CLINICALJUDGE™

PHYSIOLOGICAL ADAPTATION — CARDIAC

The advanced 2026 NGN NCLEX-RN master study guide for the highest-acuity cardiac content: hemodynamics, heart failure, ACS/MI, dysrhythmias & ACLS, structural/inflammatory disease, shock, pharmacology, procedures, and hemodynamic monitoring — built for clinical-judgment mastery and Management-of-Care prioritization.

CLIENT NEED: Physiological Adaptation | + Management of Care | NGN BOW-TIE READY | PRIORITIZATION + DELEGATION | 2026 TEST PLAN | PDF / PRINT OPTIMIZED

RED · CRITICAL / EMERGENT | BLUE · PATHOPHYSIOLOGY | GREEN · SAFE / EXPECTED | ORANGE · COMPLICATIONS | YELLOW · NCLEX TRAPS | PURPLE · MEDICATIONS | TEAL · PATIENT EDUCATION

HOW TO USE THIS GUIDE + THE MANAGEMENT-OF-CARE CARDIAC ENGINE

Every cardiac NGN item is really one question: **What does this finding mean, and what do I do *first*?** Physiological Adaptation tests the *recognize & respond* half; Management of Care tests the *who, when, and in what order* half. Run every stem through this engine.

1 · RECOGNIZE CUES
Abnormal vitals, ECG, labs, pain, perfusion. Ask: stable or unstable? Perfusing or not?

2 · ANALYZE / PRIORITIZE
ABC → most-unstable-first → acute over chronic → actual over risk. Trend > single value.

3 · TAKE ACTION + EVALUATE
Independent nursing action first when possible; then notify; then reassess the same parameter you treated.

MOC delegation rule of thumb: RN keeps assessment, teaching, evaluation, first-time/unstable patients, IV push cardiac meds, and titration. LPN/LVN: stable patients, reinforce teaching, oral/SQ meds, monitor expected findings. UAP/AP: vitals on stable clients, I&O, daily weights, ADLs, ambulation — *data collection only, never interpretation.*

1 CARDIAC HEMODYNAMICS FOUNDATIONS

cardiac output · preload · afterload · contractility · the determinants behind every cardiac question

THE CORE EQUATION BEHIND EVERYTHING

MASTER FORMULA

`CO (4–8 L/min) = HR × SV · MAP = CO × SVR · BP = CO × SVR`

Stroke volume is governed by **preload**, **afterload**, and **contractility**. Ejection fraction (EF) normal = 55–70%.

PRELOAD
Volume/stretch at end-diastole (right-sided ≈ CVP/RAP 2–6 mmHg; left ≈ PAWP 8–12 mmHg). ↑ by fluids; ↓ by diuretics, nitrates, bleeding, vasodilation.

AFTERLOAD
Resistance the ventricle pumps against (SVR 800–1200). ↑ by vasoconstriction/HTN; ↓ by vasodilators (ACE, nitroprusside, hydralazine).

CONTRACTILITY
Force of contraction. ↑ by positive inotropes (dobutamine, dopamine, digoxin, epi). ↓ by beta-blockers, CCBs, acidosis, ischemia.

COMPENSATORY MECHANISMS (WHY A "STABLE" PATIENT CRASHES)

↓ CO / ↓ perfusion → SNS: ↑ HR, ↑ contractility, vasoconstriction → RAAS: Na^+/H_2O retention, ↑ afterload → Ventricular remodeling → eventual decompensation

TRAP SETTER
Tachycardia and rising SVR are *compensation*, not the problem. A "normalizing" HR or falling BP in a deteriorating patient signals **decompensation**, not improvement. Falling urine output is an early, sensitive marker of falling CO.

2 HEART FAILURE

left vs right · HFrEF vs HFpEF · acute decompensation & pulmonary edema

HEART FAILURE — CORE PATHOPHYSIOLOGY

HFrEF: EF ≤40% (systolic) | HFpEF: EF ≥50% (diastolic) | ↑ BNP / NT-proBNP | Acute pulmonary edema = emergency

Pump fails to meet demand → ↓ CO + neurohormonal activation (SNS/RAAS) → Fluid overload + ↑ filling pressures → Congestion behind the failing side

LEFT VS RIGHT — THE HIGHEST-YIELD SPLIT

LEFT HF → LUNGS ("L = LUNGS")

- Dyspnea, orthopnea, PND
- Crackles, pink frothy sputum
- S_3 gallop, tachycardia
- Hypoxia, restlessness, fatigue
- Nocturia

