

DIANE'S NGN NCLEX 2026 VISUAL STUDY LIBRARY

Hemorrhagic *Stroke*

Bleeding inside or around the brain — the deadliest stroke subtype. High-yield priorities for the NGN: BP control without crashing perfusion, ICP management, and recognizing

NEUROLOGICAL SYSTEM

ADULT HEALTH

TIME-CRITICAL EMERGENCY

Source note: Hemorrhagic stroke is not in your uploaded reference notes. Content here is drawn from standard NGN NCLEX 2026 references — *Saunders Comprehensive Review for the NCLEX-RN (2025)*, *ATI Medical-Surgical Nursing*, *Lippincott's NCLEX-RN review*, and current *AHA/ASA Stroke Guidelines (2022 update)*.

1 Definition & Overview

WHAT IT IS · WHY IT MATTERS

Hemorrhagic stroke occurs when a weakened cerebral blood vessel **ruptures**, allowing blood to leak into or around brain tissue. Unlike ischemic stroke (a clot blocks flow), hemorrhagic stroke is a **bleeding problem**.

- Two types: **Intracerebral (ICH)** — bleed inside brain tissue · **Subarachnoid (SAH)** — bleed in space surrounding the brain
- #1 cause of ICH** = uncontrolled hypertension · **#1 cause of SAH** = ruptured cerebral aneurysm
- Lower incidence than ischemic stroke but **significantly higher mortality** — every minute counts

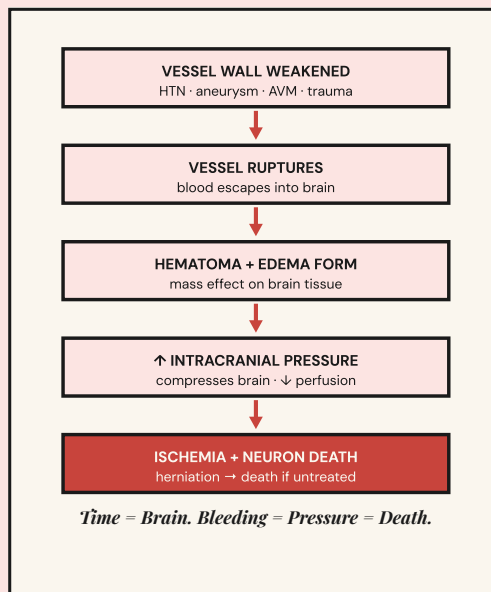
~13%
OF ALL STROKES

~40%
30-DAY MORTALITY

#1
RISK = HTN

2 Pathophysiology

STEP-BY-STEP MECHANISM



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Types of Hemorrhagic Stroke

INTRACEREBRAL VS SUBARACHNOID — KNOW THE DIFFERENCES COLD

	INTRACEREBRAL HEMORRHAGE (ICH)	SUBARACHNOID HEMORRHAGE (SAH)
Location	Bleeding within brain tissue (parenchyma)	Bleeding into subarachnoid space (between arachnoid & pia mater)
#1 Cause	Uncontrolled hypertension	Ruptured cerebral aneurysm (also AVM, trauma)
Hallmark Symptom	Sudden focal deficits (hemiparesis, aphasia) + ↓ LOC	"Worst headache of my life" — thunderclap, sudden onset
Associated Findings	Vomiting, severe HTN, seizures, rapid neuro decline	Nuchal rigidity (stiff neck), photophobia, brief LOC, Kernig/Brudzinski signs
Key Complication	Herniation from mass effect	Cerebral vasospasm (days 4–14) → secondary ischemic stroke · Rebleeding
Signature Drug	IV labetalol / nicardipine for BP	Nimodipine (PO, q4h × 21 days) to prevent vasospasm

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Signs & Symptoms

SUDDEN ONSET — RECOGNIZE FAST

⚡ Early / Initial

- **Sudden severe headache** ("thunderclap" / "worst ever")
- Nausea & projectile vomiting
- Sudden focal weakness — hemiparesis, facial droop
- Slurred speech (dysarthria) or aphasia
- Visual changes — diplopia, vision loss
- Sudden balance loss, ataxia
- **Severe HTN** (BP often >220/120)

🚑 Late / Severe (⚠️ ICP)

- **Decreasing LOC** → stupor → coma
- **Cushing's triad**: ↑BP, ↓HR, irregular respirations
- Unequal / non-reactive pupils (blown pupil)
- Nuchal rigidity (SAH specifically)
- Seizures
- Posturing — decorticate or decerebrate
- Loss of gag reflex (airway risk)



RED FLAG: "Worst headache of my life" + nuchal rigidity + photophobia = SAH until proven otherwise. Notify provider IMMEDIATELY — even before completing the full neuro exam.

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Diagnostic Workup

DIFFERENTIATE HEMORRHAGIC VS ISCHEMIC — FAST

You **cannot** tell stroke type from symptoms alone. Imaging must come **FIRST** — within 25 minutes of arrival per AHA guidelines.

