Epinephrine – 20.130

CLASS: A

CLASS B: Asthma only (>3 doses, >40 y/o, and/or pmhx of CAD)

PROTOCOL(S) USED IN: Anaphylaxis, Cardiac Arrest - Asystole, Cardiac Arrest - PEA, Cardiac Arrest Post Resuscitation, Respiratory Distress, Cardiac Dysrhythmias - VF/VT, Cardiac Dysrhythmias – Bradycardia

PHARMACOLOGY AND ACTIONS:

A. Catecholamine with alpha and beta effects.
B. Increased heart rate, arterial blood pressure, systemic vascular resistance, automaticity, myocardial O2 consumption and myocardial contractile force.
C. Potent bronchodilator.

INDICATIONS:

A. Ventricular fibrillation
B. Asystole
C. Pulseless Electrical Activity
D. Anaphylaxis
E. Respiratory Distress
F. Systemic allergic reactions, croup and epiglottitis
G. Severe reactive airway (asthma/COPD) with respiratory failure refractory to other interventions

SIDE EFFECTS AND NOTES:

A. Anxiety, tremor, headache, tachycardia, palpitations, PVCs, angina and HTN
B. When used for allergic reactions, increased cardiac work may precipitate angina and/or MI in susceptible individuals.
C. IV Epinephrine delivery in anaphylaxis should be only considered in special circumstances such as severely hypotensive patients, patients in respiratory arrest, or those who have failed to respond to multiple IM injections of Epinephrine.
D. For patients less than 70 kg in *asthma or anaphylaxis* consider starting IM doses of epinephrine at 0.3 mg.
E. The most ideal injection site for IM Epinephrine is the lateral thigh.

Epinephrine – 20.130

ADULT DOSING:

Cardiac Arrest

1mg 1:10,000 IV/IO q 3 - 5 min. Every 8-10 minutes after first 3 doses.

Allergic Reaction, Anaphylactic Shock, Laryngeal Edema, Asthma

0.5 mg 1:1,000 IM may repeat 3 times prn

PEDIATRIC DOSING:

Cardiac Arrest, Bradycardia

0.01 mg/kg 1:10,000 IV/IO q 3 - 5 min.

Allergic Reaction, Anaphylactic Shock, Severe Asthma

0.01 mg/kg 1:1,000 IM to a max single dose of 0.5 mg (0.5 cc) IM.
May repeat 3 times prn

Croup/Epiglottitis

3 ml 1:1,000 via Nebulizer.

Epinephrine (Push Dose) – 20.130

CLASS: A

PROTOCOL(S) USED IN: RSI, Cardiac Arrest Post Resuscitation, Shock, Bradycardias, Respiratory Distress

INTRODUCTION:
Bolus dose pressors and inotropes have been used by the anesthesiologists for decades for treatment of short-lived hypotension, e.g. post-intubation or during sedation.

INDICATIONS:
A. Severe shock (MAP <65 mmHg) not responsive to fluids.
B. A bridge to drip pressors while they are being mixed.
C. Short-lived hypotension, e.g. post-intubation or during sedation.
D. ROSC with Hypotension.

SIDE EFFECTS AND NOTES:
A. Onset is typically 60 to 90 seconds.
B. Duration lasts around 5-10 minutes.
C. Concentration is low enough that extravasation is not a concern.
D. To make Epi 1:100,000:
    a. Discharge 1 mL of saline from a 10 mL flush giving you 9 mL of saline.
    b. Draw back 1 mL of Cardiac Epi (1:10,000) into the saline flush to get 10 mL of Push-Dose Epi (10 mcg/mL)
E. Label the syringe once the medication has been diluted to avoid confusion.

ADULT DOSING:
10 – 30 mcg (1 – 3 ml) of 1:100,000 IV/IO over 1 min and reassess blood pressure until MAP ≥ 65 mmHg.

Epinephrine Infusion– 20.130

CLASS: A

PROTOCOL(S) USED IN: Shock, Respiratory Distress

INTRODUCTION:
In undifferentiated non-hemorrhagic shock, norepinephrine infusion is the vasopressor of choice. If norepinephrine infusion is not immediately available, consider epinephrine infusion. Epinephrine infusion is first line in suspected anaphylactic shock not responsive to intramuscular epinephrine. Consider push-dose epinephrine as a bridge to vasopressor infusion.

INDICATIONS:
A. Severe shock (MAP <65 mmHg) not responsive to fluids.
B. First line in suspected anaphylactic shock not responsive to IM epinephrine.

SIDE EFFECTS AND NOTES:
A. Onset is typically 60 to 90 seconds.
B. Duration lasts around 5-10 minutes.
C. Use proximal well established IV or IO preferentially to reduce extravasation risk.
D. Label the bag once the medication has been prepared.

ADULT DOSING:
Infusion rate should start at **4 mcg/min IV/IO**. If no response, increase every 3-5 minutes in 4 mcg/min increments to max of 30 mcg/min. Goal is a MAP ≥ 65 mmHg.

Mixing Instructions: "Regular strength" and "concentrated" dosing for 250 cc bags as well as an option for 100 cc bags are included below. Use extreme caution to ensure appropriate medication administration.

Use Infusion pump or 60 gtts/mL drip set and flow-restriction device								
Mix **4 mg** Epinephrine in **250 mL - 16 mcg/mL** concentration								
mcg/min	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**30**
drops/min	15	30	45	60	75	90	105	113
Mix **8 mg** Epinephrine in **250 mL - 32 mcg/mL** concentration								
mcg/min	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**30**
drops/min	8	15	23	30	38	45	53	56
Mix **2 mg** Epinephrine in **100 mL - 20 mcg/mL** concentration								
mcg/min	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**30**
drops/min	12	24	36	48	60	72	84	90

PEDIATRIC DOSING:

Use Infusion pump or 60 gtts/mL drip set and flow-restriction device								
Mix **1 mg** Epinephrine in **100 mL - 10 mcg/mL** concentration								
mcg/min	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**30**
drops/min								