RIGHT HF → BODY ("R = REST OF BODY")

- JVD, hepatomegaly, ascites
- Dependent peripheral edema
- Weight gain, ↑ abdominal girth
- Anorexia, nausea (gut congestion)
- Most common cause = left HF

ACUTE DECOMPENSATED HF / FLASH PULMONARY EDEMA

RECOGNIZE

Sudden severe dyspnea, SpO_2 <90%, pink frothy sputum, anxiety/"impending doom", diffuse crackles, tachypnea. **This is a do-something-now item.**

1. **Sit upright, legs dependent** (high Fowler's) → ↓ preload, ↑ chest expansion
2. **High-flow O_2** / prepare for CPAP-BiPAP or intubation
3. **IV loop diuretic** (furosemide) — preload reduction + diuresis
4. **Vasodilator** (IV nitroglycerin) to ↓ preload/afterload if BP allows
5. **Morphine** (select cases) — anxiety + venodilation; **continuous monitoring**

`Memory hook: UNLOAD FAST — Upright · Nitrates · Lasix · O2 · ACE/Afterload · Dig (chronic) · Fluids restrict · ABG/Airway · Sit up · Tests (BNP/echo).`

KEY LABS & DIAGNOSTICS

TEST	VALUE / TREND	NCLEX SIGNIFICANCE
BNP / NT-proBNP	`BNP >100 pg/mL`	↑ = ventricular stretch/volume overload; distinguishes cardiac vs pulmonary dyspnea; tracks response
Echocardiogram / EF	`EF <40% = HFrEF`	Confirms type/severity; guides therapy
Daily weight	`>2-3 lb/day or 5 lb/wk`	**Most reliable fluid-status indicator** — report this
Electrolytes	`K⁺ 3.5-5.0`	Diuretics drop K^+/Mg^{2+} → dysrhythmia + digoxin toxicity risk

MOC: RN performs admission assessment, titrates IV nitro/diuretic drips, and evaluates response. UAP obtains the *daily weight* (same scale, time, clothing) and reports the number — RN interprets it. Reinforcing a low-sodium diet may be delegated to LPN.

PATIENT EDUCATION CHECKLIST

- ✓ Weigh daily, same conditions; report gain >2–3 lb in a day or 5 lb in a week
- ✓ Low-sodium diet (<2 g/day); read labels; avoid canned/processed foods
- ✓ Take ALL meds; never stop beta-blocker abruptly; report dizziness
- ✓ Pace activity, rest between tasks, energy conservation
- ✓ Report worsening dyspnea, orthopnea, edema, persistent cough
- ✓ Annual flu + pneumococcal vaccines; smoking cessation; limit alcohol

3 ACUTE CORONARY SYNDROME

stable angina · unstable angina · NSTEMI · STEMI · MI complications

THE ACS SPECTRUM — READ THE ECG + TROPONIN TOGETHER

TYPE	ECG	TROPONIN	MECHANISM
Stable angina	± transient ST depression with exertion	Normal	Fixed plaque; demand ischemia; relieved by rest/NTG
Unstable angina	ST depression / T inversion	Normal	Plaque rupture, partial occlusion; **at rest**, new/worse — emergent
NSTEMI	ST depression / T inversion	↑ Elevated	Partial occlusion + necrosis (subendocardial)
STEMI	**ST elevation** ± new LBBB	↑ Elevated	Full occlusion, transmural infarct — **time-critical**

CARDIAC BIOMARKER TIMELINE

Troponin I/T = most specific. Rises 3–4 h, peaks 12–24 h, elevated 10–14 days → best for late presentation & reinfarction. **CK-MB** rises 4–6 h, normalizes 2–3 days. **Myoglobin** = earliest but nonspecific.

RECOGNIZE THE CUES

CLASSIC MI

- Crushing substernal pressure >15–20 min, NOT relieved by rest/NTG
- Radiation to L arm/jaw/back
- Diaphoresis, dyspnea, nausea, anxiety/doom

ATYPICAL (DON'T MISS!)

