

DIANE'S NGN NCLEX 2026 VISUAL STUDY LIBRARY

Subarachnoid & Intracerebral Hemorrhage

Hemorrhagic stroke — bleeding into the subarachnoid space (SAH) or directly into brain tissue (ICH). High-mortality neurological emergency requiring rapid recognition, BP control, and ICP management.

SYSTEM: NEUROLOGICAL

CLUSTER: STROKE / EMERGENCY

NGN 2026 TEST PLAN



Content Sourcing Note: This topic was not covered in Diane's uploaded reference notes. Content has been compiled from standard NGN NCLEX 2026 references including *Saunders Comprehensive Review for the NCLEX-RN, ATI Adult Medical-Surgical Nursing, Lippincott NCLEX-RN Review*, AANN (American Association of Neuroscience Nurses) guidelines, and current AHA/ASA Stroke Management Guidelines.



Definition & Overview

WHAT IT IS

SAH

Subarachnoid Hemorrhage

Bleeding into the **subarachnoid space** (between arachnoid mater and pia mater) where CSF circulates. Most commonly caused by a **ruptured cerebral aneurysm** (saccular/berry aneurysm at the Circle of Willis) or AVM rupture.

~85% from ruptured aneurysm · Mortality ~35-40%

ICH

Intracerebral Hemorrhage

Bleeding **directly into brain parenchyma** (tissue). Most commonly caused by **chronic uncontrolled hypertension** damaging small arterioles. Common sites: basal ganglia, thalamus, pons, cerebellum.

~10-15% of all strokes · Mortality ~40% at 1 month

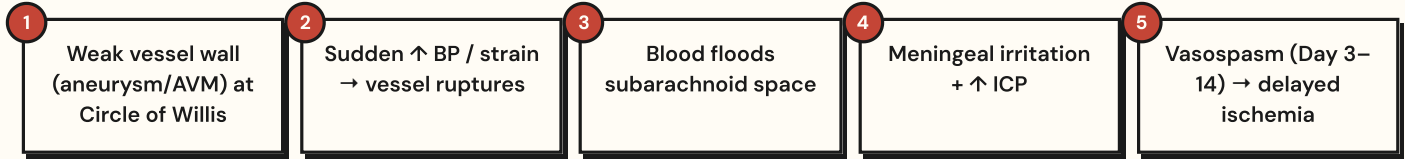
Why it matters

Hemorrhagic stroke is the deadliest form of stroke — bleeding raises intracranial pressure (ICP), compresses brain tissue, and can rapidly cause herniation and death. Management is the *opposite* of ischemic stroke: you LOWER blood pressure and you NEVER give tPA or anticoagulants.