Non-contrast CT

GOLD STANDARD

First test ordered. Shows fresh blood as **bright white**. Differentiates ischemic vs hemorrhagic in minutes.

CT Angiography (CTA)

Identifies aneurysm, AVM, or active bleed source. Often done immediately after CT.

MRI / MRA

Better detail for small bleeds, brainstem lesions, or chronic findings.

Lumbar Puncture

Only if CT negative but SAH still suspected — looks for **xanthochromia** (yellow CSF from RBC breakdown).

Labs

CBC, PT/INR, aPTT, platelets, BMP, glucose — assess **coagulation status** before any intervention.

NIHSS Score

Stroke severity scale (0–42). Higher = worse. Document on admission and serially.

6 Priority Nursing Interventions

ABCS · SAFETY · NCLEX PRIORITIZATION

AIRWAY

Assess airway patency & gag reflex first

1

Position HOB at 30°

(neutral head/neck alignment — promotes venous drainage, ↓ ICP). Suction PRN. Prepare for intubation if LOC declining.

BREATHING

2

Monitor RR, SpO₂, ABGs · Administer O₂ to keep SpO₂ ≥ 94%

Watch for irregular Cheyne–Stokes pattern (Cushing's triad sign). Avoid hyperventilation unless impending herniation.

CIRCULATION

Control BP carefully — DO NOT drop too fast

ICH target SBP

140–160 mmHg

· SAH target SBP

<160 mmHg

· Give IV labetalol or nicardipine. Cardiac monitor — arrhythmias common.

Perform Q1H neuro checks · NIHSS · GCS · pupils

4

Earliest sign of deterioration = **change in LOC**

· Report any decline immediately.

Implement ICP precautions

5

HOB 30°, head midline, quiet/dim environment, cluster care, avoid Valsalva (no straining, coughing, suctioning > 10 sec), stool softeners.

Maintain seizure precautions

6

Padded rails, suction at bedside, IV access, prophylactic antiepileptics PRN (levetiracetam common).

NPO until swallow screen passed

7

High aspiration risk. Bedside swallow screen BEFORE first PO intake — including meds.

Monitor for vasospasm (SAH days 4–14)

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New focal deficit + worsening LOC = vasospasm. Give **nimodipine** on schedule — never miss a dose.

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Pharmacology

DRUGS THAT SAVE · DRUGS THAT KILL

DRUG	USE · KEY NURSING POINTS
Labetalol BETA BLOCKER	IV BP control. Monitor HR (hold for HR < 60) and BP closely. Don't drop pressure too fast.
Nicardipine CCB DRIP	Continuous infusion, titrate to BP. Use IV pump only.
Nimodipine CCB — SAH	SAH only. PO/NG q4h × 21 days. Prevents vasospasm . NEVER give IV (causes cardiac arrest).
Mannitol OSMOTIC DIURETIC	Reduces ICP & cerebral edema. Use in-line filter . Monitor I&O, serum osmolality, electrolytes.
3% Hypertonic Saline OSMOTIC	Alternative to mannitol. Central line preferred. Monitor sodium q4–6h.
Levetiracetam ANTIEPILEPTIC	Seizure prophylaxis / treatment. Few drug interactions.
Vitamin K / PCC REVERSAL	If on warfarin — reverse coagulopathy STAT with PCC + vitamin K.
Stool softener DOCUSATE	Prevent Valsalva strain → ↑ ICP. Routine, not PRN.
⊖ tPA / Aspirin / Heparin	ABSOLUTELY CONTRAINDICATED — these worsen bleeding. Hemorrhagic stroke = NO thrombolytics, EVER.

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NCLEX Test Traps

WHERE STUDENTS LOSE POINTS — WRONG VS RIGHT

✗ WRONG ACTION

Administer **tPA** within 3 hours of symptom onset to "save brain tissue."

✓ RIGHT ACTION

tPA is contraindicated in hemorrhagic stroke — it will worsen the bleed. CT MUST rule out hemorrhage BEFORE any thrombolytic.

✗ WRONG ACTION

Aggressively lower BP to "normal" (e.g., 120/80) right away with multiple antihypertensives.

✓ RIGHT ACTION

Lower BP **gradually**. Drop too fast = cerebral hypoperfusion. Target SBP 140–160 for ICH, <160 for SAH.

✗ WRONG ACTION

Place patient flat (supine, HOB 0°) for "shock positioning."

✓ RIGHT ACTION

HOB at 30°, head midline. Promotes venous drainage from brain → reduces ICP.

✗ WRONG ACTION

Give nimodipine **IV push** because patient is NPO.

✓ RIGHT ACTION

Nimodipine is **PO only** (via NG if needed). IV administration causes cardiac arrest. **Black box warning.**

✗ WRONG ACTION

Encourage early ambulation and PT on day 1 to "prevent DVT."

✓ RIGHT ACTION

Bed rest in acute phase. Use SCDs for DVT prevention — NOT heparin/anticoagulants until bleed stable.

✗ WRONG ACTION

Pick "headache" or "weakness" as the first finding to report.

