



ICR-HTN-012

Cardiology · critical care
Updated 20 Jun 2026

CRITICAL CARE ORDER SET

Hypertensive Emergency

ICU management of hypertensive crisis with acute target-organ damage. Establish an arterial line, lower MAP gradually — not abruptly — and tailor agent and target to the syndrome: aortic dissection, ICH, ischemic stroke, ACS, pulmonary edema, or eclampsia. Adapt every dose to your institutional protocol and the patient in front of you.

PATIENT -----	MRN -----	WEIGHT (KG) -----	TARGET ORGAN INVOLVED -----
ALLERGIES -----	BP TARGET (MAP / SBP) -----	ORDERING CLINICIAN -----	CODE STATUS -----

01 Diagnosis & monitoring

PRINCIPLE Emergency = severe hypertension **with acute target-organ damage**. Lower BP in a controlled fashion via continuous IV infusion with arterial-line monitoring — abrupt overcorrection causes organ hypoperfusion.

ADMIT / LEVEL OF CARE

- ☐ Admit / transfer to **ICU**
- ☐ Diagnosis: **hypertensive emergency** — specify target-organ damage (pulmonary edema, aortic dissection, ICH, ACS, AKI, eclampsia)

VITAL SIGNS & NEURO CHECKS

- ☐ Continuous cardiac telemetry and pulse oximetry
- ☐ Noninvasive BP **q5 min** until controlled, then **q15–30 min** (same limb when possible)

- ☐ **Arterial line** for continuous invasive BP — indicated for IV antihypertensive infusion
- ☐ Neuro checks (if neuro involvement / high risk): **q1 h × 6 h**, then **q2–4 h** (NIHSS or unit neuro exam)

INTAKE / OUTPUT

- ☐ Foley catheter for strict I/O; target urine output $\geq 0.5 \text{ mL/kg/h}$; record I/O **q1 h**
- ☐ Daily weight

02 Initial workup

LABORATORY — STAT, THEN AS INDICATED

- | | |
|--|---|
| ☐ CBC with differential | ☐ BMP (Na, K, Cl, HCO_3 , BUN, Cr, glucose) |
| ☐ Magnesium, phosphorus | ☐ Liver function tests |
| ☐ Coagulation — PT/INR, aPTT | ☐ Cardiac troponin (high-sensitivity) $\pm$ CK / CK-MB |
| ☐ BNP / NT-proBNP if heart failure suspected | ☐ Serum β -hCG (childbearing potential) |
| ☐ Urinalysis with microscopy | ☐ Urine protein/creatinine ratio (suspected malignant HTN) |
| ☐ Type & screen (if bleeding / procedure anticipated) | ☐ ABG / VBG if respiratory distress or AMS |

IMAGING & DIAGNOSTICS

- ☐ **12-lead ECG (STAT)**
- ☐ Portable chest x-ray — pulmonary edema, cardiomegaly, aortic contour
- ☐ CT head without contrast (STAT) if new neuro deficit, AMS, seizure, or severe headache
- ☐ CTA chest / abdomen / pelvis (STAT) if suspected aortic dissection (tearing pain, pulse deficit, mediastinal widening)
- ☐ Urgent echocardiogram if new HF, cardiogenic shock, or suspected dissection (TTE / TEE)
- ☐ Fundoscopic exam for hypertensive retinopathy (if feasible)

03 Hemodynamic targets

DEFAULT Reduce **MAP** by ~20–25% over the first 1–2 h, then to ~160/100–110 mmHg over the next 2–6 h. Avoid rapid overcorrection, especially in chronic severe HTN.

MODIFY TARGET BY CONDITION — DOCUMENT IN ORDERS

CONDITION	BP TARGET
Aortic dissection	SBP 100–120 mmHg as rapidly as possible AND HR 60–70 bpm
Ischemic stroke — no lysis	Treat only if SBP > 220 or DBP > 120 mmHg in first 24 h
Ischemic stroke — lysis planned/given	Maintain SBP < 185 / DBP < 110 mmHg per protocol
Intracerebral hemorrhage	SBP 140–160 mmHg (per institutional guideline)
Eclampsia / severe preeclampsia	SBP < 160 / DBP < 105 mmHg

NURSING INSTRUCTION

☐ Notify provider for SBP < [X] mmHg, MAP < [Y] mmHg, or any neurologic change

04 IV antihypertensive therapy

Choose **one primary agent** guided by clinical context and organ involvement. Document explicit hold and titration parameters.

A Nicardipine infusion — good general choice; avoid in acute HFrEF

- ☐ Start **5 mg/h IV**; increase by **2.5 mg/h q5–15 min** to target; max **15 mg/h**
- ☐ Once at goal, titrate down to lowest effective rate; hold / reduce if SBP < [X] or MAP < [Y]; dedicated line, monitor for phlebitis

B Clevidipine infusion — rapid, easily titratable

- ☐ Start **1–2 mg/h**; double q90 sec until near target, then <100% increments q5–10 min; usual **4–12 mg/h**, max **20 mg/h**

- ☐ Contraindicated in soy / egg allergy or defective lipid metabolism; hold / reduce below ordered thresholds

C **Labetalol** — bolus ± infusion

- ☐ Bolus **10–20 mg IV over 2 min q10–15 min** PRN; max cumulative ~300 mg/24 h
- ☐ Infusion **0.5–2 mg/min**, titrate by 0.5–1 mg/min q15 min; max 4–8 mg/min
- ☐ Hold / reduce for HR < 55, SBP < [X], new wheezing / bronchospasm, or acute HF

Contraindicated in acute decompensated HF, bradycardia, high-degree AV block, severe asthma / COPD.

