

CARDIOLOGY · DYSRHYTHMIAS · NGN NCLEX 2026

Supraventricular *Tachycardia*

"Above the ventricles, racing the heart"

A group of rapid heart rhythms (HR > 150 bpm) originating **above** the bundle of His — in the atria or AV node. Most produce a narrow QRS (< 0.12 sec). Recognizing **stable vs. unstable** drives every priority decision.

HR 150–250 BPM

NARROW QRS

STABLE → VAGAL/ADENOSINE

UNSTABLE → CARDIOVERT

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DEFINITION · OVERVIEW

What Is SVT?

CORE DEFINITION

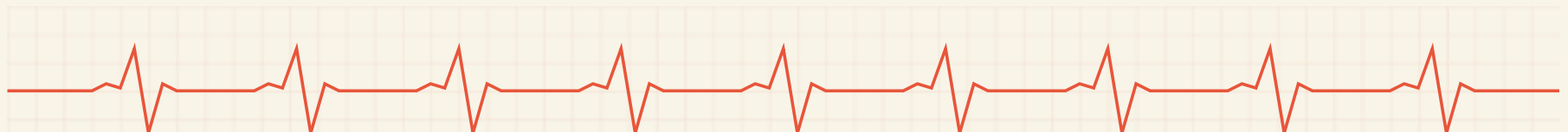
An umbrella term for any tachydysrhythmia (HR > 100, usually 150–250 bpm) that originates **above the ventricles** — in the atria or AV node.

Because impulses travel down the normal His–Purkinje system, the QRS is typically **narrow (< 0.12 sec)**.

WHY IT MATTERS

- Rapid rate = **shortened diastolic filling** → ↓ stroke volume → ↓ cardiac output
- Can rapidly progress to hemodynamic instability, ischemia, heart failure, or shock
- NCLEX expects you to **recognize the rhythm + determine stability + act fast**

CLASSIC SVT RHYTHM STRIP — NARROW QRS, REGULAR, P WAVES OFTEN HIDDEN

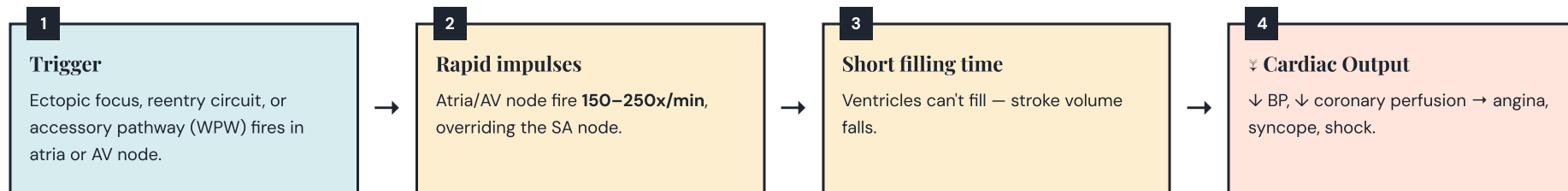


SVT — narrow, regular, ~180 bpm

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PATHOPHYSIOLOGY · SIMPLIFIED

How It Happens



3 MECHANISMS

- **Reentry** — most common; impulse loops in AV node (AVNRT) or accessory pathway (AVRT/WPW)
- **Increased automaticity** — ectopic atrial focus fires faster than SA node
- **Triggered activity** — afterdepolarizations from ischemia, electrolytes, drugs

COMMON TRIGGERS

- Stimulants — caffeine, nicotine, cocaine, decongestants
- Stress, anxiety, fatigue
- Hyperthyroidism · fever · hypoxia
- Electrolyte imbalance (↓K⁺, ↓Mg²⁺) · digoxin toxicity
- Heart disease — ischemia, valve disease, cardiomyopathy

3 TYPES · RECOGNITION · MANAGEMENT

The SVT Family

"SVT" technically includes **any** tachycardia from above the ventricles. Below are the major types you'll see on the NGN — with key recognition cues and tailored nursing care.