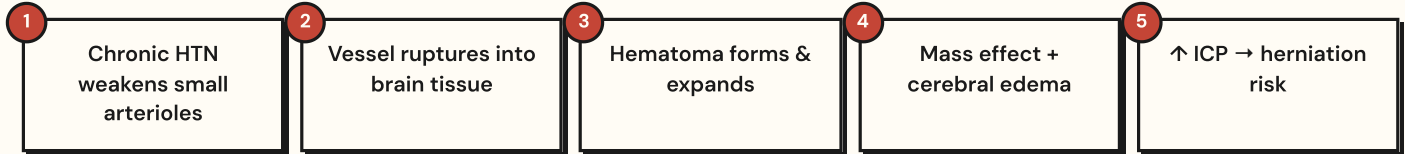
2 Pathophysiology

HOW IT HAPPENS

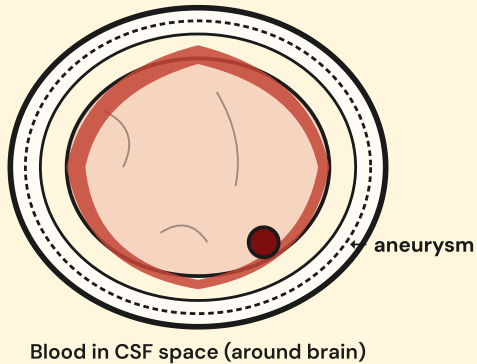
SAH Cascade →



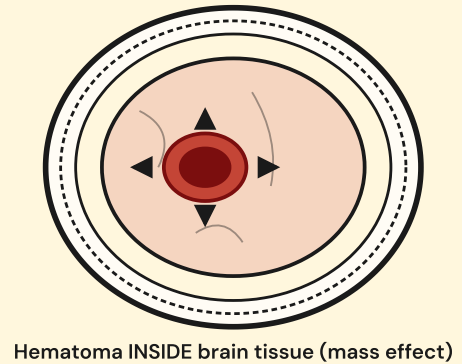
ICH Cascade →



! — Subarachnoid Hemorrhage



ICH — Intracerebral Hemorrhage





Signs & Symptoms

WHAT YOU'LL SEE

SAH Presentation

SUBARACHNOID HEMORRHAGE

- **"Thunderclap" headache** — sudden, severe, "worst headache of my life"
- **Nuchal rigidity** (stiff neck — meningeal irritation)
- **Photophobia** & eye pain
- Nausea & vomiting (often projectile)
- Brief loss of consciousness or syncope at onset
- Confusion, restlessness, irritability
- Possible focal deficits (CN III palsy → "blown" pupil)
- Seizures (~10% at onset)

ICH Presentation

INTRACEREBRAL HEMORRHAGE

- **Gradual onset** headache (minutes to hours)
- **Severe hypertension** at presentation (often SBP >180)
- **Focal neuro deficits** based on location (hemiplegia, aphasia, hemianopsia)
- Progressive ↓ LOC as hematoma expands
- Nausea, vomiting
- Seizures (especially lobar bleeds)
- Pupillary changes (unilateral fixed/dilated = herniation)
- Cushing's triad in late stages



RED FLAG Findings — Act Immediately

- | | |
|---|---|
| ⚠ "Worst headache of my life" — assume SAH until proven otherwise | ⚠ Cushing's triad: ↑ BP, ↓ HR, irregular respirations |
| ⚠ Unilateral fixed/dilated pupil (uncal herniation) | ⚠ Sudden ↓ GCS by 2+ points |
| ⚠ Posturing: decorticate (flexion) or decerebrate (extension) | ⚠ Loss of brainstem reflexes (corneal, gag) |
| ⚠ New seizure activity | ⚠ Sudden return of severe headache (rebleed) |



Priority Nursing Interventions

ABC FRAMEWORK + SAFETY

A

Airway

- Assess patency & gag reflex
- Suction PRN (gentle — avoid ↑ ICP)
- Anticipate intubation if GCS ≤ 8
- Keep NPO until swallow screen passed

B

Breathing

- Monitor rate, rhythm, SpO₂
- Maintain SpO₂ ≥ 94%
- Watch for Cheyne–Stokes / irregular pattern
- Avoid hyperventilation unless ordered for herniation

C

Circulation

- Continuous BP monitoring (often arterial line)
- Target SBP per protocol (typically <140 for ICH)
- Cardiac monitor — watch for arrhythmias
- Two large-bore IVs

Top Priority Actions

POSITION HOB at 30°, head neutral midline → promotes venous drainage & ↓ ICP

MONITOR Neuro checks q1h — GCS, pupils (size/reactivity), motor strength bilaterally

REDUCE Quiet, dim, low-stimulation environment (especially for SAH photophobia)

PREVENT Seizure precautions: padded rails, suction at bedside, anticonvulsant prophylaxis

CONTROL BP per protocol with IV titration (nicardipine, labetalol drip)

AVOID Valsalva — stool softeners, no straining, no coughing exercises

ADMINISTER Nimodipine q4h × 21 days for SAH (vasospasm prevention)

APPLY Mechanical DVT prophylaxis ONLY (SCDs) — no anticoagulants initially

MAINTAIN Normothermia (fever worsens brain injury)

