



## El Dorado County Emergency Medical Services Agency

Quick Reference

Revised: March 2025

### Medication Profile

## Epinephrine (Adrenalin)

#### Class:

Natural Catecholamine/Sympathomimetic

#### Action:

Potent catecholamine with Alpha and Beta effects; Epinephrine causes vasoconstriction in the arterioles of the skin, mucosa, and splanchnic areas, and antagonizes the effects of histamine.

#### Alpha Effects:

Increased respiratory tidal volume and vital capacity by vasoconstriction of arterioles in lungs (↓ edema)

Vasoconstriction in skin, kidneys, stomach, intestines, liver and pancreas

#### Beta Effects:

Increased heart rate, force of contraction, AV-node conduction, spontaneous contraction, cardiac output, tidal volume, coronary blood flow, O<sub>2</sub> consumption, myocardial irritability.

Bronchodilation

Vasodilation of circulation to heart and skeletal muscle

**Onset:** IV/IO Immediate  
SQ/IM 5-10 minutes

**Peak:** IV/IO < 5minutes  
IM 30 minutes

**Duration:** Varies

#### Indications:

- Cardiopulmonary arrest: VFIB/Pulseless VT, Asystole, PEA
- Allergic reaction/ anaphylaxis
- Asthma
- Refractory pediatric bradycardia, unresponsive to O<sub>2</sub> and ventilation
- Stridor (croup, airway burns, laryngeal edema)

#### Contraindications:

- Hypertension

**Adult Administration:**

<b>Pulseless Arrest</b>	1mg (1:10,000) IV/IO, repeat every 3-5 minutes if patient remains pulseless.
<b>Bronchospasm</b>	0.5mg (1:1,000) IM. May repeat every ten minutes. <i>Base order unless pt is in extremis.</i>
<b>Allergic Reaction</b>	0.5mg (1:1,000) IM. May repeat every ten minutes if no improvement.
<b>ROSC/Shock/Sepsis/ Allergic Reaction</b>	2 mL, 1:100,000 slow IVP, every 2-5 min, titrated to effect. See <i>EPINEPHRINE DILUTION procedure.</i>
<b>Stridor</b> (croup, airway burns, laryngeal edema)	5mg (5mL, 1:1000) Nebulized over 5 minutes. <i>In addition to any IM doses that may otherwise be indicated.</i>
<b>Auto Injector</b>	0.3mg (0.3mL, 1:1,000) IM. Lateral thigh preferred. May repeat in 10 minutes if ALS response is delayed and condition worsens.

**Pediatric Administration:**

<b>Pulseless Arrest</b>	0.01mg/kg (0.1mL/kg, 1:10,000) IV/IO. Repeat every 3-5 min if patient remains pulseless
<b>Bronchospasm</b>	0.01mg/kg (1:1,000) IM. Max 0.3mg, May repeat x1 in 10 minutes. <i>Base order unless pt is in extremis.</i>
<b>Bradycardia</b>	0.01mg/kg IV/IO (1:10,000, 0.1mL/kg) Repeat dose every 3-5 minutes.
<b>Allergic Reaction</b>	0.01mg/kg IM (1:1,000, Max 0.5mg) May repeat every 10 minutes x2 as needed. Mid-antrolateral thigh preferred.
<b>ROSC/Shock/Sepsis/ Allergic Reaction</b>	<20kg = 0.1 mL/kg, 1:100,000 slow IVP, every 2-5 min, titrated to effect. >20kg = 2mL, 1:100,000 slow IVP, every 2-5 min, titrated to effect. <i>See EPINEPHRINE DILUTION procedure.</i>
<b>Stridor</b> (croup, airway burns, laryngeal edema)	0.5mL/kg (not to exceed 5mL) 1:1000 Nebulized Epinephrine. <ul style="list-style-type: none"> <li>• Dilute with NS to 5mL to allow for nebulization.</li> <li>• Repeat q 10 minutes until stridor subsides.</li> <li>• This should be in addition to IM epinephrine</li> </ul>
<b>Auto Injector</b>	0.15mg (0.3mL, 1:2,000) IM (Lateral thigh preferred). May repeat in 10 minutes if ALS response is delayed and condition worsens.

This document is not a substitute for Protocols and Procedures.

Effective Date: September 1, 2020

**Side Effects:**

CV: Tachycardia, palpitations, chest pain, hypertension, V-tach/V-fib  
CNS: Headache, tremors, anxiety, dizziness, restlessness, convulsions  
GI: Nausea, vomiting, anorexia, cramps  
Skin: Pallor, flushing, sweating, painful blanching at SQ injection site

**Pregnancy:**

Category C

**Notes:**

- Use caution in patients with cardiac ventricular dysrhythmias, pregnancy, severe hypertension, coronary artery disease, tachy-dysrhythmias, hypovolemic shock, chest pain of cardiac origin, or greater than 70-years old.
- When delivering as a push-dose, anticipate adjusting speed of each administration, as well as the interval between doses. This is due to the quick onset and short duration of epinephrine.