TYPE	ECG / RECOGNITION	CAUSES / POPULATION	NURSING CARE & MANAGEMENT
Sinus Tachycardia <i>100–150 bpm</i>	Normal P before every QRS · regular · narrow QRS · gradual onset/offset	Fever, pain, anxiety, dehydration, hypovolemia, hyperthyroidism, exercise, shock, anemia	Treat the cause — fluids for dehydration, antipyretics for fever, oxygen for hypoxia. Rarely needs cardiac drugs.
PSVT / AVNRT <i>150–250 bpm · most common SVT</i>	Sudden onset & sudden termination. P waves hidden in QRS or inverted after QRS · regular · narrow QRS	Young, healthy adults (esp. women). Triggered by caffeine, stress, stimulants, hyperthyroidism	Stable: Vagal maneuvers → Adenosine 6 mg rapid IVP , then 12 mg if needed. Unstable: synchronized cardioversion 50–100 J. Long-term: BB, CCB, ablation.
AVRT (WPW) <i>Wolff–Parkinson–White</i>	Delta wave + short PR (in sinus rhythm) · accessory pathway (Bundle of Kent) bypasses AV node · QRS may be wide	Congenital accessory pathway · often diagnosed in children/young adults · palpitations + dizziness	⚠️ AVOID adenosine, CCB, digoxin, BB if WPW + atrial fib (can trigger V-fib). Use procainamide or amiodarone . Definitive: catheter ablation .
Atrial Tachycardia <i>150–250 bpm</i>	Ectopic atrial focus · P wave morphology differs from sinus P · regular · narrow QRS	Digoxin toxicity, COPD, MI, electrolyte imbalance, valve disease	Treat underlying cause. Hold digoxin if toxicity suspected , check K ⁺ /Mg ²⁺ . Rate control with BB or CCB.
Multifocal Atrial Tach (MAT) <i>100–150 bpm</i>	≥ 3 different P-wave shapes · irregular rhythm · narrow QRS · varying PR intervals	Classic in severe COPD , hypoxia, theophylline toxicity, severe illness	Treat the lung disease — oxygenate, treat hypoxia, correct electrolytes (esp. Mg ²⁺ /K ⁺). Avoid BB in COPD; diltiazem often preferred. Cardioversion does NOT work.
Junctional Tachycardia <i>100–180 bpm</i>	P wave inverted, absent, or after QRS · regular · narrow QRS · originates at AV junction	Digoxin toxicity (classic!), MI, post-cardiac surgery, electrolyte imbalance	First step: rule out digoxin toxicity — hold dig, check level, give digibind if severe. Correct K ⁺ & Mg ²⁺ .
Atrial Flutter <i>Atrial 250–350 bpm</i>	Sawtooth flutter waves · regular ventricular rate (often 2:1 or 4:1 conduction)	CAD, valve disease, hypertension, post-cardiac surgery	Rate control (BB, CCB) · rhythm control (amiodarone, cardioversion) · anticoagulation if > 48 h. Definitive: ablation.
Atrial Fibrillation <i>Atrial > 350 bpm</i>	Irregularly irregular · no discernible P waves · narrow QRS · "wavy" baseline	HTN, CAD, HF, hyperthyroidism, valve disease, alcohol ("holiday heart")	Rate control + anticoagulation (warfarin/DOACs) — stroke risk!

TYPE	ECG / RECOGNITION	CAUSES / POPULATION	NURSING CARE & MANAGEMENT
			Cardioversion only after 3 wk anticoag or TEE. Watch for clots.

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SIGNS & SYMPTOMS

What You'll See

EARLY / MILD (STABLE)

- **Palpitations** ("racing" or "fluttering" heart) — usually **sudden onset**
- Lightheadedness, dizziness
- Mild shortness of breath
- Anxiety, restlessness
- Diaphoresis (sweating)
- Mild chest discomfort or pressure
- Fatigue, weakness
- BP & LOC **maintained**

LATE / SEVERE (UNSTABLE)

- **Hypotension (SBP < 90)**
- **Altered mental status / decreased LOC**
- **Acute chest pain (ischemia)**
- **Acute heart failure / pulmonary edema**
- **Syncope**
- **Signs of shock — cool/clammy skin, mottling, ↓ urine output**
- **Cyanosis**
- Any of these = **SYNCHRONIZED CARDIOVERSION**

⚠ THE 4 D'S OF UNSTABLE

Decreased BP · **D**ecreased LOC · **D**iscomfort (chest pain) · **D**yspnea (acute heart failure)

Any one of these = patient is unstable = electricity (cardioversion), not pills.

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PRIORITY DECISION · ACLS-ALIGNED

Stable vs. Unstable — The Critical Fork

STABLE PATIENT

Drugs Before Shocks

BP maintained, alert, no chest pain or HF.