- **Women:** fatigue, dyspnea, indigestion, jaw/back pain
- **Older adults / diabetics:** "silent MI", confusion, weakness, SOB only

IMMEDIATE MANAGEMENT — STEMI IS A CLOCK

1. **12-lead ECG within 10 min** of arrival + continuous monitoring
2. **MONA — reframed by priority:** Aspirin (chew 162–325 mg, antiplatelet) is the highest-yield first drug; O_2 only if SpO_2 <90%; Nitroglycerin (hold if SBP <90 or PDE5 use); Morphine for pain unrelieved by nitrates
3. **Reperfusion:** PCI is gold standard — door-to-balloon <90 min. Fibrinolytics (alteplase) if PCI unavailable, ideally <30 min door-to-needle, <12 h symptom onset
4. **Dual antiplatelet** (aspirin + $P2Y_{12}$ e.g. clopidogrel/ticagrelor) + anticoagulant (heparin)
5. **Beta-blocker, ACE inhibitor, high-intensity statin** during admission

FIBRINOLYTIC CONTRAINDICATIONS (MEMORIZE)

Active internal bleeding, recent surgery/trauma, history of hemorrhagic stroke (ever) or ischemic stroke within 3 mo, uncontrolled severe HTN, intracranial neoplasm/aneurysm. Watch for bleeding after administration.

POST-MI COMPLICATIONS (PRIORITY RECOGNITION)

DYSRHYTHMIAS

#1 cause of death post-MI; PVCs/VT/VF. Monitor + treat per ACLS.

CARDIOGENIC SHOCK

Pump failure, hypotension, cool/clammy, ↓ urine — highest mortality.

PAPILLARY MUSCLE / SEPTAL RUPTURE

New loud murmur, acute pulmonary edema — surgical emergency.

PERICARDITIS (DRESSLER'S)

Days–weeks later; pleuritic pain, friction rub, fever.

MOC: Chest pain = RN assessment + provider notification immediately; do **not** delegate the assessment. Among assigned clients, the new/changing chest pain with ST elevation outranks the chronic stable-angina patient with reproducible exertional pain.

PATIENT EDUCATION CHECKLIST

- ✓ NTG: sit/lie down, 1 tab SL q5min ×3; call 911 if no relief after first dose (per current guidance)
- ✓ Store NTG in original dark glass; replace q3–6 months; expect tingling/headache
- ✓ Recognize MI symptoms; act early; cardiac rehab participation
- ✓ Lifestyle: smoking cessation, Mediterranean/low-sat-fat diet, activity progression
- ✓ Resume sexual activity when able to climb 2 flights without symptoms; no NTG with PDE5 drugs

4 DYSRHYTHMIAS & ACLS

rate & rhythm recognition · shockable vs not · cardioversion · pacing · code management

HIGH-YIELD RHYTHM RECOGNITION

RHYTHM	KEY FEATURE	PRIORITY RESPONSE
Sinus brady	HR <60, regular, P before each QRS	Treat only if symptomatic → **atropine**; pacing if refractory
Sinus tachy	HR >100, regular	Treat the **cause** (pain, fever, hypovolemia, hypoxia)
A-fib	Irregularly irregular, no P waves	Rate control + **anticoagulate** (clot/stroke risk); cardiovert if unstable
A-flutter	Sawtooth flutter waves	Rate control, anticoagulation, cardioversion/ablation
SVT	HR 150–250, narrow, regular	Vagal → **adenosine** (rapid IV push + flush); synchronized cardioversion if unstable
PVCs	Wide bizarre QRS, early	Treat if frequent/multifocal/runs; check **K^+/Mg^{2+}**, ischemia
V-Tach (pulse)	Wide, regular, fast	Stable → antiarrhythmic (amiodarone); **unstable → synchronized cardioversion**
V-Tach (pulseless) / VF	No pulse, chaotic/no organized QRS	**DEFIBRILLATE** + CPR + epinephrine (shockable)
Asystole / PEA	Flatline / organized rhythm, no pulse	**CPR + epinephrine**, find cause (H's & T's) — **NOT shockable**

THE SINGLE MOST-TESTED DISTINCTION

Defibrillate (unsynchronized): VF + pulseless VT. | **Synchronized cardiovert:** unstable patient *with a pulse* (A-fib RVR, SVT, VT with pulse). | **CPR + epi only (never shock):** asystole & PEA.

A-FIB DEEP DIVE (VERY HIGH YIELD)

WHY IT'S DANGEROUS

Atria quiver → blood stasis → mural thrombus → **embolic stroke**. Loss of "atrial kick" ↓ CO ~20–30%.

