

**SHOCK GUIDELINES**

<b>TYPES OF SHOCK</b>	<b>SIGNS AND SYMPTOMS</b>
CARDIOGENIC SHOCK	<ul style="list-style-type: none"> <li>• Hypotension</li> <li>• Difficulty breathing</li> <li>• Cool, clammy skin</li> <li>• Weakness</li> </ul>
HYPOVOLEMIC SHOCK	<ul style="list-style-type: none"> <li>• Tachycardia</li> <li>• Weak, thready pulse</li> <li>• Hypotension with narrow pulse pressure</li> <li>• Hypotension or falling systolic BP</li> <li>• Pale skin</li> <li>• Clammy or dry skin</li> <li>• Dyspnea</li> <li>• Altered LOC / coma</li> <li>• Decreased urine output</li> <li>• Restlessness</li> <li>• Irritability</li> <li>• Decreased urine output</li> </ul>
ANAPHYLACTIC SHOCK (Distributive Shock)	<ul style="list-style-type: none"> <li>• Hypotension</li> <li>• Severe respiratory distress</li> <li>• Shock</li> <li>• Dyspnea</li> <li>• Wheezing</li> <li>• Hoarseness / stridor</li> <li>• Cyanosis</li> <li>• Facial / airway edema</li> <li>• Urticaria / hives</li> <li>• Warm burning feeling</li> <li>• Itching</li> <li>• Rhinorrhea</li> <li>• Altered LOC / coma</li> <li>• Pulmonary edema</li> </ul>
NEUROGENIC SHOCK (Distributive Shock)	<ul style="list-style-type: none"> <li>• Hypotension with a narrow pulse pressure</li> <li>• Evidence of trauma (lacerations, bruising, swelling, deformity)</li> <li>• Normal or bradycardic HR</li> <li>• Compromise in neurological function</li> <li>• Normal or flushed skin color</li> </ul>
SEPTIC SHOCK (Distributive Shock)	<ul style="list-style-type: none"> <li>• Hypotension with a narrow pulse pressure</li> <li>• Dyspnea</li> <li>• Febrile</li> <li>• Tachycardia</li> <li>• Signs of infection</li> <li>• History of UTI</li> <li>• Hypovolemia (Fever, Sweating)</li> <li>• Dehydration</li> <li>• Altered LOC / coma</li> </ul>
OBSTRUCTIVE SHOCK	<ul style="list-style-type: none"> <li>• Obstruction that interferes with preload / afterload</li> <li>• Commonly caused by tension pneumothorax / pulmonary embolism</li> <li>• Hypotension</li> <li>• Chest pain</li> <li>• Hypoxia</li> <li>• Absent lung sounds (tension pneumothorax)</li> <li>• Present lung sounds (pulmonary embolism)</li> </ul>

**SHOCK**

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
<ul style="list-style-type: none"> <li>Blood loss - vaginal or gastrointestinal bleeding, AAA, ectopic</li> <li>Fluid loss - vomiting, diarrhea, fever</li> <li>Infection</li> <li>Cardiac ischemia (MI, CHF)</li> <li>Medications</li> <li>Allergic reaction</li> <li>Pregnancy</li> </ul>	<ul style="list-style-type: none"> <li>Restlessness, confusion</li> <li>Weakness, dizziness</li> <li>Weak, rapid pulse</li> <li>Pale, cool, clammy skin</li> <li>Delayed capillary refill</li> <li>Hypotension</li> <li>Coffee-ground emesis</li> <li>Tarry stools</li> </ul>	<ul style="list-style-type: none"> <li>Shock</li> <li>Hypovolemic</li> <li>Cardiogenic</li> <li>Septic</li> <li>Neurogenic</li> <li>Anaphylactic</li> <li>Ectopic pregnancy</li> <li>Dysrhythmias</li> <li>Pulmonary embolus</li> <li>Tension pneumothorax</li> <li>Medication effect / overdose</li> <li>Vasovagal hypotension</li> <li>Physiologic (pregnancy)</li> </ul>