MANAGE Pain & nausea aggressively — both ↑ ICP if untreated

✗ NEVER for Hemorrhagic Stroke

- ✗ NEVER give tPA / thrombolytics (this is for ischemic stroke only)
- ✗ NEVER give aspirin, heparin, warfarin, or DOACs — they worsen bleeding
- ✗ NEVER lower HOB flat (↑ ICP)
- ✗ NEVER cluster nursing activities (each stimulus ↑ ICP)
- ✗ NEVER allow Valsalva (no straining, no holding breath)



Pharmacology

DRUGS YOU MUST KNOW

<i>Drug / Class</i>	<i>Mechanism</i>	<i>Key Side Effects</i>	<i>Nursing Considerations</i>
Nimodipine CALCIUM CHANNEL BLOCKER	Selectively dilates cerebral vessels → prevents vasospasm after SAH	Hypotension, flushing, headache, bradycardia	★ 60 mg PO q4h × 21 days post-SAH · Give on empty stomach · Hold for SBP < 90
Nicardipine CALCIUM CHANNEL BLOCKER (IV)	Vasodilates → rapid BP control	Hypotension, reflex tachycardia, headache	Continuous IV titration · Arterial line preferred · Titrate to ordered SBP target
Labetalol A/B BLOCKER	Lowers BP and HR (no reflex tachycardia)	Bradycardia, hypotension, bronchospasm	IV bolus or drip · Avoid in asthma/heart block · Monitor BP & HR closely
Mannitol OSMOTIC DIURETIC	Pulls fluid from brain tissue → ↓ ICP	Dehydration, electrolyte imbalance, rebound ICP	Use IV filter · Monitor I&O, osmolality, electrolytes · Check for crystals before infusion
Hypertonic Saline (3%) OSMOTIC AGENT	Draws water out of brain cells → ↓ ICP	Hypernatremia, fluid overload, phlebitis	Central line preferred · Monitor Na ⁺ closely (goal often 145–155)
Levetiracetam (Keppra) / Phenytoin ANTICONVULSANT	Prevents/treats seizures	Drowsiness, gingival hyperplasia (phenytoin), mood changes	Phenytoin: only with NS, slow IV push, therapeutic level 10–20 mcg/mL
Docusate (Colace) STOOL SOFTENER	Softens stool → prevents straining/Valsalva	Mild GI upset, diarrhea	Routine for all neuro patients · Prevents ↑ ICP from straining
Acetaminophen ANALGESIC / ANTIPYRETIC	Pain & fever control without bleeding risk	Hepatotoxicity (high doses)	Preferred analgesic · Avoid NSAIDs & aspirin (↑ bleeding)
Vitamin K / PCC / FFP / Idarucizumab ANTICOAGULANT REVERSAL	Reverses warfarin, DOACs, etc.	Thrombosis, transfusion reactions	Used immediately if patient on anticoagulant · Idarucizumab specifically reverses dabigatran



NCLEX Test Traps

WRONG VS RIGHT THINKING

✗ TRAP

"Give tPA immediately — it's a stroke!"

✓ TRUTH

tPA is **ONLY** for ischemic stroke. CT scan must rule out bleeding first. tPA in hemorrhagic stroke is fatal.

✗ TRAP

"BP is 200/110 — let's give permissive hypertension like in ischemic stroke."

✓ TRUTH

Opposite! In hemorrhagic stroke you **LOWER** BP (typically SBP <140) to reduce bleeding and rebleed risk.

✗ TRAP

"HTN + bradycardia means shock — give fluids fast."

✓ TRUTH

That's Cushing's triad — late sign of ↑ ICP and impending herniation. Notify provider STAT, prepare for ICP intervention.

✗ TRAP

"Start heparin DVT prophylaxis on admission."

✓ TRUTH

Mechanical (SCDs) only initially. Chemical DVT prophylaxis is held for 24–48+ hours until bleeding is stable.

✗ TRAP

"Cluster care — do everything at once so the patient can rest."