MANAGEMENT TRIAD

① Rate control (beta-blocker, diltiazem, digoxin) ② Rhythm control (amiodarone, cardioversion/ablation) ③ **Anticoagulation** (warfarin/DOAC) per CHA_2DS_2-VASc

CARDIOVERSION TRAP

Elective cardioversion of A-fib >48 h requires **3–4 weeks anticoagulation first** (or TEE to rule out clot) to avoid dislodging a thrombus and causing a stroke.

CODE / ACLS SEQUENCE (BLS-FIRST THINKING)

1. Unresponsive + no pulse → **start high-quality CPR** (100–120/min, depth 2–2.4 in, full recoil, minimize interruptions)
2. Attach monitor/defibrillator → analyze rhythm
3. **Shockable (VF/pVT):** defibrillate → resume CPR 2 min → epi q3–5 min → amiodarone after 3rd shock
4. **Non-shockable (asystole/PEA):** CPR + epi q3–5 min + treat reversible causes (H's & T's)
5. Reassess rhythm/pulse q2 min; rotate compressors; capnography to gauge quality & ROSC

`H's & T's: Hypovolemia · Hypoxia · H⁺ (acidosis) · Hypo/Hyperkalemia · Hypothermia · Tension pneumothorax · Tamponade · Toxins · Thrombosis (PE/coronary).`

PACEMAKER / ICD ESSENTIALS

- **Failure to capture:** spike with no QRS → check connections, output settings.
- **Failure to sense:** spikes falling on intrinsic beats (risk of R-on-T).
- Report HR consistently below set rate; hiccups can indicate lead displacement.
- Post-insertion: limit affected-arm movement above shoulder ×4–6 wk; no contact sports.
- Carry ID card; avoid strong magnetic fields; MRI only if device is MRI-conditional.

MOC: Pulseless rhythm = activate code, begin CPR, delegate compressions to trained staff while RN manages airway/meds/defibrillator and documents. Telemetry interpretation and antiarrhythmic IV push stay with the RN.

5 STRUCTURAL & INFLAMMATORY CARDIAC DISEASE

valvular disease · pericarditis · myocarditis · endocarditis · cardiomyopathy · tamponade

VALVULAR DISORDERS — STENOSIS VS REGURGITATION

LESION	MURMUR	HALLMARK
Aortic stenosis	Systolic crescendo-decrescendo, radiates to carotids	**SAD:** Syncope, Angina, Dyspnea on exertion; avoid sudden ↓ preload/afterload
Mitral stenosis	Diastolic rumble	Pulmonary congestion, A-fib, hemoptysis
Aortic regurgitation	Diastolic blowing	Wide pulse pressure, bounding pulses
Mitral regurgitation	Holosystolic at apex → axilla	Left HF, pulmonary congestion

EDUCATION

Mechanical valve → **lifelong anticoagulation** (warfarin, target INR per valve). All prosthetic valves → antibiotic prophylaxis before dental/invasive procedures to prevent endocarditis.

INFLAMMATORY / INFECTIOUS — PATTERN SEPARATION

PERICARDITIS

- **Sharp, pleuritic** chest pain, **worse supine / better leaning forward**
- **Pericardial friction rub**; diffuse ST elevation
- Tx: NSAIDs/colchicine; watch for **tamponade**

MYOCARDITIS

- Often viral; fatigue, dyspnea, dysrhythmias, may → HF/cardiomyopathy
- Activity restriction; treat HF/dysrhythmias

INFECTIVE ENDOCARDITIS

- Fever, new/changed murmur, splinter hemorrhages, Janeway lesions, Osler nodes, Roth spots
- Embolic risk; blood cultures + long-term IV antibiotics; prophylaxis in high-risk

CARDIOMYOPATHY

- **Dilated** (↓ EF, HF), **hypertrophic/HOCM** (sudden death in athletes; avoid dehydration/exertion/Valsalva), **restrictive**

CARDIAC TAMPONADE — EMERGENCY

Beck's triad: hypotension + JVD + muffled/distant heart sounds. Plus **pulsus paradoxus** (SBP drop >10 mmHg on inspiration), narrowed pulse pressure, tachycardia. → **Pericardiocentesis** emergently.

6 VASCULAR EMERGENCIES & SHOCK

hypertensive crisis · aortic dissection/aneurysm · PAD vs DVT · cardiogenic shock

HYPERTENSIVE CRISIS & AORTIC CATASTROPHES

HYPERTENSIVE EMERGENCY

BP often >180/120 **with target-organ damage** (chest pain, neuro changes, papilledema, ↓ urine). IV titratable agents (nicardipine, labetalol, nitroprusside). **Lower MAP ≤25% in first hour** — too-fast drops cause stroke/ischemia.