KEY POINTS
<ul style="list-style-type: none"> <li>Exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro</li> <li>Hypotension can be defined as a systolic blood pressure of less than 90 systolic or MAP less than 65.</li> <li>Consider performing orthostatic vital signs on patients in non-trauma situations if suspected blood or fluid loss.</li> <li>Consider all possible causes of shock and treat per appropriate protocol.</li> </ul>
<b>Anaphylactic Shock</b>
<ul style="list-style-type: none"> <li>Anaphylactic shock is the involvement of 2 or more body systems. Consider IM EPINEPHrine.</li> <li><b>Do not confuse EPINEPHrine 1 mg / ml IM and 0.1 mg / ml IV.</b></li> <li>Treat patients with a history of anaphylaxis aggressively.</li> <li>Routine assessment and supportive care of the patient's respiratory and cardiovascular systems is required.</li> <li>When possible, remove any stingers.</li> </ul>
<b>Cardiogenic Shock</b>
<ul style="list-style-type: none"> <li>Circulatory failure is due to inadequate cardiac function.</li> <li>Be aware of patients with congenital defects.</li> <li>Cardiogenic shock exists in the prehospital setting when an MI is suspected and there is no specific indication of volume related shock.</li> <li>Pulmonary edema or CHF may cause cardiogenic shock. (Pediatrics with congenital heart defects may rarely have pulmonary edema)</li> <li>Marked, symptomatic tachycardia and bradycardia will also cause cardiogenic shock. Fix rate first.</li> </ul>
<b>Hypovolemic Shock</b>
<ul style="list-style-type: none"> <li>Patients suffering from hemorrhagic shock secondary to trauma, should be treated under the <u>Trauma Criteria</u>, and should be rapidly transported to the nearest appropriate facility.</li> <li>Initiate a second large bore IV for all patients in hypovolemic shock, resuscitate to a MAP of at least 65 or a SBP of 90 (100 SBP if &gt;70 years old) or radial pulses where MAP is unavailable.</li> </ul>
<b>Septic Shock</b>
<ul style="list-style-type: none"> <li>Hypotensive septic shock patients require aggressive fluid resuscitation and should receive vasopressor support if not responding to fluid challenges.</li> <li>Be alert for septic shock in the elderly.</li> </ul>
<b>Addisonian Crisis / Adrenal Crisis</b>
<ul style="list-style-type: none"> <li>Not a field diagnosis. Patient / family / historian should be aware of diagnosis. They are coached to make sure the patient gets IV steroids emergently. May have their own prescribed injectable steroids for EMS to administer. Check for medical alert tags / bracelet.</li> <li>Presents with Dehydration and/or severe vomiting and diarrhea stabbing pain in the abdomen, low back, or legs, low blood pressure (shock), low blood sugar, loss of consciousness.</li> <li>Emergent steroid administration in addition to other standard resuscitation techniques. (ex. BGL correction and fluid resuscitation). Use patient supplied steroids before EMS supplied if available.</li> </ul>

## ANAPHYLACTIC REACTION / SHOCK

Airway / Breathing

Circulation / Shock

Cardiac

Medical

Trauma

## UNIVERSAL PATIENT CARE PROTOCOL

OXYGEN

CAPNOGRAPHY PROCEDURE

IV / IO PROCEDURE

Apply Cardiac Monitor and Assess Vitals

Consider ITD PROCEDURE

## DO NOT CONFUSE

EPINEPPhrine

1mg / ml (1000 mcg / ml)	1:1000 IM Epi
0.1 mg / ml (100 mcg / ml)	1:10,000 Cardiac Epi
10 mcg / ml	Push Dose Epi

Mild

Rash, itching,  
No difficulty breathing or  
throat tightening,  
B/P – normal limits

diphenhydrAMINE  
25 - 50 mg IV / IO / IM  
No Repeat

Consider  
EPINEPPhrine  
**1 mg / ml Concentration**

0.3 - 0.5 mg IM  
or AUTO-INJECTOR  
If history of severe  
reaction or 2 or more  
body systems involved  
q 10 min prn

Never given IV  
EMT may draw and  
administer IM only  
with proper training

Moderate / Severe

**Radial Pulses Present**  
Rash, itching,  
Airway compromise,  
Wheezing, Swelling,  
GI Symptoms  
Hypotension

EPINEPPhrine  
**1 mg / ml Concentration**  
0.3 - 0.5 mg IM  
or AUTO-INJECTOR  
q 5 min prn  
Never given IV  
EMT may draw and  
administer IM only  
with proper training

diphenhydrAMINE  
50 mg IV / IO / IM  
No Repeat

IV NORMAL SALINE BOLUS  
20 ml / kg  
To Maintain MAP > 65  
or SBP 90 if MAP Unavailable  
or Radial Pulses

ALBUTEROL /  
IPRATROPIUM  
Aerosol - Monitor Airway  
STOP EMT use only with  
ONLINE Medical Control

methylPREDISolone  
125 mg IV / IO / IM – No Repeat

**Impending Arrest**  
Anaphylactic Shock

Weak, Thready or  
NO Radial Pulses  
Severe Hypotension  
Any AGE  
Decreased LOC  
Airway compromise

Secure Airway and Ventilate

EPINEPPhrine  
**0.1 mg / ml (100 mcg / ml)**  
Concentration  
IV / IO  
100 mcg (1 ml) every minute  
Until return of BP / Radial pulse  
500 mcg (5 ml) Max  
STOP 0.1 mg / ml  
Concentration IV ONLY  
Slow IV

