

— NGN NCLEX 2026 • CARDIAC DYSRHYTHMIAS

Atrial Fibrillation & Atrial Flutter

The two most common supraventricular tachyarrhythmias — characterized by loss of organized atrial contraction, decreased cardiac output, and a significant thromboembolic stroke risk. High-yield clinical judgment content for the NGN NCLEX.

CARDIAC SYSTEM

PHARMACOLOGY

CLINICAL JUDGMENT

PRIORITIZATION

01 Definition & Overview

WHAT & WHY

Atrial Fibrillation **AFIB**

- Chaotic, disorganized electrical activity firing from multiple ectopic foci in the atria
- Atrial rate **350–600 bpm**; ventricular response is **irregularly irregular**
- Most common sustained dysrhythmia; **5× stroke risk** from atrial thrombus formation

Atrial Flutter **A-FLUTTER**

- Organized, rapid **reentrant circuit** (usually right atrium) producing a single dominant rhythm
- Atrial rate **250–350 bpm**; ventricular rate often regular with fixed conduction (2:1, 3:1, 4:1)
- Classic **"sawtooth" F waves** on EKG; carries similar stroke risk as AFib

5×

STROKE RISK

AFib increases ischemic stroke risk five-fold

20–30%

LOSS OF ATRIAL KICK

Drop in cardiac output when atria quiver instead of contract

48 hr

CARDIOVERSION RULE

TEE required if onset unknown or >48 hrs to rule out clot

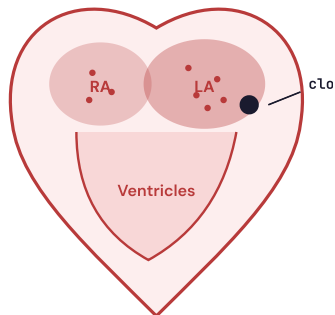
2–3

TARGET INR

Therapeutic range on warfarin for AFib

02 Pathophysiology

SIMPLIFIED MECHANISM



Quivering atria → stagnant blood → clot → stroke

In AFib, multiple ectopic foci fire chaotically in the atria (shown in red). In flutter, a single reentrant loop circulates rapidly. Either way, the atria **quiver instead of contract**, which means:

1) No atrial "kick" → ~20–30% drop in CO. 2) Blood stagnates in the left atrial appendage → **thrombus forms** → embolizes → ischemic stroke.

1

Triggering insult

HTN, CAD, valve disease, hyperthyroidism, alcohol, COPD, or cardiac surgery irritate atrial tissue → creates ectopic foci or reentrant circuits.

2

Chaotic atrial activity

AFib: atria fire 350–600 bpm from many sites → no organized P waves. Flutter: one reentrant circuit at 250–350 bpm → sawtooth F waves.

3

AV node filters impulses

AV node blocks most impulses → ventricular rate 100–180 bpm. AFib = irregularly irregular; Flutter = often regular with fixed block.

4

Loss of atrial kick

Atria quiver instead of contracting → 20–30% drop in cardiac output → fatigue, hypotension, heart failure exacerbation.

5

Stasis → thrombus → embolism

Blood pools in the **left atrial appendage** → clot forms → dislodges → travels to brain → **ischemic stroke**.

03 EKG Recognition

STRIP READING

Atrial Fibrillation

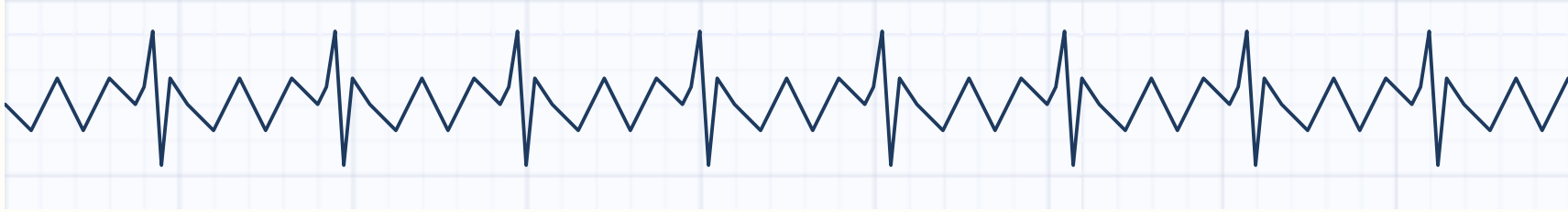
IRREGULARLY IRREGULAR · NO P WAVES



↳ Fibrillatory (f) waves replace P waves · R-R intervals vary chaotically · rate often 100–180 bpm in RVR

