

# NOREPINEPHRINE (LEVOPHED)



## REASON FOR PROTOCOL CHANGE

Norepinephrine has replaced Dopamine in our protocols because Dopamine is associated with a greater number of adverse events to include arrhythmia's

# CLASS/DESCRIPTION/ MECHANISM OF ACTION

- Class
  - Sympathomimetic, vasopressor, adrenergic agonist, inotropic
- Description
  - Norepinephrine is a naturally occurring potent vasoconstrictor and inotropic agent
- Mechanism of Action
  - Norepinephrine treats severe hypotension. It increases peripheral vascular resistance, blood pressure, and to a lesser effect heart rate. It may increase myocardial oxygen demand, mandating cautious use in patients with ischemic heart disease. It is relatively contraindicated in patients with hypovolemia. Onset 1-3 minutes, duration 5-10 minutes

# INDICATIONS/CONTRAINDICATIONS/PRECAUTIONS

- Indications
  - Hypotension due to any shock state (following appropriate fluid resuscitation)
- Contraindications
  - Hypovolemia, profound hypoxia, mesenteric or peripheral vascular disease (ischemia)
- Precautions
  - Start IV in antecubital fossa to lower risk of infiltration. When administering, continually check IV site for patency and signs/symptoms of infiltration. Continually monitor blood pressure. Do not mix with Sodium Bicarbonate, flush tubing well between drugs, or use Y site secondary tubing for norepinephrine running into free flowing normal saline primary tubing.

# SIDE EFFECTS/INTERACTIONS/DOSE/ROUTE

- **Side Effects**

- Tissue necrosis with infiltration, hypertension, headache, anxiety, dysrhythmia, tachycardia, reflex bradycardia, chest pain, increased oxygen demand, nausea/vomiting

- **Interactions**

- Should not be administered in the same line as alkaline agents, such as Sodium Bicarbonate. Alkaline solutions may inactivate norepinephrine

- **Dose/Route**

- 2mcg/min titrated to 20 mcg/min, if needed after fluid bolus is complete to maintain MAP>65 or SBP >100

# COMPARISON OF NOREPINEPHRINE WITH DOPAMINE

## NOREPINEPHRINE

- Increases *MAP* primarily through vasoconstriction
- Has little effect on heart rate, stroke volume, and cardiac output
- Reason it's being used as the first line vasopressor

## DOPAMINE

- Increases *MAP* primarily through an increase in cardiac output
- Increases heart rate and stroke volume
- Which could cause potentially harmful tachyarrhythmia's

# PROTOCOLS THAT CONTAIN THE USE OF NOREPINEPHRINE

- **1-4 Cardiac Arrest ROSC-** Standing orders for CC's and Paramedics- page 14
- **2-6 Allergic Reaction and Anaphylaxis-** Standing orders for CC's and Paramedics- page 29
- **2-9 Symptomatic Bradycardia/Heart Blocks-** Paramedic standing orders- page 33
- **2-12 Cardiogenic Shock-** Paramedic standing orders- page 38
- **2-41 Suspected Septic Shock-** Physician option only- page 74
- **2-42 General Shock/Hypoperfusion-** Standing orders for CC's and Paramedics- page 76
- **2-49 Trauma Hypoperfusion/Hypovolemia-** Physician option only- page 86
- **2-52 Ventricular Assist Device-** Physician option only- page 95

# MEDICATION INFUSIONS

- Norepinephrine infusion chart on page 114 in your collaborative protocols
- 4mg/4mL mixed in Normal Saline 1000 mL = 4mcg/mL
- Chart includes infusion rates and administration sets



# INFUSION CHART

Norepinephrine: 4 mg in 4 mL mixed in normal saline 1000 mL = 4 mcg/mL

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL	Admin Set: 60 drops/mL
2 mcg/min	5 drops/min	7 drops/min	30 drops/min
4 mcg/min	10 drops/min	15 drops/min	60 drops/min or 1 drop/sec
6 mcg/min	15 drops/min	22 drops/min	90 drops/min or 1.5 drops/sec
8 mcg/min	20 drops/min	30 drops/min	120 drops/min or 2 drops/sec
10 mcg/min	25 drops/min	37 drops/min	150 drops/min or 2.5 drops/sec
12 mcg/min	30 drops/min	60 drops/min	180 drops/min or 3 drops/sec
14 mcg/min	35 drops/min	52 drops/min	210 drops/min or 3.5 drops/sec
16 mcg/min	40 drops/min	90 drops/min	240 drops/min or 4 drops/sec
18 mcg/min	45 drops/min	67 drops/min	270 drops/min or 4.5 drops/sec
20 mcg/min	50 drops/min	120 drops/min	300 drops/min or 5 drops/sec

The background is a solid teal color. In the four corners, there are decorative white line-art elements resembling circuit boards or neural networks, with lines and small circles connecting them.

If you have questions please  
contact your Service Medical  
Director or the Finger Lakes  
Regional EMS Program Agency.

This presentation is made possible by our friends in the North County EMS