AORTIC DISSECTION

Sudden tearing/ripping pain → back; BP differs between arms; pulse deficit. Goals: **↓ HR & BP fast** (IV beta-blocker first, then vasodilator); type A → emergent surgery. Don't mistake for MI.

AAA — ABDOMINAL AORTIC ANEURYSM

Often silent; pulsatile abdominal mass, bruit. **Do NOT palpate deeply.** Sudden severe back/flank/abdominal pain + hypotension = **rupture** → immediate surgery.

PAD VS DVT/VTE — DON'T CONFUSE THE LEGS

PAD (ARTERIAL — ISCHEMIA)

- Intermittent claudication, **pain with elevation, better dependent**
- Cool, pale, hairless, weak/absent pulses, shiny skin
- Ulcers on toes/lateral malleolus, well-defined
- Position legs **dependent**; avoid cold/constriction

DVT / VTE (VENOUS)

- Unilateral warmth, redness, swelling, calf pain
- **Anticoagulate** (heparin→warfarin/DOAC); do not massage
- Greatest danger = **PE**: sudden dyspnea, pleuritic chest pain, ↓ SpO_2, tachycardia
- Prevent: early ambulation, SCDs, prophylaxis

CARDIOGENIC SHOCK — THE PUMP FAILS

Pump failure (often post-MI) → ↓ CO + ↓ tissue perfusion → ↑ preload/PAWP, cool clammy skin, ↓ urine, AMS → Multi-organ failure if untreated

- **Hemodynamics:** ↓ CO/CI, ↑ PAWP/preload, ↑ SVR, hypotension.
- **Tx:** inotropes (dobutamine) to ↑ contractility, careful diuresis/vasodilation, treat the cause (revascularize MI), **IABP / mechanical support** as bridge.
- **Vs hypovolemic shock:** hypovolemic = LOW preload/PAWP → give fluids; cardiogenic = HIGH preload → fluids worsen it.

MOC: Shock patients are unstable → RN-only, often ICU transfer. Titrating vasoactive/inotrope drips, interpreting hemodynamic monitoring, and trending MAP/urine output are non-delegable RN responsibilities.

7 CARDIAC PHARMACOLOGY MASTER GRID

every drug class the cardiac NGN tests — with the assessment that comes before the dose

DRUG CLASS → WHAT TO HOLD FOR → WHAT TO TEACH

CLASS / DRUG	ACTION	HOLD / MONITOR (HIGH-YIELD)
Beta-blockers (-olol)	↓ HR, ↓ contractility, ↓ BP, ↓ O_2 demand	Hold if HR <60 or SBP <90–100. **Never stop abruptly** (rebound HTN/angina). Caution asthma/COPD; masks hypoglycemia.
ACE inhibitors (-pril)	↓ afterload, block RAAS	Dry cough, **angioedema**, **hyperkalemia**, first-dose hypotension, ↑ creatinine. **Teratogenic.**
ARBs (-sartan)	Block angiotensin II receptor	Like ACE but less cough; still hyperkalemia + teratogenic.
CCBs (amlodipine; diltiazem/verapamil)	Vasodilate / ↓ HR & contractility (non-DHP)	Hold for hypotension/bradycardia (non-DHP). Avoid grapefruit. Peripheral edema, constipation.
Loop diuretics (furosemide)	↓ preload, diuresis	**Hypokalemia**, hypovolemia, ototoxicity (fast IV push), ↑ glucose/uric acid. Monitor K^+, daily weight.
Thiazides (HCTZ)	Mild diuresis, HTN	Hypokalemia, hyperglycemia, hyperuricemia.
K^+-sparing (spironolactone)	Diuresis, HF mortality benefit	**Hyperkalemia**, gynecomastia. Avoid K^+ supplements/salt substitutes.
Nitrates (NTG)	Venodilation → ↓ preload, coronary dilation	Hold SBP <90; **no PDE5 inhibitors** (sildenafil) → fatal hypotension. Headache expected; tolerance → nitrate-free interval.
Digoxin	+inotrope, -chronotrope	Level `0.5–2.0 ng/mL`. Hold apical HR <60. **Hypokalemia ↑ toxicity.** Toxicity: N/V, anorexia, **yellow-green halos**, brady/dysrhythmia. Antidote: **digoxin immune Fab**.
Antiarrhythmic — amiodarone	Broad rhythm control	Pulmonary fibrosis, thyroid & liver dysfunction, blue-gray skin, QT prolongation, photosensitivity.
Adenosine	Transient AV block for SVT	**Rapid IV push + saline flush**; expect brief asystole/flushing/"impending doom".
Statins (-statin)	↓ LDL	Myopathy/**rhabdomyolysis** (muscle pain + dark urine → ↑ CK), ↑ LFTs. Take in evening; avoid grapefruit.
Anticoag — heparin	IV/SQ, immediate	Monitor **aPTT** (1.5–2.5×); antidote **protamine**; watch **HIT**.
Anticoag — warfarin	Vitamin K antagonist	Monitor `INR 2–3` (2.5–3.5 mechanical valve); antidote **vitamin K**; consistent vit-K diet; many interactions.
DOACs (apixaban, rivaroxaban, dabigatran)	Factor Xa / thrombin	No routine monitoring; bleeding risk; specific reversal agents (andexanet, idarucizumab).
Antiplatelets (aspirin, clopidogrel)	Prevent platelet aggregation	Bleeding/bruising; aspirin first-line in ACS; hold per procedure protocol.
Inotropes/pressors (dobutamine, dopamine, norepi)	↑ contractility/BP in shock	Central line preferred; titrate to MAP/CO; monitor for tachy-dysrhythmias, extravasation.