Atrial Flutter

SAWTOOTH F WAVES · 2:1 CONDUCTION



↳ Characteristic sawtooth pattern (best seen in leads II, III, aVF) · regular ventricular response

04 Side-by-Side Comparison

KNOW THE DIFFERENCE

FEATURE	ATRIAL FIBRILLATION	ATRIAL FLUTTER
Atrial Rate	350–600 bpm (chaotic)	250–350 bpm (organized)
Ventricular Rhythm	Irregularly irregular	Often regular (fixed block)
P Waves	Absent — fibrillatory baseline	Sawtooth "F" waves
Mechanism	Multiple ectopic foci	Single reentrant circuit
Cardioversion	Harder to convert	Responds well to low-energy (50–100 J)
Stroke Risk	High — anticoagulate per CHA ₂ DS ₂ -VASc	Similar — same anticoagulation rules apply

05 Signs & Symptoms

EARLY → LATE

Mild / Early STABLE

- **Palpitations** — "fluttering" or "racing" heart
- **Irregularly irregular pulse** on apical auscultation
- Fatigue, weakness, decreased activity tolerance
- Mild dyspnea on exertion
- Lightheadedness, dizziness
- Anxiety or feeling of uneasiness
- **Pulse deficit** (apical > radial)

Severe / Late UNSTABLE

- **Hypotension** (SBP < 90)
- Chest pain / angina
- Acute shortness of breath, crackles
- Syncope or altered mental status
- Signs of heart failure (JVD, edema)
-  **Stroke symptoms** — sudden unilateral weakness, slurred speech, facial droop, vision changes
- Cool, pale, clammy skin (poor perfusion)

RED FLAG — PRIORITY ASSESSMENT

Always check an APICAL pulse for a FULL MINUTE in suspected AFib

The peripheral pulse underestimates the true heart rate because not every atrial impulse generates a ventricular contraction strong enough to perfuse. The difference is the **pulse deficit** — a classic NCLEX clue pointing to atrial fibrillation.

06 Priority Nursing Interventions

ABC • SAFETY • PRIORITIZE

PRIORITY 1 • AIRWAY & BREATHING

Assess ABCs immediately

Apply O₂ if SpO₂ < 94%, elevate HOB, auscultate lungs for crackles (rule out HF), assess work of breathing.

PRIORITY 2 • CIRCULATION

Continuous cardiac monitor + 12-lead EKG

Confirm rhythm, measure apical pulse for 1 full minute, check BP every 15 min in unstable patient, establish two large-bore IVs.

PRIORITY 3 • STROKE RISK

PRIORITY 4 • MEDICATIONS

Assess for embolic stroke (BE-FAST)

Balance, Eyes, Face, Arms, Speech, Time. Any new neuro deficit → notify provider **immediately** — time is brain.

Administer rate/rhythm control & anticoagulants

Hold rate-control drugs if HR < 60 or SBP < 90. Monitor INR, PTT, anti-Xa. Watch for bleeding.

PRIORITY 5 • CARDIOVERSION PREP

Prepare for synchronized cardioversion if unstable

NPO, informed consent, sedation ready, TEE if onset unknown or >48 hrs. **Sync mode ON** to avoid R-on-T.

PRIORITY 6 • SAFETY

Fall & bleeding precautions

Bed alarm for syncope risk, soft toothbrush / electric razor on anticoagulants, assess for bruising, melena, hematuria.

PRIORITY 7 • LABS

Monitor electrolytes & thyroid

K⁺, Mg²⁺ (low levels worsen dysrhythmias), TSH (hyperthyroidism is a common trigger), BNP, digoxin level if applicable.

PRIORITY 8 • PSYCHOSOCIAL

Reduce anxiety & reinforce teaching

Explain rhythm, procedures, and lifestyle changes. Anxiety can worsen the rate; calm reassurance supports rate control.