- ① **Vagal Maneuvers**
 - Valsalva (bear down 10 sec)
 - Cold/ice water to face (diving reflex)
 - Carotid massage (one side only — provider, not nurse)
 - Cough forcefully
- ② **Adenosine 6 mg rapid IVP** with 20 mL NS flush
Use port closest to heart · raise arm · expect brief asystole
- ③ **Adenosine 12 mg** repeat × 1 if needed
- ④ **Beta-blocker or CCB** (metoprolol, diltiazem) for rate control
- ⑤ **Amiodarone** if refractory
- ⑥ **Long-term:** catheter **ablation** (curative)

UNSTABLE PATIENT

Synchronized Cardioversion

Hypotension, ↓LOC, chest pain, acute HF, shock.

- ① **Synchronized cardioversion**
Narrow regular: 50–100 J · Narrow irregular (A-fib): 120–200 J biphasic
- ② **Sedate** if conscious (e.g., midazolam) before shocking
- ③ **Press SYNC button** on defibrillator — must sync with R wave
- ④ **"Clear!"** — ensure no one touches patient or bed
- ⑤ **Reassess** rhythm, BP, LOC after each shock
- ⑥ **Escalate energy** if unsuccessful

⚠ **Cardioversion ≠ Defibrillation.** Cardioversion is SYNC'd with the R wave (used for SVT, A-fib, A-flutter, V-tach with pulse). Defibrillation is UNSYNC'd (used for V-fib, pulseless V-tach).

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PRIORITY NURSING INTERVENTIONS

What the Nurse Does — In Order

A · ASSESS FIRST (ABCS)

- **Airway** patent, **Breathing** effective, **Circulation** — pulse, BP, perfusion
- Determine **STABLE vs UNSTABLE** — this drives everything
- Obtain **12-lead EKG** + place on continuous cardiac monitor
- Assess LOC, skin color/temperature, capillary refill
- Auscultate lungs (crackles → HF onset)
- Check SpO₂, vital signs every 5–15 min during episode

B · ESTABLISH ACCESS

- Establish/verify **large-bore IV** (preferably 18 G) — proximal to heart (AC)
- Apply oxygen if SpO₂ < 94% or symptomatic
- Position patient supine or semi-Fowler's
- Place **defibrillator/cardioverter pads** at bedside
- Have **crash cart and emergency drugs** ready
- Notify provider / Rapid Response if not already done

C · INTERVENE (STABLE)

- Coach patient through **vagal maneuvers** (bear down, cough)
- Prepare **adenosine** — 6 mg in syringe + 20 mL NS flush in second syringe
- Use **2-syringe technique** via stopcock or Y-port closest to patient
- Push adenosine **FAST (1–2 sec)**, immediately follow with NS flush, raise arm
- Run **continuous rhythm strip** during push (document conversion)
- Warn patient of **flushing, chest tightness, "feeling of doom"** — brief, < 10 sec

D · INTERVENE (UNSTABLE)

- **Synchronized cardioversion is the priority** — call provider STAT
- Sedate the conscious patient (midazolam, fentanyl) per order
- Verify **SYNC button is ON** before shock
- Charge to ordered joules (50–100 J narrow regular)
- **"Clear!"** × 3 — visually confirm before discharge
- Reassess rhythm, pulse, BP, LOC immediately after shock
- Document time, energy, response, post-shock rhythm

E · EVALUATE & FOLLOW-UP

Monitor rhythm, vital signs, and LOC continuously after conversion · obtain post-event 12-lead EKG · draw labs (electrolytes, troponin, TSH, Mg²⁺) · identify and treat the trigger · educate patient on home triggers and follow-up care.

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PHARMACOLOGY · HIGH-YIELD

Drugs You Must Know

★ Adenosine (Adenocard)

ANTIDYSRHYTHMIC · ENDOGENOUS NUCLEOSIDE · #1 SVT DRUG

ACTION: Briefly blocks AV-node conduction to interrupt reentry circuit ("resets" the heart)

DOSE: 6 MG RAPID IVP over 1–2 sec, may repeat with 12 MG × 1–2

HALF-LIFE: < 10 seconds! Must give RAPIDLY + flush

ROUTE: Use **PORT CLOSEST TO PATIENT**; raise arm after push

SIDE EFFECTS: Flushing, chest pain/pressure, transient asystole (3–10 sec — *this is expected!*), dyspnea, "sense of doom"

WATCH FOR: Bronchospasm — caution in asthma. Brief asystole on monitor is normal — do NOT panic.

