NEUROLOGICAL SYSTEM

Epilepsy & Seizures

Recognition, response & the rhythm of cortical chaos

NGN NCLEX 2026 | CLINICAL JUDGMENT | HIGH-YIELD

◆ *Diane's NGN NCLEX 2026 Visual Study Library* ◆

i **Sourcing note:** Epilepsy was not included in the uploaded reference notes for this library. The content in this infographic is synthesized from standard NGN NCLEX 2026 references — *Saunders Comprehensive Review for the NCLEX-RN*, *ATI Adult Medical-Surgical Nursing*, *Lippincott Manual of Nursing Practice*, and current CDC / Epilepsy Foundation seizure first-aid guidelines.

1

SECTION ONE

Definition & Overview

A seizure is a single event — a storm. Epilepsy is the weather pattern: a chronic disorder of recurrent, unprovoked seizures.

SEIZURE

The single event

Sudden, abnormal, excessive electrical discharge of neurons in the brain causing transient changes in behavior, movement, sensation, or consciousness.

EPILEPSY

The chronic disorder

≥ 2 unprovoked seizures occurring more than 24 hours apart, OR one unprovoked seizure with high recurrence risk.

EMERGENCY

Status Epilepticus

Continuous seizure activity **> 5 minutes** OR ≥ 2 seizures without recovery of consciousness between them. **Life-threatening.**

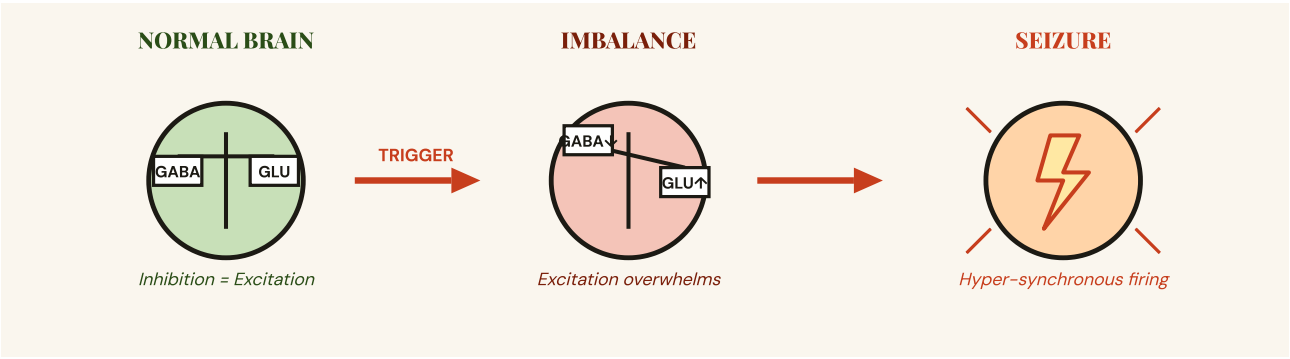
Common Triggers (think "STRESS the brain")

SLEEP DEPRIVATION | FEVER / INFECTION | FLASHING LIGHTS | ALCOHOL / WITHDRAWAL | ELECTROLYTE IMBALANCE | HEAD TRAUMA / STROKE | MISSED MEDICATION | HYPOGLYCEMIA | STRESS / HYPERVENTILATION

SECTION TWO

2 Pathophysiology

The brain runs on balance. When excitation overwhelms inhibition, neurons fire together — and the storm begins.



From balance → imbalance → electrical storm

1 Trigger
Stress, missed med, sleep loss, fever, electrolyte shift

→

2 Imbalance
↓ GABA (inhibitory) & ↑ Glutamate (excitatory)

→

3 Discharge
Group of cortical neurons fire abnormally & synchronously

4 Spread
Discharge spreads through cortex (focal) or both hemispheres (generalized)

→

5 Clinical event
Symptoms reflect **location** & **extent** of discharge

→

6 Resolution
Exhausted neurons → post-ictal state (confusion, fatigue)

SECTION THREE

3 Seizure Types

Focal stays in one hemisphere. Generalized takes the whole brain. Status epilepticus refuses to stop.