PHARM TRAP

The exam loves the **"check before you give"** answer: apical pulse ×1 min before digoxin/beta-blocker; BP before nitrates/antihypertensives; K^+ before digoxin/diuretics; INR/aPTT before anticoagulants. The right answer is often the *assessment*, not the dose.

8 PROCEDURES & HEMODYNAMIC MONITORING

cardiac cath · PCI · CABG · pacemaker · arterial/CVP/PA lines · pericardiocentesis

PRE / POST PROCEDURE PRIORITIES

CARDIAC CATHETERIZATION / PCI

- **Pre:** assess iodine/shellfish & contrast allergy, renal function (contrast nephropathy — hydrate; hold metformin), mark distal pulses, consent.
- **Post:** bed rest with affected leg straight (femoral), **assess site for bleeding/hematoma**, distal pulse/color/temp, neuro checks, vitals frequently, hydrate to clear contrast.
- **Report:** bleeding, expanding hematoma, ↓/absent pulse, chest pain, hypotension.

CABG (OPEN-HEART)

- Monitor for dysrhythmias (esp. A-fib), bleeding/cardiac tamponade, chest-tube output (report >100 mL/hr or sudden cessation).
- Sternal precautions; pain control to enable coughing/deep breathing.
- Watch fluid/electrolytes, neuro status (stroke risk).

HEMODYNAMIC MONITORING VALUES (KNOW THE NORMALS)

PARAMETER	NORMAL	MEANING
CVP / RAP	2–6 mmHg	Right-sided preload/volume status
PAWP (wedge)	8–12 mmHg	Left-sided preload; ↑ in left HF/cardiogenic shock
Cardiac output	4–8 L/min	Pump performance
SVR (afterload)	800–1200	↑ vasoconstriction; ↓ in distributive shock
MAP	≥65 mmHg	Organ perfusion target
Arterial line	continuous BP	Level & **zero to phlebostatic axis**; assess Allen test before radial

LINE SAFETY

Air embolus risk with central lines (left side-lying/Trendelenburg, occlude, O_2 if suspected). Never leave a balloon-wedged PA catheter inflated (pulmonary infarction). Zero/level transducers each shift & with position change.

MOC: Lines, drips, and waveform interpretation are RN/ICU scope. UAP may report a site that "looks wet" or a number on the monitor — the RN interprets and intervenes. First post-procedure assessment is RN, not delegated.

9 MASTER LAB & VALUE TABLE

the numbers that change your action — with the NCLEX "so what"