D **Nitroprusside** — reserve if others inadequate

- ☐ Start **0.3 mcg/kg/min**, increase 0.5 mcg/kg/min q5 min; usual 0.5–4, max 10 mcg/kg/min short-term
- ☐ Requires arterial line; monitor cyanide / thiocyanate toxicity; consider beta-blocker to blunt reflex tachycardia

Avoid in renal / hepatic failure, pregnancy, and raised intracranial pressure.

E **Nitroglycerin infusion** — prefer with ACS or acute pulmonary edema

- ☐ Start **5–10 mcg/min**, increase 5–10 mcg/min q5–10 min; usual range 20–200 mcg/min
- ☐ Hold for SBP < [X], MAP < [Y], or refractory headache / hypotension; avoid with recent PDE5 inhibitors

F **Hydralazine** — not routine first-line; consider in pregnancy

- ☐ **5–10 mg IV q20–40 min** PRN — unpredictable response; risk of overshoot hypotension and reflex tachycardia

DISSECTION Prioritize **beta-blockade first** (labetalol or esmolol) before any vasodilator (e.g., nicardipine) to avoid reflex tachycardia and increased aortic shear stress.

05 **Condition-specific adjuncts**

- ☐ Noninvasive ventilation (BiPAP) per respiratory protocol if indicated
- ☐ Furosemide **20–40 mg IV** (higher if on chronic loop diuretic); repeat per response / renal function
- ☐ Nitroglycerin infusion (agent E above)

AORTIC DISSECTION

- ☐ Beta-blocker first (labetalol or esmolol); add vasodilator (nicardipine) only after HR controlled
- ☐ STAT cardiothoracic / vascular surgery consult; CTA chest / abdomen / pelvis

ACUTE CORONARY SYNDROME

- ☐ Standard ACS bundle — aspirin, P2Y₁₂ inhibitor, therapeutic anticoagulation if not contraindicated
- ☐ Nitroglycerin infusion if hypertensive and symptomatic; avoid excessive lowering that impairs coronary perfusion

ICH / ISCHEMIC STROKE

- ☐ BP targets per stroke / ICH protocol (Section 3); neurosurgery and/or neurology consults
- ☐ Avoid excessive BP drops causing neurologic deterioration

PREECLAMPSIA / ECLAMPSIA

- ☐ OB / MFM consult
- ☐ Magnesium sulfate **4–6 g IV load over 20–30 min**, then **1–2 g/h** infusion
- ☐ Labetalol IV, hydralazine IV, or nifedipine PO per local obstetric protocol

06

Symptom control & supportive care

ANALGESIA / SEDATION — REDUCE SYMPATHETIC DRIVE

- ☐ Fentanyl **25–50 mcg IV q15–30 min** PRN pain, or infusion per ICU protocol
- ☐ Dexmedetomidine or short-acting benzodiazepine per ICU sedation guidelines for anxiety / agitation (if hemodynamically appropriate)
- ☐ Avoid oversedation that impairs neuro assessment unless intubated

ANTIEMETICS & FLUIDS

- ☐ Ondansetron **4 mg IV q6–8h** PRN nausea

- ☐ Maintenance IV fluids tailored to volume status (many will not need aggressive fluids); avoid large boluses unless hypotensive / volume-depleted

DIET

- ☐ NPO initially if unstable, altered, or possible emergent procedure; advance as appropriate

07 Transition to oral therapy

WHEN Once BP is stable for several hours with no acute organ instability.

INITIATE / OPTIMIZE ORAL ANTIHYPERTENSIVES – TAILOR TO COMORBIDITIES & CAUSE

- ☐ ACE inhibitor or ARB
- ☐ Thiazide or thiazide-like diuretic
- ☐ Dihydropyridine CCB (e.g., amlodipine)
- ☐ Beta-blocker (CAD, arrhythmia, dissection history)
- ☐ Loop diuretic if volume overloaded / HF

TAPER IV AGENT & MONITOR

- ☐ Gradually down-titrate IV infusion as oral agents take effect (over several hours)
- ☐ Stop IV drip once BP stable in goal range > 12–24 h on orals
- ☐ BP **q15–30 min** for several hours after major changes, then **q1–4 h**

08 Nursing & safety parameters

CALL PROVIDER IF

- ☐ SBP < [X] or > [Y] mmHg on two consecutive readings 5–10 min apart
- ☐ HR < 50 or > 120 bpm
- ☐ Chest pain, dyspnea, new neurologic deficit, or decreased level of consciousness
- ☐ Infusion line management per protocol (dedicated line, labeled tubing, pump checks)
- ☐ Fall precautions if orthostatic risk

09

Disposition & follow-up

- ☐ Document suspected etiology (medication nonadherence, drug use, renal artery stenosis, endocrine cause)

TRANSITION TO STEP-DOWN / FLOOR ONCE

- ☐ No IV antihypertensives for > 24 h
- ☐ Stable BP on oral regimen, no ongoing acute organ-damage evolution

ARRANGE

- ☐ Outpatient hypertension follow-up within 1–2 weeks
- ☐ Education — home BP monitoring, adherence, lifestyle, substance-use counseling

EDUCATIONAL USE ONLY

Not a substitute for clinical judgement. Verify doses, allergies, renal function, and contraindications. Adapt all agents, targets, and thresholds to your institutional protocols, formulary, and the individual patient and syndrome.

Spreading knowledge
Improving outcomes