Focal — Aware

SIMPLE PARTIAL

One hemisphere; consciousness preserved. Client knows it's happening. Twitching of a single body part, sensory changes (déjà vu, odd smell), or aura. May progress to focal impaired.

Focal — Impaired Awareness

COMPLEX PARTIAL

One hemisphere; altered consciousness. Staring, automatisms (lip smacking, picking at clothes, repetitive movements). Client appears awake but is not responsive. Lasts 1–3 minutes.

Generalized — Tonic-Clonic

GRAND MAL

Both hemispheres; LOC. Possible aura → epileptic cry → **tonic** (stiffening, 10–20 sec) → **clonic** (rhythmic jerking, 30–40 sec). Cyanosis, frothing, tongue biting, incontinence. Post-ictal confusion.

Generalized — Absence

PETIT MAL

Both hemispheres; brief LOC (5–30 sec). Blank stare, no warning, no post-ictal phase. Common in children; often mistaken for daydreaming. May occur dozens of times per day.

Generalized — Myoclonic

SUDDEN JERKS

Brief, single muscle jerks. Often bilateral, lightning-fast. May drop objects. Consciousness usually intact. Common in juvenile myoclonic epilepsy, often upon waking.

Generalized — Atonic

"DROP ATTACK"

Sudden loss of muscle tone. Client crumples or falls. High injury risk — helmets often prescribed. Brief (< 15 sec) but recurrent. Recovery is rapid.

Status Epilepticus — A Neurological Emergency

- Seizure activity > 5 minutes
- ≥ 2 seizures without recovery between
- Risk: brain hypoxia, aspiration, death
- First-line drug: IV **lorazepam** (or diazepam)

SECTION FOUR

4 Signs & Symptoms by Phase

A seizure unfolds in three acts — the warning, the storm, and the aftermath. Documenting all three is the nurse's job.

PHASE 1 Pre-Ictal (Aura)

- Visual changes (flashing, distortion)
- Unusual smell, taste, sound
- Déjà vu or jamais vu
- Sudden fear or anxiety
- Epigastric "rising" sensation
- Tingling, numbness, or twitching

Aura is itself a focal seizure — teach patients it's the "warning bell" to get to a safe place.

PHASE 2 Ictal (During)

- **LOC** (generalized seizures)
- **Tonic:** stiffening, rigid extension
- **Clonic:** rhythmic jerking
- Epileptic cry, cyanosis, frothing
- Tongue / cheek biting
- Bowel / bladder incontinence
- Pupil dilation, eyes deviate
- Apnea or shallow breathing

PHASE 3 Post-Ictal (After)

- Confusion, disorientation
- Deep sleep / drowsiness
- Headache, muscle soreness
- Amnesia of the event
- **Todd's paralysis** (temporary focal weakness)
- Slurred speech, fatigue
- Lasts minutes to hours

🚨 Red Flags — Escalate Immediately

- Seizure lasting longer than 5 minutes
- Cyanosis or respiratory compromise
- First-ever seizure in an adult
- Persistent altered LOC post-ictally
- Repeated seizures without recovery
- Injury sustained during seizure
- Seizure in pregnancy (eclampsia?)
- Fever + new seizure (meningitis?)

SECTION FIVE

5 Priority Nursing Interventions

During a seizure your job is not to stop it — it's to protect the airway, prevent injury, and time the event. Stay. Don't restrain. Document.

