



# Montgomery County Fire and Rescue Service

## Division of Operations

### Emergency Medical and Integrated Healthcare Services

#### Office of Medical Oversight Clinical Practice Guideline

Title:	Vasopressor Infusions	Number:	2025-09																			
Date:	December 8, 2025																					
Issued by:	Roger M. Stone MD, MS – MCFRS Medical Director																					
Purpose:	To define the use of the vasopressor infusion medications epinephrine and norepinephrine																					
Target Patient Population:	<p><b><u>This CPG replaces and rescinds CPG 2024 - 02</u></b></p> <p>Patients meeting the criteria of the Shock/Hypoperfusion protocol, post-ROSC hypotensive patients, or pseudo-PEA patients</p>																					
Guideline:	<p><b>Background:</b> MCFRS utilizes vasopressor infusions for multiple forms of circulatory support. The indications and medications used are summarized below. <b>Attachment A: Epinephrine</b> and <b>Attachment B: Norepinephrine</b> include detailed information and administration procedures.</p> <table><tr><th colspan="2">Epinephrine</th></tr><tr><th>Indications</th><th>Dosage</th></tr><tr><td>Adult Anaphylactic Shock</td><td>10-50 mcg/min, titrated by 10 mcg/min every 2 minutes</td></tr><tr><td>Adult Bradycardia</td><td>2-10 mcg/min, titrated by 2 mcg/min every 2 minutes</td></tr><tr><td>Pediatric shock</td><td>0.1-0.5 mcg/kg/min, titrated by 0.1 mcg/kg/min every 2 minutes</td></tr></table> <table><tr><th colspan="2">Norepinephrine</th></tr><tr><th>Indications</th><th>Dosage</th></tr><tr><td>Post-Return of Spontaneous Circulation (ROSC) hypotension</td><td rowspan="2">10 mcg/min titrated by 10 mcg/min every 2 minutes</td></tr><tr><td>Cardiogenic, hypovolemic, septic, or neurogenic shock</td></tr><tr><td>Pseudo-PEA (positive carotid blood flow via ultrasound without a palpable pulse)</td><td>20 mcg/min titrated by 10 mcg/min every 2 minutes</td></tr></table>			Epinephrine		Indications	Dosage	Adult Anaphylactic Shock	10-50 mcg/min, titrated by 10 mcg/min every 2 minutes	Adult Bradycardia	2-10 mcg/min, titrated by 2 mcg/min every 2 minutes	Pediatric shock	0.1-0.5 mcg/kg/min, titrated by 0.1 mcg/kg/min every 2 minutes	Norepinephrine		Indications	Dosage	Post-Return of Spontaneous Circulation (ROSC) hypotension	10 mcg/min titrated by 10 mcg/min every 2 minutes	Cardiogenic, hypovolemic, septic, or neurogenic shock	Pseudo-PEA (positive carotid blood flow via ultrasound without a palpable pulse)	20 mcg/min titrated by 10 mcg/min every 2 minutes
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#### Clinical Considerations

- Vasopressor infusions require near constant monitoring and adjustment. **It is highly encouraged to dedicate an ALS clinician to this task.**
- The onset of action for all IV vasopressors is rapid and the half-life is 2-5 minutes. Adjusting doses or stopping the medication will have fast effects.
- Epinephrine is the catecholamine medication of choice for **anaphylaxis** and **bradycardia** and norepinephrine should not be used for those indications.
- Blood pressure should be monitored on the limb opposite the infusion site whenever possible.
- Epinephrine and norepinephrine can be used simultaneously, if indicated, through the same access site. An example of this is post-ROSC hypotension with bradycardia; norepinephrine has minimal impact on heart rate at low doses, so epinephrine may provide heart rate support.
- Patients may require lower doses, especially with norepinephrine, than the starting infusion rate to maintain therapeutic blood pressure ranges. Titration may be done in smaller increments (e.g. 1-2 mcg/min) in those instances.
- Patients should generally receive some form of volume resuscitation prior to or simultaneously with beginning a vasopressor infusion for shock, in accordance with Maryland Medical Protocol. Absent signs of fluid overload, known volume sensitivity or profound shock, volume resuscitation may be preferable.
- Norepinephrine should only be considered in hemorrhagic shock after all other treatments are in place (multiple units of blood, Calcium Chloride, and TXA).
- Norepinephrine can occasionally cause hypertension and/or reflex bradycardia. Titrating down or stopping the medication should alleviate these complications.

This clinical guidance is in accordance with the following applicable sections of the Maryland Medical Protocols for Emergency Medical Services, 2025 edition:

- Prehospital Ultrasound
- IV Infusion Pump Pharmacology
- Norepinephrine for Treatment of Hypotension/Shock

Questions may be referred to the EMIHS Quality Management Battalion Chief.