I. PURPOSE: To define the indications, contraindications, and procedure related to administration of push dose epinephrine

II. AUTHORITY: Health and Safety Code, Sections 1797.220 and 1798. California Code of Regulations, Title 22, Sections 100145 and 100169

III. POLICY: Paramedics may administer push dose epinephrine to adult and pediatric patients as defined by VCEMSA treatment protocols.

IV. Procedure:
A. Classification
   1. Sympathomimetic agent (catecholamine)

B. Indications
   1. Anaphylaxis with shock (ref: 705.02 – Allergic reaction / anaphylaxis)
   2. Hypotension secondary to presumed cardiogenic shock (ref: 705.09 – Chest Pain – Acute Coronary Syndrome, 705.21 – SOB – Pulmonary Edema)
   3. Hypotension secondary to Crush Injury (ref: 705.11 – Crush Injury)
   4. Symptomatic bradycardia (ref: 705.24 – Symptomatic Bradycardia)

C. Contraindications
   1. None

D. Adverse Effects
<table>
<thead>
<tr>
<th>Cardiovascular</th>
<th>Neurological</th>
<th>Gastrointestinal</th>
</tr>
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<tbody>
<tr>
<td>Tachycardia</td>
<td>Anxiety</td>
<td>Nausea / Vomiting</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Dizziness</td>
<td></td>
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<tr>
<td>Chest Pain</td>
<td>Headache</td>
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<tr>
<td>Palpitations</td>
<td>Tremors</td>
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<tr>
<td>Arrhythmias</td>
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</tbody>
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E. Actions
Increases blood pressure and cardiac output via stimulation of alpha and beta adrenergic receptors.

F. Preparing the Concentration

1. Adults and Pediatrics
   - Using a “cardiac preload”: 1 mg/10mL (0.1 mg/mL or 100 mcg/mL)
     - Supplies Needed
       - 1 – 0.1 mg/mL epinephrine preload syringe
       - 1 – 100 mL bag of 0.9% normal saline
       - 1 – 1 mL syringe
     - Mixing Instructions
       - Push 10 mL of 0.1 mg/mL epinephrine from preload into 100mL bag of normal saline
       - Final concentration is essentially 10 mcg/mL (0.01 mg)

2. Points to Remember
   - Confirm your concentration prior to mixing
   - Maintain sterile technique
   - Label the bag with the drug name and final concentration
     - Example: “Epinephrine 10 mcg/mL”
   - DO NOT administer epinephrine and sodium bicarbonate in the same vascular access line and/or location unless that line has been flushed with at least 10mL of normal saline.

G. Dosing

1. Adults
   - 1mL (10mcg) every 2 minutes, slow IV/IO push
     - Titrate to SBP of greater than or equal to 90 mm/Hg

2. Pediatrics
   - 0.1 mL/kg (1 mcg/kg) every 2 minutes, slow IV/IO push
     - Max single dose of 1 mL or 10 mcg
     - Titrate to SBP of greater than or equal to 80 mm/Hg

H. Communication and Documentation
1. Communicate the use of push dose epinephrine to base hospital
   • Include final concentration delivered
   • Report total amount of push dose epinephrine administered, total elapsed time of
     administration, and patient response

2. Administration of epinephrine and any/all associated fields will be documented in the
Ventura County electronic Patient Care Report (VCePCR)

I. Alternative Concentrations

1. In the event of a shortage that limits a provider agency from obtaining the necessary
   100 mL bags of normal saline solution, please see below for acceptable alternatives:
   • Discard 1 mL from 10 mL saline flush syringe and draw 1 mL from epinephrine
     preload into flush syringe. This creates a solution of 10 mcg per 1 mL.
   • Draw 5 mL of from epinephrine preload into 50 mL bag of normal saline. This
     essentially creates a solution of 10 mcg per 1 mL.