🟦 During the Seizure — ABC Priority

✓ DO

- ✓ **STAY** with the client — never leave
- ✓ **TIME** the seizure (start to finish)
- ✓ **TURN** to side-lying (recovery position) — protects airway, allows drainage
- ✓ **LOWER** the bed; pad side rails
- ✓ **LOOSEN** tight clothing around the neck
- ✓ **MOVE** objects out of the way
- ✓ **PROTECT** the head (cushion, pillow)
- ✓ **APPLY** oxygen if available; suction ready
- ✓ **OBSERVE** & document: onset, body parts involved, eye deviation, LOC, duration, incontinence

✗ DON'T

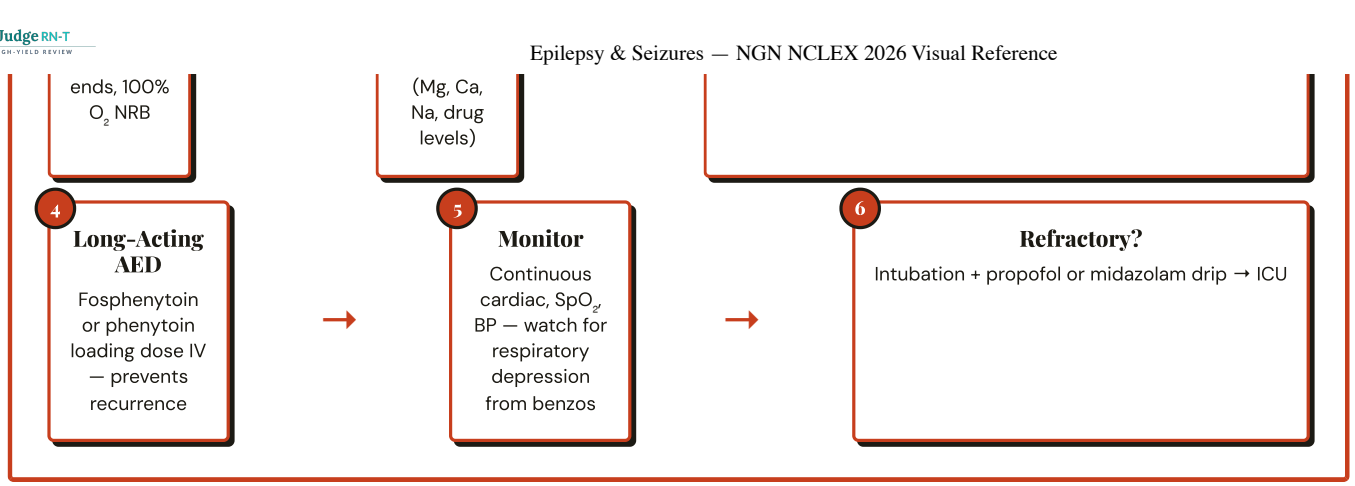
- ✗ **RESTRAIN** the client — can cause fractures & dislocations
- ✗ **PUT ANYTHING** in the mouth (no tongue blade, no fingers, no spoons)
- ✗ **MOVE** the client unless they're in danger
- ✗ **FORCE** an oral airway during the seizure
- ✗ **GIVE** oral meds, food, or fluids
- ✗ **LEAVE** them alone for any reason
- ✗ **PANIC** — most seizures self-terminate in < 2 minutes

🟦 After the Seizure (Post-Ictal Care)

- **Maintain side-lying position** until fully awake — prevents aspiration
- **Reassess airway, breathing, and SpO_2** first; then full VS
- **Reorient gently** — client may be confused, scared, or combative
- **Allow rest** in a quiet, dim environment; do NOT bombard with questions
- **Assess for injuries**: tongue laceration, head trauma, joint dislocation
- **Check glucose** — hypoglycemia can mimic or cause seizures
- **Document everything**: aura, type, duration, post-ictal duration, Todd's paralysis
- **Notify provider** for new-onset seizure, prolonged post-ictal state, or injury

🚨 Status Epilepticus — Rapid Response

1. **Airway First** — Side-lying, suction, oral airway after seizure
2. **IV Access** — Two large-bore IVs, NS, glucose check, draw labs
3. **IV Benzo** — **Lorazepam** 4 mg IV (1st-line) or diazepam — STOPS the seizure


ends, 100% O_2 NRB
(Mg, Ca, Na, drug levels)
4
Long-Acting AED
Fosphenytoin or phenytoin loading dose IV — prevents recurrence
5
Monitor
Continuous cardiac, SpO_2, BP — watch for respiratory depression from benzos
6
Refractory?
Intubation + propofol or midazolam drip → ICU

SECTION SIX

6 Pharmacology — Antiepileptics

All AEDs share three rules: take consistently, never stop abruptly, and watch for skin reactions.