✓ TRUTH

SPACE OUT activities. Each stimulus ↑ ICP. Allow rest periods between assessments and interventions.

✗ TRAP

"Nimodipine lowers BP — hold it for SBP 138."

✓ TRUTH

Nimodipine prevents vasospasm. Usually only held for SBP <90. Missing doses ↑ stroke risk dramatically.

✗ TRAP

"Give morphine for the worst headache — it's severe pain."

✓ TRUTH

Opioids mask neuro changes & depress respirations (↑ CO₂ → ↑ ICP). Acetaminophen first; use opioids cautiously and document baseline neuro before.

✗ TRAP

"Lay the patient flat for hypotension."

✓ TRUTH

Never flat — HOB stays at 30° with neutral neck alignment to optimize cerebral venous drainage and ↓ ICP.



Patient & Family Education

DISCHARGE TEACHING



Control Blood Pressure

HTN is the #1 modifiable risk factor for ICH. Daily BP checks, take meds even when feeling well, target <130/80.



Stop Smoking

Smoking triples aneurysm rupture risk. Offer cessation resources, nicotine replacement, counseling.



Limit Alcohol

Heavy alcohol use raises BP and bleeding risk. Limit to ≤1 drink/day (women) or ≤2/day (men).



Medication Adherence

Never skip antihypertensives or anticonvulsants. Use pill organizers, alarms, and follow-up appointments.



Avoid Stimulants

No cocaine, methamphetamine, or excessive caffeine. Cold medications with pseudoephedrine should be avoided.



Recognize Warning Signs

Call 911 for sudden severe headache, weakness, slurred speech, vision changes, or confusion. Use F.A.S.T.



Prevent Straining

Use stool softeners, eat fiber, stay hydrated. No heavy lifting or bearing down during recovery.



Rehab & Follow-Up

Attend PT/OT/speech therapy as ordered. Follow-up imaging and neuro visits are essential. Fall prevention at home.



Memory Boosters

MNEMONICS & QUICK RECALL

F.A.S.T.

STROKE RECOGNITION

- F*** Face drooping
- A*** Arm weakness
- S*** Speech slurred
- T*** Time to call 911

H.H.H.

SAH COMPLICATIONS

- H*** Hydrocephalus
- H*** Hyponatremia (SIADH/CSW)
- H*** Hemorrhage (rebleed)

CUSHING

TRIAD OF ↑ ICP (LATE SIGN)

- ↑*** Blood pressure (widening pulse pressure)
- ↓*** Heart rate (bradycardia)
- ±*** Irregular respirations (Cheyne-Stokes)

NIMO

NIMODIPINE = NEURO PROTECTION

- N*** Neuro vessels dilated
- I*** Ischemia prevented
- M*** Must give × 21 days
- O*** Only for SAH (vasospasm)

BRAIN

HEMORRHAGIC STROKE CARE

- B*** BP control (LOWER it)
- R*** Rest — quiet, dim room
- A*** Airway & ABCs
- I*** ICP management (HOB 30°)
- N*** No tPA, NSAIDs, or anticoagulants

"THUNDER"

SAH SIGNATURE

- T*** "Thunderclap" headache
- H*** Head/Neck stiff (nuchal rigidity)
- U*** Unbearable pain — "worst of life"
- N*** Nausea & vomiting
- D*** Decreased LOC
- E*** Eye pain / photophobia
- R*** Rupture of aneurysm = call rapid response



NCJMM Clinical Judgment Scenario

NEXT GENERATION NCLEX

Walk through the 6-step clinical judgment model

The Next Generation Clinical Judgment Measurement Model (NCJMM) is the framework underlying NGN NCLEX 2026. Practice applying all 6 steps to this realistic SAH scenario.

Scenario: A 58-year-old female arrives at the ED via EMS. While exercising at the gym 45 minutes ago, she suddenly collapsed and reported a "thunderclap" headache she rates 10/10. PMH: hypertension (non-adherent to lisinopril), 30-pack-year smoking history.