✓ RIGHT ACTION

Change in LOC is the EARLIEST and MOST sensitive sign of ↑ ICP or deterioration. Always priority.

9 Patient & Family Education

PREVENTION · RECOVERY · RECOGNITION

BP Control

- Take antihypertensives EVERY day — even when you feel fine
- Monitor BP at home; log readings
- Limit sodium to < 2,300 mg/day
- Goal BP < 130/80 (per AHA)

Lifestyle

- Stop smoking (doubles stroke risk)
- Limit alcohol — 1 drink/day women, 2 men max
- 30 min moderate exercise, 5 days/week
- Healthy weight, Mediterranean-style diet

Medications

- NO aspirin or NSAIDs without provider approval
- If on warfarin → INR checks, watch for bleeding
- Report black tarry stools, easy bruising
- Continue statins as prescribed

Know BE FAST — Call 911

- Balance loss · Eyes (vision change)
- Face drooping · Arm weakness
- Speech slurred · Time to call 911
- Sudden "worst headache" = call 911 NOW

Recovery & Rehab

- Early PT/OT/speech therapy = better outcomes
- Aspiration precautions — sit upright to eat
- Fall prevention at home (grab bars, rugs)
- Depression is common — screen and treat

Family Support

- Caregiver education on safety, transfers
- Respite care resources
- Support groups (American Stroke Association)
- Advance directives conversation if not done

10 Memory Boosters

MNEMONICS & PATTERN RECOGNITION

BE FAST

- B** alance — sudden loss
- E** yes — vision change
- F** ace — drooping
- A** rm — weakness
- S** peech — slurred
- T** ime — call 911

HEAD

- H** OB 30° + midline
- E** valuate LOC q1h
- A** void Valsalva
- D** im, quiet room

"WORST"

Worst headache of life =
SAH until proven otherwise. Stiff neck + photophobia clinch it.

CUSHING

↑ **BP** (widening pulse pressure)
↓ **HR** (bradycardia)
Irregular **RR** (Cheyne-Stokes)



NGN Clinical Judgment Scenario

NCJMM 6-STEP MODEL · PRACTICE AS YOU'D TEST

SCENARIO · BEDSIDE REPORT

A 62-year-old male is brought to the ED by his wife at 0830. She reports he was raking leaves when he suddenly grabbed his head, said *"this is the worst headache I've ever had,"* and dropped to one knee.

VS:

BP 218/118, HR 58, RR 22 (irregular), SpO₂ 94% RA, T 37.2°C.

NEURO:

GCS 13 (E3 V4 M6), right pupil 5 mm sluggish, left 3 mm reactive, mild left-sided weakness, neck stiff to passive flexion.

PMH:

hypertension (non-adherent to lisinopril), smoker. No anticoagulants.



Recognize Cues STEP 1 · WHAT'S RELEVANT?

Critical cues: sudden "worst headache" + ↓ LOC + nuchal rigidity + unequal pupils + Cushing's triad pattern (↑ BP 218/118, ↓ HR 58, irregular RR) + uncontrolled HTN history. **Less relevant:** SpO₂ 94% (acceptable), normothermia.



Analyze Cues STEP 2 · WHAT DO THEY MEAN?

Cluster points to **subarachnoid hemorrhage** with **rising ICP**. Sudden thunderclap headache + meningeal signs = SAH. Unequal pupils + Cushing's triad = late ↑ ICP / possible herniation. Uncontrolled HTN is the most likely cause.



Prioritize Hypotheses STEP 3 · MOST LIKELY PROBLEM?

#1 Priority: Ruptured cerebral aneurysm with SAH and increasing ICP — risk for herniation and death. **Rule out:** ischemic stroke, migraine, meningitis. **CT scan MUST come before any antiplatelet/thrombolytic.**



Generate Solutions STEP 4 · WHAT CAN BE DONE?

STAT non-contrast CT head; establish 2 large-bore IVs; HOB to 30° with head midline; O₂ via NC; IV antihypertensive (labetalol or nicardipine) targeting SBP < 160; seizure precautions; NPO; type & crossmatch; reverse coagulopathy if applicable; notify neurosurgery; prepare for possible coiling/clipping; **withhold ASA, heparin, tPA.**



Take Action STEP 5 · WHAT DO YOU DO FIRST?

Priority sequence: (1) ABCs — protect airway, give O₂. (2) HOB 30°, midline. (3) IV access × 2. (4) Continuous cardiac/SpO₂/BP monitoring. (5) STAT CT en route. (6) Begin labetalol per order. (7) Notify neurosurgery. (8) Q15 min neuro checks until CT result.



Evaluate Outcomes STEP 6 · DID IT WORK?

Expected: SBP trending to 140–160; GCS stable or improving; pupils equal/reactive; no new focal deficits; CT confirms diagnosis; surgical team mobilized. **Red flags = escalate:** GCS drops, pupil becomes fixed/dilated, posturing, seizure, vomiting, or new bradycardia → possible herniation — prepare for emergent intervention.