DRUG	CLASS / USE	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Phenytoin *(Dilantin)*	Sodium channel blocker · partial & tonic-clonic	**Gingival hyperplasia**, ataxia, nystagmus, hirsutism, rash → **Stevens-Johnson**, pink/red urine (harmless)	Therapeutic level **10–20 mcg/mL**. Mix with **NS only** (precipitates in D5W). Soft toothbrush & dental visits Q3 mo. Slow IV push.
Carbamazepine *(Tegretol)*	Sodium channel blocker · partial	**Agranulocytosis**, aplastic anemia, **hyponatremia** (SIADH), SJS — esp. Asian descent (HLA-B*1502)	Monitor CBC & Na+ baseline + ongoing. Screen Asian patients for HLA-B*1502 before starting. Avoid grapefruit juice.
Valproic Acid *(Depakote)*	Multi-mechanism · broad spectrum	**Hepatotoxicity**, pancreatitis, **thrombocytopenia**, weight gain, **teratogenic** (neural tube defects)	Monitor LFTs, platelets, ammonia. Pregnancy category D — avoid in women of childbearing age unless essential. Folic acid supplementation.
Levetiracetam *(Keppra)*	SV2A binder · broad spectrum	Drowsiness, dizziness, **behavioral & mood changes**, suicidal ideation, agitation ("Keppra rage")	Renal dose adjustment. Assess mood & suicide risk. Few drug interactions — popular choice. Can be given IV or PO.
Lamotrigine *(Lamictal)*	Sodium channel blocker · broad spectrum	**SJS / TEN rash** (highest risk), dizziness, headache, blurred vision	**Titrate slowly** over weeks to reduce rash risk. STOP at first sign of any rash. Teach patient to report immediately.
Lorazepam *(Ativan)*	Benzodiazepine · status epilepticus 1st-line	**Respiratory depression**, hypotension, sedation, paradoxical agitation	IV push slowly. Have **flumazenil**, BVM, & suction at bedside. Continuous cardiac & SpO_2 monitoring.
Diazepam *(Valium / Diastat)*	Benzodiazepine · acute / rectal rescue	Respiratory depression, sedation, hypotension	Diastat (rectal gel) — teach caregivers for home rescue. Call EMS if seizure continues 5 min after dose.

⚠ The Universal AED Rules

- NEVER stop abruptly → rebound status epilepticus
- Report any RASH immediately (SJS risk)
- Get drug LEVELS as ordered
- Take at the SAME time every day
- Monitor for SUICIDAL ideation (all AEDs)
- Most AEDs are TERATOGENIC — counsel pregnancy

SECTION SEVEN

7 NCLEX Test Traps

The wrong answer often feels protective. The right answer respects the seizure.

✗ TRAP	→	✓ CORRECT
Restrain the client to stop the jerking	→	NEVER restrain. Protect from injury but allow movement; restraint causes fractures & dislocations.
Insert a padded tongue blade or fingers to prevent tongue biting	→	NOTHING goes in the mouth. Risk of broken teeth, aspiration, bitten fingers. Tongue trauma heals.
Mix IV phenytoin in D5W to dilute	→	Phenytoin precipitates in dextrose. Mix with **0.9% Normal Saline ONLY**; flush line with NS before & after.
Position the seizing client supine, flat in bed	→	Side-lying (recovery position). Allows secretions to drain, protects the airway from aspiration.
Tell the patient to stop the AED when feeling drowsy	→	NEVER abruptly stop an AED. Doing so triggers withdrawal seizures or **status epilepticus**. Always taper under provider supervision.
Recommend electric toothbrush only for a phenytoin patient	→	Use a **soft-bristled toothbrush**, floss daily, dental cleaning every 3 months — gingival hyperplasia prevention.
"You can drive as soon as you start medication"	→	Most states require **seizure-free 6–12 months** before driving. Check state law; teach to verify before driving.
"Your seizure was only 4 minutes, just wait it out"	→	Seizure activity > **5 minutes** = status epilepticus. Many protocols intervene at 5 min. Time every seizure carefully.

