

**CLASS: A**

**PROTOCOL(S) USED IN: Cardiac Arrest Post Resuscitation, Cardiac Dysrhythmia Bradycardia, Respiratory Distress, Shock**

**PHARMACOLOGY AND ACTIONS:**

Norepinephrine stimulates alpha receptors in the peripheral vasculature, producing vasoconstriction related increase in systemic blood pressure. Concurrent beta receptor stimulation may produce increases in heart rate and mild bronchodilation.

**INDICATIONS:**

Obstructive, cardiogenic and distributive shock unresponsive to fluid administration.

**PRECAUTIONS:**

- A. Norepinephrine should be given in a large, patent vein (i.e. antecubital or larger). Do not administer through a hand or leg vein, as these are more likely to be affected by vaso-occlusive diseases and more prone to ischemic complications.
- B. Extravasation of norepinephrine into tissue may cause necrosis. The IV should be checked for patency prior to administration and monitored continuously.
- C. Norepinephrine is a potent vasoconstrictor and may cause hypertension. The rate of flow should be carefully monitored and blood pressures checked often.
- D. Consider hypovolemia and treat this with appropriate fluids before administration of norepinephrine.

**SIDE EFFECTS AND NOTES:**

- A. Reflex bradycardia can result from an increase in blood pressure.
- B. If possible, utilize well established proximal IV or IO to reduce extravasation risk.

**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  $\geq$  65 mmHg.

**PEDIATRIC DOSING:**

Begin at 0.1 mcg/kg/min. If no response in 5 minutes, increase to 0.2 mcg/kg/min. If still no response after 5 more minutes, may increase to 0.4 mcg/kg/min. Max dose of 30 mcg/min. Goal is age appropriate systolic BP.

## Norepinephrine (Levophed) – 20.285

**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 <b>4 mg</b> Norepinephrine in <b>250 mL - 16 mcg/mL</b> concentration								
<b>mcg/min</b>	<b>4</b>	<b>8</b>	<b>12</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>28</b>	<b>30</b>
drops/min	15	30	45	60	75	90	105	113
Mix <b>8 mg</b> Norepinephrine in <b>250 mL - 32 mcg/mL</b> concentration								
<b>mcg/min</b>	<b>4</b>	<b>8</b>	<b>12</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>28</b>	<b>30</b>
drops/min	8	15	23	30	38	45	53	56
Mix <b>2 mg</b> Norepinephrine in <b>100 mL - 20 mcg/mL</b> concentration								
<b>mcg/min</b>	<b>4</b>	<b>8</b>	<b>12</b>	<b>16</b>	<b>20</b>	<b>24</b>	<b>28</b>	<b>30</b>
drops/min	12	24	36	48	60	72	84	90