CARDIAC-RELEVANT VALUES + SIGNIFICANCE

VALUE	NORMAL / CRITICAL	NCLEX SIGNIFICANCE
Troponin I/T	<0.04 ng/mL; ↑ = injury	Most specific MI marker; serial trending
BNP	<100 pg/mL	↑ = HF/volume overload
CK-MB	0–3% of total CK	Supports MI; earlier reinfarction marker
Potassium (K^+)	3.5–5.0 (crit <2.5 / >6.5)	Dysrhythmias; digoxin toxicity if low; peaked T/wide QRS if high
Magnesium	1.5–2.5 mg/dL	Low → torsades/VT; replace with K^+
Sodium	135–145	Dilutional ↓ in HF (fluid overload)
Digoxin level	0.5–2.0 ng/mL	>2.0 → toxicity; correlate with K^+ & HR
INR	2–3 (2.5–3.5 mech valve)	Warfarin monitoring; ↑ = bleed risk
aPTT	therapeutic 1.5–2.5× control	Heparin monitoring
LDL / total chol	LDL <100 (<70 high-risk)	Statin therapy target
Cholesterol HDL	>40–60 mg/dL	Protective; higher is better
BP staging	Elevated 120–129/<80; Stage 1 130–139/80–89; Stage 2 ≥140/≥90; Crisis >180/>120	Drives treatment thresholds

10 PRIORITY LADDERS (MANAGEMENT OF CARE)

who do I see first · what do I do first · what do I report

"WHICH PATIENT FIRST?" — WORKED PRIORITIZATION

1. New crushing chest pain + ST elevation / diaphoresis (active MI / unstable)
2. Acute dyspnea + SpO_2 <90% + pink frothy sputum (flash pulmonary edema)
3. Lethal/unstable rhythm: VT with pulse + hypotension, new complete heart block, symptomatic brady
4. New neuro change / pulse deficit + tearing back pain (dissection)
5. Post-op cardiac: chest-tube output >100 mL/hr, falling BP + rising HR (bleeding/tamponade)
6. Chronic stable angina relieved by rest; controlled chronic HF at baseline (stable — see later)

ORDERING PRINCIPLES

ABC → unstable before stable → acute before chronic → actual before risk → **trend** over single value → "least restrictive / most reversible" when tied. A new or changing finding outranks an expected chronic one even if the chronic number looks worse.

DELEGATION QUICK-SORT

TASK	RN	LPN/LVN	UAP/AP
Assess new chest pain	✔	—	—
Initial post-procedure assessment	✔	—	—
IV push cardiac meds / titrate drips	✔	—	—
Patient/family teaching (new)	✔	reinforce	—
Stable patient meds (PO/SQ), monitor expected	✔	✔	—
Vitals (stable), I&O, daily weight, ADLs, ambulation	✔	✔	✔

DELEGATION TRAPS

You may delegate the *task* but never the *accountability*. Don't delegate assessment, teaching, evaluation, or anything for an **unstable** or **first-time** patient. "Take vitals" is fine for UAP; "interpret the rhythm" is not.

11 IF → THEN DECISION RULES

reflex responses to memorize cold

IF chest pain unrelieved by rest + NTG, >15–20 min	→	THEN treat as MI: ECG, aspirin, notify, continuous monitor
IF pulseless + VF/VT on monitor	→	THEN CPR + **defibrillate** immediately
IF pulseless + asystole/PEA	→	THEN CPR + epi; **do NOT shock**; find H's & T's
IF unstable tachydysrhythmia *with a pulse*	→	THEN **synchronized cardioversion**
IF SVT & stable	→	THEN vagal maneuvers → adenosine rapid IV push + flush
IF apical pulse <60 before digoxin/beta-blocker	→	THEN hold dose + notify provider
IF K^+ low + on digoxin	→	THEN high toxicity risk → correct K^+, monitor for toxicity
IF SBP <90 (or PDE5 inhibitor use)	→	THEN hold nitroglycerin
IF HF patient, sudden dyspnea + crackles + frothy sputum	→	THEN sit upright, O_2, IV loop diuretic, notify
IF hypotension + JVD + muffled heart sounds	→	THEN suspect tamponade → prepare for pericardiocentesis
IF tearing chest/back pain + unequal arm BPs	→	THEN suspect aortic dissection → control HR/BP, emergent imaging/surgery
IF A-fib >48 h before elective cardioversion	→	THEN anticoagulate 3–4 wk (or TEE) first
IF daily weight up >2–3 lb in a day	→	THEN fluid retention → report; reassess HF status

12 THE 8-TRAP GRID

the misconceptions the 2026 NGN is built to exploit

1 DEFIB VS CARDIOVERT

Myth: "Shock any bad rhythm."

Truth: Defibrillate only VF/pulseless VT. Synchronized cardioversion for unstable rhythms *with a pulse*. Never shock asystole/PEA.

2 STABLE VITALS = STABLE PATIENT

Myth: "BP normal, so they're fine."