✗ TRAP
Hand the post-ictal client a glass of water and meds

→

✓ CORRECT
NPO until fully alert & swallow assessed. Post-ictal aspiration risk is high.

SECTION EIGHT

8 Patient & Family Education

Living well with epilepsy is about routine, triggers, and a team that knows what to do.

MEDICATION

The non-negotiables

- Take meds at the **same time daily**
- **NEVER stop abruptly** — risk of status epilepticus
- Don't skip doses; use a pill organizer / alarm
- Report any new **rash** immediately (SJS)
- Tell every provider about your AEDs (drug interactions)
- Schedule blood-level draws as ordered

TRIGGERS

What to avoid

- Sleep deprivation — aim for **7–9 hrs**
- Excessive alcohol & recreational drugs
- Flashing / strobe lights (photosensitive)
- Skipped meals → hypoglycemia
- Untreated fever & dehydration
- High emotional / physical stress

SAFETY

Living safely

- Wear a **medical alert bracelet**
- Shower instead of bathe; never swim alone
- Avoid heights, ladders, dangerous machinery
- Cook on back burners; use microwave when possible
- No driving until cleared (typically 6–12 mo seizure-free)
- Use stove timers; avoid open flames

FAMILY

Teach the people around you

- Side-lying position during a seizure
- NEVER put anything in the mouth
- Move dangerous objects, cushion the head
- Time the seizure with a clock or phone
- Call 911 if seizure > **5 minutes**, repeated, or injury
- Stay calm; reassure during post-ictal confusion

WOMEN'S HEALTH

Pregnancy & AEDs

- Discuss **before** conceiving — many AEDs are teratogenic
- **Folic acid** supplementation (≥ 1 mg/day pre-conception)
- Avoid valproate & topiramate in pregnancy if possible
- Oral contraceptives may be less effective with some AEDs
- Postpartum: sleep deprivation can trigger seizures — plan support

LIFESTYLE

Diet & daily life

- **Ketogenic diet** may help refractory epilepsy (esp. pediatric)
- Limit caffeine; stay well-hydrated
- Regular exercise is encouraged & protective
- Maintain a **seizure diary**: date, duration, triggers
- School & workplace: develop a **seizure action plan**
- Join a support group (Epilepsy Foundation)

SECTION NINE

9 Memory Boosters & Mnemonics

SAFE — SEIZURE FIRST AID

- **S** — **Stay** with the patient & time the seizure
- **A** — **Airway** — turn to side-lying position
- **F** — **Free** from harm — pad rails, lower bed, clear objects
- **E** — **Ease** into recovery — don't restrain, reorient gently

PHENYTOIN — DILANTIN ESSENTIALS

- **P** — **Pink/red urine** (harmless, expected)
- **H** — **Hyperplasia** of gums — soft toothbrush
- **E** — **Educate** — never stop abruptly
- **N** — **Narrow** range: 10–20 mcg/mL
- **Y** — **Yes** to Normal Saline only (no D5W)
- **T** — **Teratogenic** — counsel on pregnancy
- **O** — **Off-limits** to alcohol & abrupt withdrawal
- **I** — **Interactions** — induces liver enzymes
- **N** — **Nystagmus** = early toxicity sign

TONIC — TONIC VS CLONIC

- **T** — **Tonic = TIGHT** — rigid stiffening, extension
- **C** — **Clonic = COCKING** — rhythmic jerking, contracting

Tonic always comes first → then clonic → then post-ictal rest.

