



Does this person need vasopressors?

- Consider all etiologies of shock (cardiogenic, obstructive, hypovolemic, and distributive); are other treatments (fluids, blood transfusions, inotropes, etc.) indicated?
- Is there evidence of hypoperfusion? Is BP accurate?

What is my blood pressure goal?

Use mean arterial pressure (MAP) as your goal; target MAP >65
MAP > 60 mmHg [may be equivalent](#) to MAP > 65 mmHg in patients over 65 years old

Although higher MAP goals are generally not beneficial, some patients (neurological issues, stenosed coronaries, etc) may benefit from higher individualized MAP goals

Which vasopressor to start?

Treat the underlying physiology (is a mixed vasoconstriction and inotropy desirable?, [High PA pressures](#) → VASO, Anaphylaxis → EPI)

Push-dose versus continuous infusion

[Push-dose](#) good for transient hypotension (e.g. post intubation) or when pressor infusion is not immediately available. Two options:

- PHENYLEPHRINE** syringe (pre-mixed); administer 50-100 mcg
- EPINEPHRINE**: combine 1 cc of a 10 cc Epi syringe (1:10,000 ACLS dose) with 9 cc of saline (makes 100 mcg epi in 10 cc); administer 10-20 mcg at a time (repeat q1 minute)

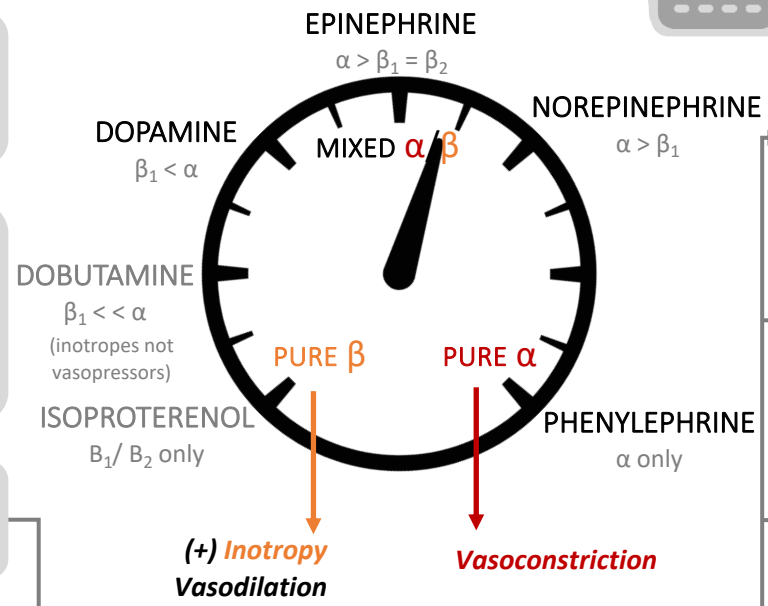
If a patient requires push dose, expect a need for an ongoing infusion.

Add additional pressors if needed

Again consider the physiology. Does this person need *inotropy*? Do they need **blood products/fluid**? **Steroids**? Are they acidemic? For sepsis, [no benefit to starting in a particular sequence](#), though NE → VASO → EPI → PHENYL → DA is common.

Weaning vasopressors

Wean one pressor at a time; may be advantage to [weaning VASO before NE](#). Some patients may benefit from adding MIDODRINE 10 mg 8 hr PO to [facilitate weaning from pressors/liberating from ICU](#). Consider contraindications and renal dosing.



NOREPINEPHRINE 0.5 – 30 mcg/min
(a.k.a. Levophed, 'levo', noradrenaline)
Good general purpose pressor with combined vasoconstriction and inotropy
Often used first line for septic shock.

EPINEPHRINE 1 – 10 mcg/min
(a.k.a. adrenaline)
Ideal for anaphylactic shock (also has bronchodilator activity)
Increases lactic acid production

VASOPRESSIN 0.01 – 0.06 units/min
Long half-life; hard to titrate, often used at a fixed dose. Non-catecholamine pressor;
Good adjunct for septic shock
Unlike other pressors it does not ↑ PA pressures but higher risk for gut ischemia

PHENYLEPHRINE 40 – 180 mcg/kg/min
(a.k.a. Neosynephrine 'neo')
Pure alpha effects; good for pure vasodilatory states or in patients who cannot tolerate inotropy (tachycardia or Afib w/ RVR)

DOPAMINE 1 – 20 mcg/kg/min
Mixed effects; May be vasodilatory at low doses (hard to 'wean' off)
In patients with cardiogenic shock, DA is [more arrhythmogenic](#) than NE.

Central versus peripheral administration?

Do not wait for central access to begin pressors if needed!
[It is safe and effective](#) to give vasopressors peripherally if:

- The IV is newly placed, in a larger vein (4mm or larger) and not in the hand, wrist, or antecubital fossa
- You have a protocol to monitoring for extravasation
- You know [what to do if there is extravasation](#) (protocol)

PHENYLEPHRINE, NOREPINEPHRINE, EPINEPHRINE can be given peripherally. (Avoid VASOSPRESSIN peripherally) In the case of high dose pressors, multiple pressors, or prolonged infusion central venous access is recommended.

(requiring > 2 pressors)

Vasopressor refractory shock

Am I treating the cause of shock?

- Consider differential d/dx of shock (e.g. don't treat blood loss w/ pressors!)
- Acidosis decreases efficacy of pressors!**

Increase dose of pressors: EPI, NE, DA, PHENYL do not have a true max dose.

Consider **stress dose steroids** and **alternative agents** (such as methylene blue, angiotensin II) or **interventions** (VA ECMO)

STEROIDS

Stress Dose Steroids

- Hydrocortisone 50 mg q6 hrs IV
- Wean over days as pressor requirement decreases
- Reduces [pressor requirement/duration](#)

METHYLENE BLUE

[Nitric oxide scavenger](#) that can be used if pressor refractory

- 1 – 2 mg/kg SLOW IV push
- Good for refractory hypotension or hypotension due to vasoplegia (e.g. after cardiopulmonary bypass)