

EPINEPHRINE [ADRENALINE]

DRUG CLASSIFICATION	Direct-Sympathomimetic Catecholamine; Alpha- and Beta-Adrenergic Receptor Agonist; Bronchodilator / Vasoconstrictor Agent														
MECHANISM OF ACTION	By utilizing a G protein-linked second messenger system, Epinephrine stimulates alpha- and beta-adrenergic receptors, having a greater affinity for beta receptors in small doses and the capability of selective action on alpha receptors in higher doses. Alpha-1 effects produce vascular smooth muscle contraction, pupillary constriction, and intestinal sphincter muscle contraction. Beta-1 effects produce increased heart rate, increased cardiac contractility, and renin release. Beta-2 effects produce bronchodilation, vasodilation, tocolysis and stimulation of aqueous humor production rates.														
CLINICAL INDICATIONS	Symptomatic Bradycardia, Hypotension; Shock; Cardiac Arrest Moderate-to-Severe Allergic Reaction or Anaphylaxis Severe Respiratory Distress Associated with Bronchospasm														
CONTRAINDICATIONS	There are no absolute contraindications in the emergency setting.														
ADVERSE EFFECTS	Headache / Nausea / Anxiety / Palpitations / Tachycardia / Angina / Dyspnea / Hypertension / Arrhythmia / Pulmonary Edema														
GENERAL RISKS & PRECAUTION	1) Epinephrine may precipitate or aggravate angina pectoris and tachydysrhythmias, especially in the presence of underlying cardiac disease. 2) Use extreme caution for patients with severe coronary insufficiency or conditions associated with cardiac dilation. 3) Due to typical effects of peripheral constriction and cardiac stimulation, pulmonary edema may occur. 4) Use with extreme caution for patients suspected of having hypersensitivity to sympathomimetic amines. 5) Use caution in patients with severe narrow-angle glaucoma, thyroid disease, or pheochromocytoma. 6) For cardiac arrest of hypothermic patient with body temperature < 86°F, antiarrhythmics may not work and if given should be given at increased intervals. Epinephrine / Vasopressin can be administered. Contact medical control for direction. 7) Epinephrine is ineffective in treating patients with a Total Artificial Heart (TAF); further, administration may cause hypertension and / or worsen the patient's condition. 8) Anaphylaxis unresponsive to repeat doses of IM epinephrine may require IV epinephrine administration by IV push or epinephrine infusion.														
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MEDICATION ADMINISTRATION

ADULT

PEDIATRIC

Sepsis Screen Positive With Signs of Septic Shock (No Improvement after LR)
0.1 mcg / kg / min [IV/IO]; Titrate to effect SBP > 90; (Maximum: 10 mcg / min)

Respiratory Distress with Stridor
1 mg of **Epi 1:1000** in 2 mL Normal Saline [NEB]; May repeat once if needed.
0.3 – 0.5 mg Epi 1:1000 [IM]

Adult Asystole / PEA
1 mg **Epi 1:10,000** [IV/IO]; Repeat every 3-5 minutes.

Symptomatic Bradycardia with Pulse Present (No Response to Atropine)
0.1 mcg / kg / min [IV/IO] Infusion (Maximum: 10 mcg / min)

Ventricular Fibrillation / Pulseless Ventricular Tachycardia
1 mg **Epi 1:10,000** [IV/IO]; Repeat every 3-5 minutes.
If VF / VT refractory to defibrillation, delay Epinephrine administration until after 2nd defibrillation

Moderate to Severe Allergic Reaction
0.3 – 0.5 mg of **Epi 1:1000** [IM]; Repeat every 5 minutes if no improvement.
If no improvement is observed with [IM] Epinephrine 1:1000, consider:
0.1 mcg / kg / min [IV/IO] Infusion (Maximum: 10 mcg / min)

Hypotension with Signs of Shock and No Trauma Involvement
0.1 mcg / kg / min [IV/IO]; Titrate to effect SBP > 90; (Maximum: 10 mcg / min)

Sepsis Screen Positive With Signs of Septic Shock (No Improvement after LR)
0.1 mcg / kg / min [IV/IO]; Titrate to effect SBP > 90; (Maximum: 10 mcg/min)

Respiratory Distress with Stridor / Croup
1 mg of Epi 1:1000 in 2 mL of NS [NEB]; May repeat once if needed.
0.01 mg / kg of **Epi 1:1000** [IM]; (Maximum: 125 mg)

Newly Born with Heart Rate Less than 60 bpm
0.01 mg / kg of **Epi 1:10,000** [IV/IO]; Repeat every 3-5 minutes as needed.

Pediatric Asystole / PEA
0.01 mg / kg of **Epi 1:10,000** [IV/IO] (Maximum Single Dose: 1 mg)
Repeat every 3-5 minutes.

Pediatric Bradycardia with Poor Perfusion
0.01 mg / kg of **Epi 1:10,000** [IV/IO] (Maximum Single Dose: 1 mg)
Repeat every 5 minutes.

Pediatric Ventricular Fibrillation / Pulseless Ventricular Tachycardia
0.01 mg / kg of **Epi 1:10,000** [IV/IO] (Maximum 1 mg); Repeat every 3-5 minutes.

Moderate to Severe Pediatric Allergic Reaction
if ≥ 30 kg 0.3 – 0.5 mg of **Epi 1:1000** [IM] **or if < 30 kg** 0.15 mg of **Epi 1:1000** [IM]
Repeat every 5 minutes; If no improvement with [IM] Epi 1:1000, consider:
0.1 mcg / kg / min [IV/IO] Infusion (Maximum: 10 mcg / min)

Pediatric Hypotension with Signs of Shock
0.1 mcg / kg / min [IV/IO] Infusion (Maximum of 10 mcg / min)
Titrate to age-appropriate SBP ≥ 70 + 2 x AGE; See PM-3 Notes for Dosing