramping, diarrhea	Scheduled, not PRN; prevents ICP spikes from straining
Famotidine / Pantoprazole *H2 blocker / PPI*	↓ gastric acid → prevents stress ulcer (Cushing's ulcer)	Headache, diarrhea, ↓ B12 long-term	Especially important with concurrent steroids

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NCLEX Test Traps

COMMON CONFUSIONS · WRONG VS. RIGHT

✗ Positioning the patient on the operative side because "the dressing is up that way"

✓ Position on the **OPPOSITE / unaffected** side. Pressure on the operative site can cause bleeding, brain shift, and ↑ ICP at the surgical bed.

✗ Treating Cushing's triad as an early warning

✓ Cushing's triad is a **LATE** sign — herniation is imminent. The **earliest** sign of ↑ ICP is a **change in LOC** (restlessness, confusion).

✗ Giving opioid pain meds first for post-op headache

✓ Use **acetaminophen first**. Opioids depress respirations (↑ CO_2 → ↑ ICP) and mask neuro changes. Reserve opioids for breakthrough only.

✗ Picking left-side-lying for ALL craniotomies because "left side down is safer"

✓ Side depends on **which hemisphere was operated on**. Right craniotomy → LEFT side. Left craniotomy → RIGHT side. The "left side down" rule is for central lines that are open to air, not craniotomy.

✗ Assuming a right-craniotomy patient is "doing fine" because they say they're fine

✓ Right hemisphere patients have **anosognosia** (deny deficits) + **impulsivity**. They will get out of bed without asking. Treat as a **high fall risk**.

✗ Removing the initial post-op head dressing to "check the wound"

✓ **Do NOT remove** the initial dressing without an HCP order. **Circle, date, and time** any drainage. Reinforce — don't replace.

✗ Encouraging coughing and deep breathing the way you would with other post-op patients

✓ **Deep breathing YES, vigorous coughing NO.** Coughing is a Valsalva maneuver → ↑ ICP. Use incentive spirometer carefully.

✗ Treating clear nasal drainage as a "cold" or normal mucus

✓ Clear drainage from nose or ear after craniotomy = suspect **CSF leak**. Test for glucose, look for **halo sign**. Do NOT pack, suction, or insert NG tube through nose.

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Patient & Family Education

DISCHARGE TEACHING · LONG-TERM SAFETY

Activity & Lifestyle

- **No heavy lifting** (> 10 lbs / 4.5 kg) for 6–8 weeks
- No bending at the waist; squat instead
- No straining at stool — continue stool softeners
- No driving until cleared (often 3–6 months; seizure-free required)
- No alcohol — lowers seizure threshold, interacts with anticonvulsants
- Sleep with HOB elevated for the first few weeks
- Wear a **helmet if bone flap removed** until cranioplasty

When to Call 911 / HCP

- **Worsening headache** not relieved by meds
- **New or worsening weakness** on one side
- **Vision changes**, double vision, vision loss
- **Seizure activity** of any kind
- **Confusion, slurred speech, drowsiness**
- **Clear drainage from nose or ear** (CSF leak)
- **Fever > 101°F**, redness, swelling, or pus at incision
- **Stiff neck** with fever (meningitis)

COSMETIC Hair regrows over the incision in 3–6 months. Scarves, wigs, or hats are options — avoid hair dye, perms, or chemical treatments until the incision is fully healed (~6 weeks).

FOLLOW-UP MedicAlert bracelet (anticonvulsants, neurosurgery hx). Suture/staple removal ~7–10 days. Imaging (MRI/CT) per surgeon. Lifelong neuro check-ups for tumor patients.

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Memory Boosters

MNEMONICS THAT STICK

CRANIO

- **C** — Calm, quiet environment (↓ stimulation)
- **R** — Reduce ICP (HOB 30°, no Valsalva)
- **A** — Assess neuro q1h × 24 h
- **N** — Normothermia & Normocapnia
- **I** — I&O strict (watch SIADH / DI)
- **O** — Opposite side positioning

LEFT = Language

Left hemisphere damage → Loss of speech, Logic, and right-sided strength. Patients are aware → anxious, depressed.

RIGHT = Reckless

Right hemisphere damage → Reckless behavior, denies deficits, neglects the left side. **HIGH FALL RISK.**

⚡

Pattern Recognition

FAST NGN SCAN CUES

IF YOU SEE… **Aphasia + right-sided weakness** → LEFT hemisphere problem

IF YOU SEE… **Neglect + impulsivity + left weakness** → RIGHT hemisphere problem

IF YOU SEE… **HR ↓ + BP ↑ widening pulse pressure + irregular RR** → Cushing's triad = LATE ↑ ICP → call rapid response

IF YOU SEE… **Clear drainage + halo sign** → CSF leak. No NG, no nose blowing, no suction.

IF YOU SEE… **Sudden ↑ urine output + dilute urine + ↑ Na** → Diabetes Insipidus (post-craniotomy near pituitary)

IF YOU SEE… **↓ urine output + concentrated urine + ↓ Na** → SIADH

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NCJMM Clinical Judgment Scenario

NEXT GENERATION NCLEX · 6-STEP MODEL

Scenario **58-year-old male, POD #1 from LEFT frontal craniotomy** for glioma resection. On routine 0800 assessment, you find him restless, struggling to find words (was alert and conversational at 0600). Right arm strength has dropped from 5/5 to 3/5. **BP 168/92** (was 132/78), **HR 54** (was 88), **RR 10 with irregular pattern**. Left pupil 4 mm sluggish (was 3 mm brisk). Headache 8/10. Vomited twice.

Step 1 · Recognize Cues

What's significant?

- ↓ LOC: restless, word-finding difficulty
- New right arm weakness (5/5 → 3/5)
- BP up, HR down, RR irregular
- Left pupil dilation & sluggish
- Severe headache, projectile vomiting

Step 2 · Analyze Cues

What do they mean?

- Cushing's triad: ↑ BP, ↓ HR, irregular RR
- Left pupil change = pressure on CN III on operative side
- Right-sided weakness = left hemisphere pressure
- All point to **↑ ICP** — possible hematoma or edema

Step 3 · Prioritize Hypotheses

What's the #1 problem?

- **↑ ICP with impending herniation** — life-threatening
- Differential: post-op hematoma, cerebral edema, hydrocephalus
- Time-critical: brain tissue dying every minute

Step 4 · Generate Solutions

What can be done?

- Notify HCP / call Rapid Response
- Elevate HOB to 30°, head/neck midline
- Position on RIGHT (unaffected) side
- Prepare mannitol or 3% saline
- STAT CT head, type & cross for OR
- Airway, O_2, IV access ×2

Step 5 · Take Action

Do it now

- Page neurosurgery STAT
- Administer mannitol 1 g/kg IV via filter
- O_2 to maintain SpO_2 > 94%; suction PRN (≤10 sec)
- HOB 30°, right-side-lying, minimize stimulation
- Strict I&O, Foley if not already in place
- Prepare for emergent return to OR

Step 6 · Evaluate Outcomes

Did it work?

- LOC improving — speech returning
- Pupils equal & reactive (4 → 3 mm brisk)
- BP < 160/90, HR > 60, RR regular 12–20
- Right arm strength returning to baseline
- Headache < 4/10, no further vomiting
- Urine output > 30 mL/hr (response to mannitol)

CRANIOTOMY · LEFT VS. RIGHT · NEUROLOGICAL SYSTEM