07 Pharmacology

THE 3 R'S • RATE • RHYTHM • RISK OF CLOT

R

Rate Control

SLOW THE VENTRICULAR RESPONSE

Metoprolol / Atenolol (*beta-blocker*)

Blocks β_1 receptors → slows AV conduction. **Hold if HR <60 or SBP <90.** Monitor for bradycardia, hypotension, bronchospasm (asthma caution).

Digoxin (*cardiac glycoside*)

Slows AV node, increases contractility. **Hold if apical pulse <60.** Toxicity ≥ 2.0 ng/dL → N/V, yellow-green halos, bradycardia.

Diltiazem / Verapamil (*non-DHP CCB*)

Blocks calcium at AV node → slows conduction. Watch BP, HR, signs of HF. Avoid in WPW and systolic HF.

Amiodarone (*Class III — dual use*)

Works for both rate AND rhythm. Monitor thyroid, liver, lungs (pulmonary fibrosis), corneal deposits, QT interval.



Rhythm Control

RESTORE NORMAL SINUS RHYTHM

Amiodarone (IV/PO)

First-line in acute setting, especially with HF. Loading dose followed by maintenance. Long half-life; many drug interactions.

Flecainide / Propafenone (*Class IC*)

"Pill-in-pocket" for paroxysmal AFib without structural heart disease. Contraindicated in CAD/HF.

Sotalol (*Class III + β -blocker*)

Monitor **QT interval** — prolongation → torsades. Requires inpatient initiation.

Ibutilide / Dofetilide

IV/PO conversion agents. Continuous ECG monitoring required for QT and torsades.



Anticoagulation · Stroke Prevention

BASED ON CHA₂DS₂-VASC SCORE

Warfarin (Coumadin)

Target **INR 2–3**. **Consistent** Vit-K intake (don't avoid greens — keep them steady). Antidote = Vitamin K. Many drug/food interactions.

Apixaban (Eliquis) · Rivaroxaban (Xarelto)

Direct factor Xa inhibitors (DOACs). No routine INR monitoring. Antidote = **andexanet alfa**. Dose-adjust for renal function.

Dabigatran (Pradaxa)

Heparin / Enoxaparin (Lovenox)

Direct thrombin inhibitor. Antidote = **idarucizumab (Praxbind)**. Keep in original bottle with desiccant; do NOT crush or open capsule.

Bridging therapy. Monitor PTT (heparin) or anti-Xa (LMWH). Antidote = **protamine sulfate**. Watch for HIT.

08 NCLEX Test Traps

WHAT STUDENTS MISS

TRAP #1 • DEFIB VS. CARDIOVERT



Unstable AFib → SYNCHRONIZED cardioversion, not defibrillation

AFib has a pulse and organized-enough QRS to sync onto. **Defibrillation is only for pulseless VT / V-fib**. Synchronized means the shock is timed to avoid the T wave (prevents R-on-T → V-fib).

TRAP #2 • PULSE DEFICIT



Check APICAL pulse for a FULL MINUTE — not radial, not 15 seconds

Radial pulse misses beats that don't generate strong enough ventricular ejection. **Apical × 60 seconds** captures the true rate and the irregularly irregular pattern.

TRAP #3 • CARDIOVERSION CLOT RISK



AFib > 48 hours? TEE FIRST — then cardiovert

Converting a patient with an unresolved atrial clot launches it straight to the brain. **Transesophageal echo must rule out thrombus**, OR the patient needs 3–4 weeks of therapeutic anticoagulation prior.

TRAP #4 • WARFARIN & GREEN VEGETABLES



Don't AVOID leafy greens — keep intake CONSISTENT

Vitamin K antagonizes warfarin. **Sudden changes** (salad binge or total avoidance) destabilize the INR. The teaching is **steady daily intake**, not elimination.

TRAP #5 • DIGOXIN HOLD PARAMETER



Hold digoxin if APICAL pulse < 60 — and assess for toxicity

AFib patients frequently take digoxin. **Always apical × 1 minute before administration.** Hold and notify if HR <60, or if patient reports N/V or yellow-green halos.

TRAP #6 • NEW CONFUSION ≠ "JUST DIZZY"

Sudden neuro change in AFib = embolic stroke until proven otherwise

Don't chart "patient is confused from being anxious." Run BE-FAST, notify the provider, and **prepare for emergency imaging.** Time is brain.