STRESS — SEIZURE TRIGGERS

- **S** — **Sleep** deprivation
- **T** — **Temperature** (fever) / Trauma to head
- **R** — **Rebound** from missed meds / alcohol withdrawal
- **E** — **Electrolyte** imbalance (Na, Ca, Mg, glucose)
- **S** — **Strobe** / flashing lights
- **S** — **Stress** (emotional & physical)

⚡ Quick Pattern Recognition

5-MINUTE RULE	2 OF 24	SIDE-LYING = SAFE

Seizure > 5 min = **status epilepticus**. Time it. Treat it.

2 unprovoked seizures > 24 hours apart = epilepsy diagnosis.

If the answer mentions positioning during a seizure — **SIDE**.

NOTHING IN MOUTH

If any answer says "place X in the mouth" — it's wrong.

PHENYTOIN + NS

Phenytoin in D5W = precipitate. Always Normal Saline.

LORAZEPAM FIRST

Status epilepticus first-line drug: IV **lorazepam**.

10

SECTION TEN

NCJMM Clinical Judgment Scenario

CASE SCENARIO

A **32-year-old male** with a 10-year history of epilepsy is brought to the ED by his roommate after collapsing at home. On arrival, he is having generalized tonic-clonic seizure activity that has been continuous for **8 minutes**. Roommate reports he ***"hasn't taken his Keppra in 3 days"*** after running out of refills. VS on arrival: HR 132, RR 8 shallow, SpO_2 84% on RA, BP 156/92, T 99.1°F. Pupils dilated, frothing at mouth, tongue bleeding.

1

STEP ONE

Recognize Cues

Relevant cues: ongoing generalized tonic-clonic activity > 5 min, SpO_2 84%, RR 8 shallow, cyanosis risk, 3 days of missed AED (Keppra), known epilepsy history, tachycardia 132, frothing, tongue trauma.

2

STEP TWO

Analyze Cues

Seizure > 5 minutes meets criteria for **status epilepticus**. Hypoxia (SpO_2 84%) and shallow respirations indicate **airway/breathing compromise**. Missed AED is the trigger — abrupt withdrawal lowered seizure threshold. Frothing & tongue trauma indicate ongoing motor activity with aspiration risk.

3

STEP THREE

Prioritize Hypotheses

#1 — Status epilepticus with airway/breathing compromise (immediate life threat). #2 — AED withdrawal as precipitating cause. #3 — Aspiration risk from secretions. #4 — Injury (tongue laceration). Airway and stopping the seizure take priority over identifying the cause.

4

STEP FOUR

Generate Solutions

Position side-lying; suction at bedside; apply 100% O_2 via non-rebreather; establish 2 large-bore IVs with 0.9% NS; draw labs (glucose, Mg, Ca, Na, Keppra level); administer **IV lorazepam 4 mg** per protocol; prepare fosphenytoin loading dose; continuous cardiac/SpO_2/BP monitoring; notify provider & rapid response.

5

STEP FIVE

Take Action

Turn patient side-lying; suction secretions; apply NRB at 15 L/min; insert two 18-g IVs; check glucose (point of care); administer **lorazepam 4 mg slow IV push**; have bag-valve mask and flumazenil at bedside (respiratory depression risk); start fosphenytoin infusion in NS per order; document seizure duration precisely.

6

STEP SIX

Evaluate Outcomes

Expected: Seizure activity stops within 5 min of lorazepam; SpO_2 rises to ≥ 94%; RR returns to 14–20; HR normalizes; patient enters post-ictal state with gradual return to baseline LOC. **If not met:** Repeat benzo dose, escalate to second-line AED, prepare for intubation & ICU transfer. **Plan for discharge:** medication reconciliation, refill access, education on never stopping AEDs abruptly, follow-up with neurology within 1 week.