On arrival: BP 198/110 mmHg · HR 56 · RR 14 (regular) · SpO₂ 96% RA · T 98.7°F · GCS 13 (E3 V4 M6). Photophobia, nuchal rigidity, complaints of nausea. Non-contrast CT head: blood in the basal cisterns and right sylvian fissure consistent with aneurysmal SAH.



Recognize Cues

Identify the relevant clinical data:

- ▶ Sudden onset "worst headache of life" during exertion (classic SAH trigger)
- ▶ Severe HTN: 198/110 mmHg
- ▶ Bradycardia with HTN — early Cushing's response developing
- ▶ Nuchal rigidity + photophobia = meningeal irritation
- ▶ GCS 13 (declining mentation)
- ▶ CT-confirmed subarachnoid blood
- ▶ Risk factors: uncontrolled HTN, smoking



Analyze Cues

Connect cues to clinical meaning:

- ▶ Cluster of cues points to **ruptured cerebral aneurysm with SAH**
- ▶ HTN + bradycardia + ↓ GCS = rising intracranial pressure
- ▶ Aneurysm is currently unsecured — high **rebleed risk** in first 24h
- ▶ **Vasospasm risk** develops days 3–14 → delayed cerebral ischemia
- ▶ Hydrocephalus possible from blood blocking CSF flow



Prioritize Hypotheses

Rank what's most urgent:

- ▶ **HIGHEST:** Aneurysm rebleed → catastrophic, often fatal
- ▶ **HIGH:** Rising ICP / herniation
- ▶ **HIGH:** Seizure (would spike ICP and BP)
- ▶ **MODERATE:** Delayed vasospasm (days 3–14)
- ▶ **MODERATE:** Hyponatremia / hydrocephalus

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Generate Solutions

Plan goal-directed interventions:

- Strict BP control — target SBP <140 until aneurysm secured
- Aneurysm securement: prepare for endovascular coiling or surgical clipping
- ICP precautions: HOB 30°, midline neck, quiet/dim room, no Valsalva
- Vasospasm prevention: start nimodipine 60 mg PO q4h × 21 days
- Seizure prophylaxis per protocol (levetiracetam)
- Frequent neuro checks q1h with full GCS & pupillary exam
- Manage pain (acetaminophen) and nausea (ondansetron)
- Type & screen, baseline coags, electrolytes (Na⁺)

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Take Action

Implement priority care:

- Elevate HOB to 30°, neutral neck alignment immediately
- Start nicardipine IV drip — titrate to SBP <140 mmHg
- Administer nimodipine 60 mg PO (or via NG)
- Place patient in quiet, low-light room — minimize stimulation
- Initiate seizure precautions (padded rails, suction at bedside)
- Insert two large-bore IVs; place arterial line for BP monitoring
- Keep NPO; insert urinary catheter for accurate I&O
- Notify neurosurgery / interventional radiology for aneurysm securement
- Apply SCDs (mechanical DVT prophylaxis ONLY — no heparin)
- Educate family on quiet environment and limited stimulation

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Evaluate Outcomes

Assess whether interventions worked:

- **Expected:** SBP maintained <140 within 1 hour of starting nicardipine
- **Expected:** GCS stable or improving; pupils equal & reactive
- **Expected:** No new focal deficits; no seizure activity
- **Expected:** Pain & nausea controlled; patient calm
- **Concerning:** Sudden severe headache return (rebleed) → call rapid response
- **Concerning:** GCS drop ≥ 2 points, unilateral pupil change, posturing → emergent CT
- **Concerning:** New focal deficit day 3–14 → suspect vasospasm, notify provider
- **Long-term:** Aneurysm secured, no rebleed at 24h, patient transferred to neuro ICU

Diane's NGN NCLEX 2026 Visual Study Library

Subarachnoid & Intracerebral Hemorrhage · Neurological Cluster · Compiled from Saunders, ATI, Lippincott & AHA/ASA Guidelines