TRAP #7 • CALCIUM CHANNEL BLOCKER + BETA-BLOCKER

Combining non-DHP CCB + beta-blocker = profound bradycardia & AV block

Verapamil/diltiazem and metoprolol both slow AV conduction. **Together they can stop the heart.** Monitor closely if ordered; question the combination if unclear.



09 Clinical Judgment (NCJMM)

RECOGNIZE • ANALYZE • PRIORITIZE • EVALUATE

■ CLINICAL SCENARIO

"A 74-year-old man is admitted with new-onset palpitations and fatigue for 3 days. Vital signs: HR 148 irregularly irregular, BP 102/64, SpO₂ 93%, RR 22. He takes lisinopril and metformin. He suddenly reports, 'I can't move my right arm and my words feel funny.'"

STEP 1 • RECOGNIZE

Recognize cues

Irregular rapid HR, hypotension, 3-day symptom onset (clot risk window), sudden unilateral weakness, dysarthria = stroke cues.

STEP 2 • ANALYZE

Analyze cues

New AFib >48 hrs → thrombus likely → embolized to brain → acute ischemic stroke. Decreased perfusion from low CO worsens neuro outcome.

STEP 3 • PRIORITIZE

Prioritize action

#1 Activate stroke alert → NPO, neuro checks, STAT head CT, IV access, glucose check. Rate control is secondary.

STEP 4 • EVALUATE

Evaluate outcomes

Effective: neuro deficits improve, BP & HR stabilize, imaging completed within 25 min, thrombolytics/thrombectomy decided in window.

10 Patient Education

DISCHARGE & LIFESTYLE



Take your pulse daily

Check radial pulse for 1 full minute every morning. Report HR <60 or >100, or sudden irregularity.



Never skip anticoagulants

Missing doses dramatically raises stroke risk. Don't double up — take next dose at scheduled time.



Watch for bleeding

Bruising, nosebleeds, blood in urine/stool, gums bleeding, unusually heavy periods, or a bad headache → call provider.



Wear a medical ID

Bracelet or necklace indicating AFib and anticoagulant use — critical in emergencies.



Limit triggers

Avoid excess caffeine, alcohol ("holiday heart"), nicotine, and decongestants (pseudoephedrine). Manage stress.



Keep vitamin K steady (warfarin)

Consistent intake of leafy greens — don't binge or eliminate. INR checks as scheduled (weekly → monthly).



Bleeding precautions at home

Soft-bristle toothbrush, electric razor, avoid contact sports, protect against falls (remove rugs, night lights).



Know stroke warning signs (BE-FAST)

Balance, Eyes, Face droop, Arm weakness, Speech change, Time to call 911. Don't drive — call emergency services.

11 Memory Boosters

"PIRATES"

REVERSIBLE CAUSES OF AFIB · 7 LETTERS · 7 TRIGGERS

P

Pulmonary (PE, COPD)

I

Ischemia / MI

R

Rheumatic valve disease

A

Anemia / Atrial myxoma

T

Thyroid (hyper)

E

Ethanol (holiday heart)

S

Sepsis / Sleep apnea

The 3 R's of Treatment

- **Rate** control — beta-blockers, CCBs, digoxin
- **Rhythm** control — amiodarone, cardioversion
- **Risk** reduction — anticoagulation for stroke prevention

Rhythm Recognition

- **AFib** = "Irregularly Irregular" — no P waves
- **Flutter** = "Sawtooth" pattern, F waves
- **Fib** = chaos · **Flutter** = fence posts

CHA₂DS₂-VASc Quick

- CHF, HTN, Age ≥75 (2pts), Diabetes
- Stroke/TIA (2pts), Vascular, Age 65–74, Sex (F)
- Score ≥ 2 (♂) or ≥ 3 (♀) → anticoagulate

✓ FINAL HIGH-YIELD PEARLS

One-Line Takeaways for the NGN NCLEX

1. Irregularly irregular pulse + no P waves = **AFib**. 2. Sawtooth pattern = **Flutter**. 3. Unstable = **synchronized cardioversion**. 4. > 48 hours = **TEE before cardioversion**. 5. Apical pulse × 1 minute, always. 6. Sudden neuro change = **stroke protocol**. 7. Warfarin: **consistent** Vit K, target INR 2–3. 8. Hold digoxin / beta-blocker if HR < 60.

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INFOGRAPHIC • AFIB & ATRIAL FLUTTER