CONTRAINDICATIONS: WPW WITH A-FIB, 2nd/3rd-degree AV block, sick sinus syndrome (without pacer)

Metoprolol / Esmolol

BETA-BLOCKER · CLASS II

USE: Rate control, long-term prevention

WATCH: Bradycardia, hypotension, bronchospasm

AVOID: Asthma, severe COPD, decompensated HF

Diltiazem / Verapamil

CALCIUM CHANNEL BLOCKER · CLASS IV

USE: Rate control, alternative to BB

WATCH: Hypotension, bradycardia, constipation

AVOID: WPW with A-fib, decompensated HF

Amiodarone

ANTIDYSRHYTHMIC · CLASS III

USE: Refractory SVT, WPW, A-fib/flutter

WATCH: Pulmonary fibrosis, thyroid dysfunction, blue-gray skin, hepatotoxicity

MONITOR: PFTs, TFTs, LFTs long-term

Digoxin

CARDIAC GLYCOSIDE

USE: Rate control in A-fib (esp. with HF)

WATCH: Toxicity > 2 ng/dL — N/V, yellow-green halos, bradycardia

AVOID: WPW · hold for HR < 60

Procainamide

CLASS IA ANTIDYSRHYTHMIC

USE: WPW with A-fib, refractory SVT

WATCH: Hypotension, QT prolongation, lupus-like syndrome

Anticoagulants

WARFARIN · DOACS (APIXABAN, RIVAROXABAN)

USE: A-fib/A-flutter — stroke prevention

WATCH: Bleeding · INR (warfarin only) goal 2–3

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NCLEX TEST TRAPS · WRONG ANSWER PATTERNS

Where Students Lose Points



✗ TRAP: "Defibrillate the patient with SVT and a pulse."

✓ CORRECT: Use **SYNCHRONIZED CARDIOVERSION** for unstable SVT (or any tachy with a pulse). Defibrillation is for V-fib and pulseless V-tach *only*.



✗ TRAP: "The patient went asystolic after adenosine — start CPR."

✓ CORRECT: A **brief 3–10 sec pause/asystole** after adenosine is *expected*. Watch the monitor — sinus rhythm should return on its own. Do not start CPR for the expected pause.



✗ TRAP: "Push adenosine slowly into a peripheral hand vein with a slow flush."

✓ CORRECT: Push **RAPIDLY (1–2 sec)** through the **port closest to the heart (AC vein)**, immediately followed by 20 mL NS flush. **Raise the arm**. Half-life is < 10 sec — slow push won't work.



✗ TRAP: "Give adenosine or diltiazem to a WPW patient with A-fib."

✓ CORRECT: AV-nodal blockers (adenosine, CCB, BB, digoxin) in **WPW + A-fib** can drive impulses down the accessory pathway → **V-fib**. Use **procainamide or amiodarone**, or cardiovert.



✗ TRAP: "Vagal maneuvers first, even if BP is 70/40 and patient is altered."

✓ CORRECT: Vagal/adenosine are for **STABLE** patients. **Unstable = synchronized cardioversion**, immediately. Do not waste time on vagal maneuvers in an unstable patient.



✗ TRAP: "Cardiovert MAT or sinus tachycardia."

✓ CORRECT: **Sinus tach** is the body responding appropriately — treat the cause. **MAT** does NOT respond to cardioversion — treat hypoxia, COPD, electrolytes.



✗ TRAP: "Cardiovert a patient in A-fib that started 3 days ago without anticoagulation."

✓ CORRECT: A-fib > 48 hours requires **3 weeks of anticoagulation OR a TEE** before cardioversion to prevent clot dislodgement → stroke.



✗ TRAP: "First action when patient suddenly drops into SVT — call the doctor."

✓ CORRECT: **Assess the patient FIRST** (ABCs, BP, LOC, pulse). Then determine stable vs unstable. NCLEX always wants **nursing assessment before notification**, unless the patient is in arrest.

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NCJMM · CLINICAL JUDGMENT FRAMEWORK

Thinking Like a Nurse — SVT Scenario

STEP 1 · RECOGNIZE CUES

What's the patient telling me?

HR 180, regular, narrow QRS · sudden onset palpitations · SOB · dizziness · BP 110/68 (still maintained) · alert & oriented · no chest pain.

STEP 2 · ANALYZE CUES

What does it mean?

Narrow QRS + regular + 180 bpm = **SVT**. BP & LOC intact + no chest pain or HF = **STABLE**. Triggers? Caffeine? Anxiety? Hyperthyroidism?

STEP 3 · PRIORITIZE HYPOTHESES

What's most important?

