

# VASOPRESSORS, INOTROPES & INODILATORS

	MOA	INDICATIONS	DOSING	SIDE EFFECTS
<b>VASOPRESSORS &amp; INOTROPES</b>				
<b>Norepinephrine</b> <i>Levophed</i> "Levo"	$\alpha_1 = \alpha_2 > \beta_1$ agonist ↑ SVR, ↑ CO	Septic shock (1st-line) Hypovolemic shock (1st-line)	1-30 mcg/min <i>Although you can continue to increase dose, consider second pressor when dose approaches 10-15 mcg/min</i>	Arrhythmia Digit ischemia
<b>Vasopressin</b> <i>Pitressin</i> "Vaso"	V <sub>1</sub> agonist: ↑ SVR V <sub>2</sub> agonist: ↑ Renal H <sub>2</sub> O reabsorption	Generally the second pressor added in shock	1.8 or 2.4 units/hour <i>Fixed dosage as used in the VASST and VANISH trials</i>	Minimal side effects at fixed dosing Only vasopressor to not increase PVR
<b>Epinephrine</b> <i>Adrenalin</i> "Epi"	$\beta_1 = \beta_2 > \alpha_1 = \alpha_2$ ↑ CO, ↑ SVR	ACLS (1st line) Anaphylaxis (1st line) Symptomatic bradycardia Shock (adjunctive)	1-40 mcg/min	↑ HR ↑ Arrhythmias ↑ Lactate ( <i>not</i> from hypoperfusion)
<b>Phenylephrine</b> <i>Neosynephrine</i> "Neo"	Pure vasopressor $\alpha_1$ agonist: ↑ SVR	1st-line vasopressor in the OR Shock (adjunctive)	50-300 mcg/min	Reflex bradycardia <i>more prominent with bolus</i> ↑ PVR Digit ischemia
<b>Dopamine</b> <i>Intropin</i> "Dopa"	D <sub>1</sub> > $\beta_1$ > $\alpha_1$ D <sub>1</sub> : ↑ RBF & UOP $\beta_1$ : ↑ CO $\alpha_1$ : ↑ SVR	Symptomatic bradycardia Refractory shock (adjunctive; studies have shown ↑ mortality compared to Levo, so generally not used 1st-line anymore)	5-20 mcg/kg/min	Arrhythmia <i>most common with this pressor over others</i>
<b>Angiotensin II</b> <i>Giapreza</i> "Ang II"	↑ Aldosterone ↑ SVR	Sepsis/distributive (refractory)	5-40 ng/kg/min	Thrombosis Delirium
<b>Methylene Blue</b>	↓ NO & cGMP → ↑ smooth muscle tone ↑ SVR	Refractory shock/vasoplegia Post-cardiopulmonary bypass	Initial loading dose: 1-2 mg/kg over 10-20 min Infusion: 0.5-1 mg/kg/hr	Falsely ↓ SpO <sub>2</sub> ↑ PVR Serotonin syndrome Contraindicated in G6PD deficiency
<b>INODILATORS</b>				
<b>Dobutamine</b> <i>Dobutrex</i>	$\beta_1 > \beta_2 > \alpha_1$ agonist ↑ CO, ↓ SVR	Cardiogenic shock	2-20 mcg/kg/min	↓ BP, ↑ HR Angina, Arrhythmia, Tachyphylaxis
<b>Milrinone</b> <i>Primacor</i>	PDE <sub>3</sub> inhibitor (↑ cAMP) ↑ Inotropy ↑ CO, ↓ PVR, ↓ SVR	Cardiogenic shock	Initial loading dose: 50 mcg/kg over 10 min Infusion: 0.125-0.75 mcg/kg/min	Arrhythmia ↓ BP Ischemia

MOA = mechanism of action     $\alpha$  = alpha     $\beta$  = beta    D = delta    CO = cardiac output    SVR = systemic vascular resistance    BP = blood pressure    HR = heart rate    PVR = pulmonary vascular resistance  
RBF = renal blood flow    UOP = urine output    NO = nitric oxide    cGMP = cyclic guanosine monophosphate    PDE<sub>3</sub> = phosphodiesterase 3    cAMP = cyclic adenosine monophosphate