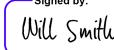




# Jackson Hole Fire/EMS

## Operations Manual

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Title: **Medication Protocol:  
Epinephrine Drip**  
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### EPINEPHRINE Drip (Medication Protocol)

#### PARAMEDIC

#### **STANDING ORDER – Consider early Medical Control contact for decision making**

**CLASS:** Sympathetic agonist (sympathomimetic)

**PHARMACOLOGY/ ACTIONS:** Epinephrine acts directly on  $\alpha$ - and  $\beta$ -adrenergic receptors. Its effect on  $\beta$ -receptors is much more profound than its effect on  $\alpha$ -receptors.

- $\beta_1$  effects include:  $\uparrow$  HR,  $\uparrow$  cardiac contractile force,  $\uparrow$  electrical activity in the myocardium,  $\uparrow$  systemic vascular resistances,  $\uparrow$  BP,  $\uparrow$  automaticity.
- $\beta_2$  effects include bronchial smooth muscle dilation and inhibition of mucous secretion.
- Alpha effects include bronchiole arteriole constriction, histamine suppression, arteriole constriction in skin, mucous membranes, and kidneys; arteriole dilation in skeletal muscle.

Action is through a natural hormonal mechanism.

**ONSET/DURATION:** Rapid onset (< 1 min.), Short duration (half-life < 2 mins.; near immediate clearance from blood stream following IV administration)

**USE IN FIELD/ INDICATIONS:**

- **Anaphylaxis/Allergic Reaction**
- **Peri-arrest with profound hypotension and/or bradycardia**
- Severe Asthma
- Temporizing sympathomimetic for patients *in extremis*

**CONTRAINdications:** Hypovolemic shock, severe hypertension,  
**Relative:** coronary artery disease, pregnancy, severe tachydysrhythmias, PVC's, hyperthyroidism, cerebrovascular insufficiency.

**SIDE EFFECTS:** Tachycardia including V-Tach & V-Fib, palpitation, anxiety, tremor, headache, nausea, weakness, restlessness, hypertension

**DRUG INTERACTIONS:** MAO inhibitors/ antidepressants may potentiate effects.  
 $\beta$ -adrenergic antagonists may blunt inotropic response.  
 Sympathomimetics and phosphodiesterase inhibitors may exacerbate dysrhythmia response

**ROUTE:** IV/I0 drip

**PREPARATION**

**OPTIONS:**

1) **IV pump** (ideal administration route)

- Mix 1 ml 1:1,000 epinephrine in 250 mL of D<sub>5</sub>W or NS.
- **Concentration equals 4 mcg/ml.**

2) **Manual IV “Quick” Drip** (10 gtts/ml set) -to expedite administration if IV pump not immediately available and patient is in extremis.

- Mix 1 ml 1:1,000 *or* 10ml 1:10,000 epinephrine in 1-liter bag of normal saline.
- **Concentration equals 1 mcg/ml.**
- Transition to IV pump as soon as feasible, which will require a separate preparation of the IV pump concentration.

**DOSAGE:**

**ADULT**

2-10 mcg/min

**PEDIATRIC (<45 kg)**

0.1-1.0 mcg/kg/min

(not to exceed adult dosage)

**Titrate to maintain SBP > 90 mm/Hg or other indications of response such as mental status.**

**PREGNANCY SAFETY:** Category C – give only if potential benefits justifies risk to fetus

**COMMENTS:** Be extremely cautious with dosage calculations and administration.

CAUTION in peripheral vascular insufficiency & >50 yo due to cardiovascular stress.

**Manual IV “Quick” Drip**



1 mg of IM epinephrine  
(use ALL of it)

OR



1 mg of cardiac epinephrine  
(use ALL of it)

**Into**



**1 liter of**  
Normal Saline

**Mix well and label**  
**“Epinephrine 1 mcg/ml”**

**IV Pump**



1 mg of IM epinephrine  
(use ALL of it)

**Into**



**250 mL of**  
**D<sub>5</sub>W or NS**

**Mix well and label**  
**“Epinephrine 4 mcg/ml”**