Truth: Tachycardia & vasoconstriction are compensation. Falling urine output / rising lactate / anxiety precede a BP crash.

3 GIVE THE DOSE, DON'T ASSESS

Myth: "It's ordered, so give it."

Truth: Apical pulse before dig/beta-blocker, BP before nitrates, K^+ before dig, INR/aPTT before anticoagulants.

4 O_2 FOR EVERYONE IN ACS

Myth: "MI = high-flow O_2 always."

Truth: Give O_2 only if SpO_2 <90%; routine hyperoxia is not beneficial. Aspirin is the higher-yield first action.

5 LEFT VS RIGHT HF CONFUSION

Myth: "Edema = left heart failure."

Truth: L = Lungs (crackles, dyspnea); R = Rest of body (JVD, peripheral edema, ascites).

6 FLUIDS FOR ALL SHOCK

Myth: "Low BP → bolus fluids."

Truth: Cardiogenic shock has HIGH preload — fluids worsen it. Bolus is for hypovolemic/low-preload shock.

7 NTG + ED MEDS

Myth: "Nitro is harmless."

Truth: Nitrates + PDE5 inhibitors (sildenafil) → profound, possibly fatal hypotension. Always screen.

8 STOP THE BETA-BLOCKER

Myth: "Low HR → just discontinue."

Truth: Hold & notify, but never abrupt withdrawal — rebound tachycardia, HTN, ischemia, dysrhythmia.

13 NCLEX PATTERN GRID + NGN BOW-TIE BANK

cue → answer reflexes · bow-tie templates for each major condition

CUE → BEST ANSWER PATTERN GRID

"Crushing pain radiating to jaw, diaphoretic"
→ ACS: 12-lead, aspirin, notify, monitor

"Pink frothy sputum + crackles"
→ Acute pulmonary edema: upright, O_2, IV furosemide

"Irregularly irregular, no P waves"
→ A-fib: rate control + anticoagulate

"Yellow-green halos + nausea + bradycardia"
→ Digoxin toxicity: hold, check level & K^+, Fab antidote

"Pain better leaning forward + friction rub"
→ Pericarditis (watch for tamponade)

"Hypotension + JVD + muffled sounds"
→ Tamponade: pericardiocentesis

"Tearing back pain + unequal arm BP"
→ Aortic dissection: lower HR/BP, emergent

"Cool pale leg, pain on elevation"
→ PAD (arterial): dependent positioning

"Warm red swollen calf, unilateral"
→ DVT: anticoagulate, don't massage, watch PE

"Wide pulse pressure + bounding pulses"
→ Aortic regurgitation

"Syncope + angina + DOE, systolic murmur"
→ Aortic stenosis

"Weight up 4 lb overnight in HF"
→ Fluid retention: report, reassess

NGN BOW-TIE TEMPLATES

Middle = condition. Left = 2 actions to take. Right = 2 parameters to monitor.

BOW-TIE · ACUTE MI / STEMI

ACTIONS TO TAKE	CONDITION	PARAMETERS TO MONITOR
• Administer chewable aspirin • Obtain 12-lead ECG & notify provider for reperfusion	• **ST-elevation MI** • Full coronary occlusion; transmural ischemia	• Serial troponin & ECG • Cardiac rhythm + chest pain/perfusion

BOW-TIE · ACUTE DECOMPENSATED HEART FAILURE

ACTIONS TO TAKE	CONDITION	PARAMETERS TO MONITOR
• Position high-Fowler's + O_2 • Administer IV loop diuretic	• **Flash pulmonary edema / left HF** • ↑ left-sided filling pressures	• SpO_2, respiratory effort, lung sounds • Daily weight, I&O, BNP, K^+

BOW-TIE · DIGOXIN TOXICITY

ACTIONS TO TAKE	CONDITION	PARAMETERS TO MONITOR
• Hold digoxin; notify provider • Prepare digoxin immune Fab; correct K^+	• **Digoxin toxicity** • Narrow therapeutic index, ↑ by hypokalemia	• Apical HR & rhythm • Digoxin level & potassium

BOW-TIE · SYMPTOMATIC A-FIB WITH RVR

ACTIONS TO TAKE	CONDITION	PARAMETERS TO MONITOR
• Rate control per order (beta-blocker/diltiazem) • Initiate/verify anticoagulation	• **Atrial fibrillation** • Atrial stasis → embolic stroke risk	• HR, rhythm, hemodynamic stability • Neuro status (stroke); INR/aPTT

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