Stable SVT (most likely) > sinus tach > A-flutter with 2:1 conduction. Risk: progression to instability if rhythm sustains. Rule out WPW (check for delta waves on 12-lead).

STEP 4 · GENERATE SOLUTIONS

What are my options?

① Vagal maneuvers (Valsalva) ② Adenosine 6 mg rapid IVP ③ Beta-blocker/CCB ④ Cardiovert (only if becomes unstable). Establish IV, O₂ monitor.

STEP 5 · TAKE ACTION

What do I do?

Place on monitor + 12-lead, large-bore IV, O₂ if needed, coach Valsalva, call provider, prepare adenosine. Reassess BP/LOC every few minutes.

STEP 6 · EVALUATE OUTCOMES

Did it work?

Rhythm converted to sinus? HR normalized? BP/LOC stable? No recurrence? Identify trigger + educate. If unstable → escalate to cardioversion.

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PATIENT & FAMILY EDUCATION

Teaching Points for Discharge



Avoid stimulants

Caffeine, energy drinks, nicotine, alcohol, cocaine, decongestants (pseudoephedrine), and herbal stimulants can all trigger episodes.



Stress management

Identify and reduce stress triggers. Practice deep breathing, yoga, meditation, regular sleep. Anxiety is a common trigger.



Self-vagal maneuvers

Teach Valsalva (bear down 10 sec), cough hard, splash cold water on face, or carotid massage *only if cleared by HCP*.



Medication adherence

Take BB, CCB, or anticoagulants exactly as ordered. Never skip or double doses. Don't stop suddenly.



Symptom diary

Track palpitations — date, time, duration, triggers, symptoms. Bring to follow-up appointments.



When to call 911

Chest pain, fainting, severe SOB, palpitations > 30 min not relieved by vagal maneuvers, or any signs of instability.



Catheter ablation

For frequent or symptomatic SVT (esp. AVNRT, AVRT/WPW), ablation is often *curative*. Discuss with cardiologist/EP.



Regular follow-up

Cardiology visits, periodic EKGs, lab monitoring (electrolytes, TSH, INR if on warfarin).



Diet & hydration

Maintain electrolytes (K^+ , Mg^{2+}) — eat bananas, leafy greens, nuts. Stay hydrated. Limit excessive sugar/processed foods.



Treat underlying conditions

Manage hypertension, hyperthyroidism, sleep apnea, diabetes, and CAD aggressively.

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MEMORY BOOSTERS · MNEMONICS

Lock It In

"VACS"

STABLE SVT TREATMENT ORDER

- V** Vagal maneuvers (Valsalva, cough, ice to face)
- A** Adenosine 6 mg, then 12 mg IVP
- C** Calcium channel blocker / Beta-blocker (rate control)
- S** Synchronized cardioversion (if becomes unstable)

"4 D's"

SIGNS PATIENT IS UNSTABLE → CARDIOVERT

- D** Decreased BP (hypotension, SBP < 90)
- D** Decreased LOC (altered mental status, syncope)
- D** Discomfort (acute chest pain — ischemia)
- D** Dyspnea (acute heart failure / pulmonary edema)

"FAST PUSH"

ADENOSINE ADMINISTRATION

- F** Flush with 20 mL NS immediately after
- A** Arm raised after push (gravity helps)
- S** Stopcock or Y-port closest to heart
- T** Two-syringe technique
- P** Pause on monitor (asystole 3–10 sec) is normal
- U** Under 2 seconds for the push (rapid!)
- S** Strip running on monitor for documentation
- H** Half-life < 10 sec — that's why speed matters

"WPW"

"WOLFF-PARKINSON-WHITE AVOID LIST"

- A** Adenosine — AVOID with A-fib
- B** Beta-blockers — AVOID with A-fib
- C** Calcium channel blockers — AVOID with A-fib
- D** Digoxin — AVOID with A-fib

USE instead: Procainamide, Amiodarone, or synchronized cardioversion. AV-nodal blockers can push impulses down the accessory pathway → V-FIB.

⚡ PATTERN RECOGNITION

"Sudden start, sudden stop"

= PSVT / AVNRT

"Sawtooth waves"

= Atrial Flutter

"Irregularly irregular"

= Atrial Fibrillation

"Delta wave + short PR"

= WPW / AVRT

"3+ P-wave shapes"

= MAT (think COPD)

"Inverted/buried P"

= Junctional Tach

NGN NCLEX 2026 Study Library · Cardiology · Supraventricular Tachycardia

STABLE → DRUGS · UNSTABLE → SHOCKS · ALWAYS ASSESS FIRST