Double Check

If only EMT / AEMT available or  
NO / delayed vascular access

EPINEPPhrine  
**1 mg / ml Concentration**  
0.3 - 0.5 mg IM  
or AUTO-INJECTOR  
q 5 min prn  
Never given IV  
EMT may draw and  
administer IM only with  
proper training

IV NORMAL SALINE BOLUS  
20 ml / kg  
To Maintain MAP > 65  
or SBP 90 if MAP Unavailable  
or Radial Pulses

diphenhydrAMINE  
50 mg IV / IO / IM  
No Repeat

methylPREDISolone  
125 mg IV / IO / IM – No Repeat

Follow ACLS

TRANSPORT to appropriate facility CONTACT receiving facility CONSULT Medical Control where indicated APPROPRIATE transfer of care

EMT Intervention

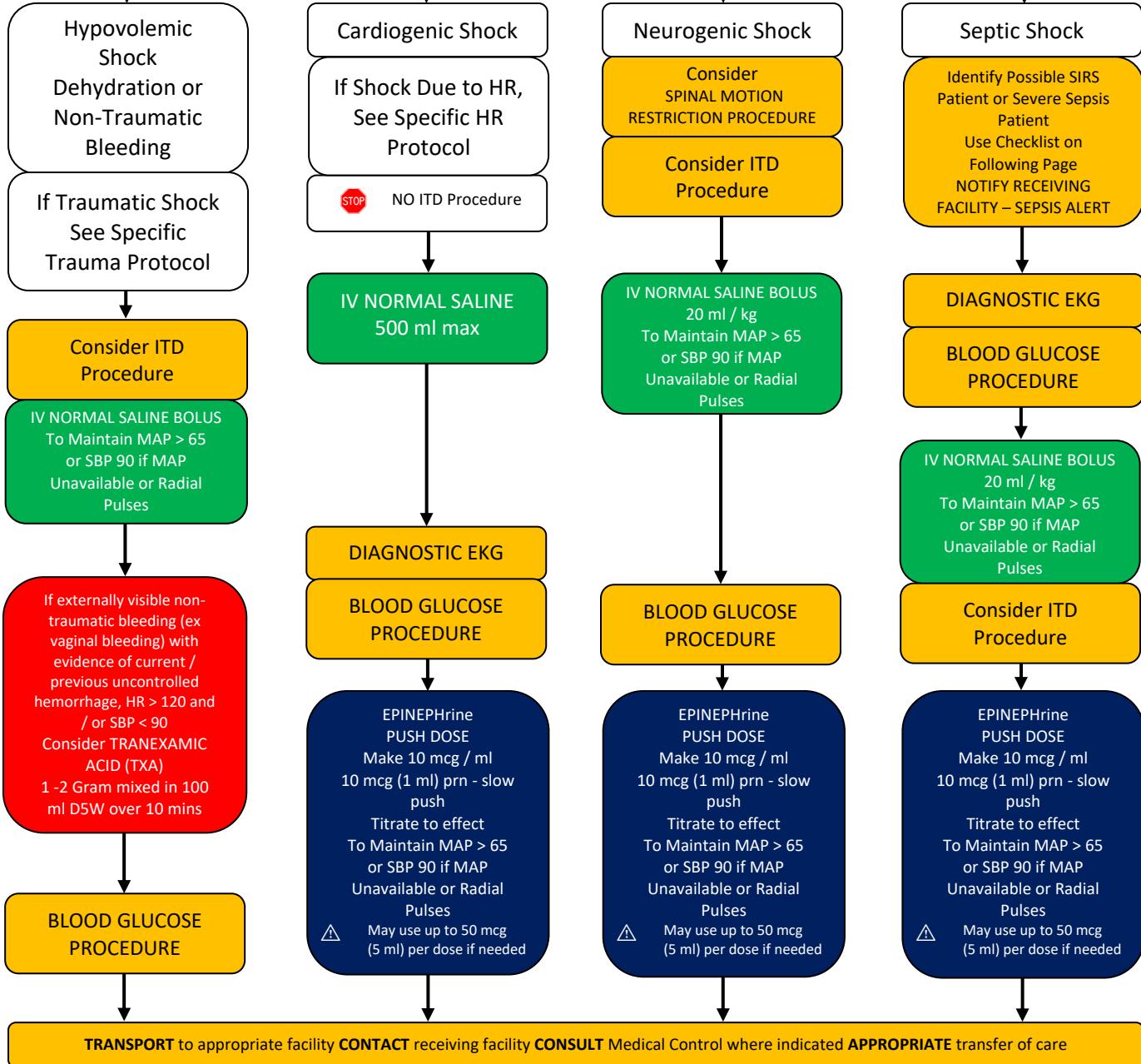
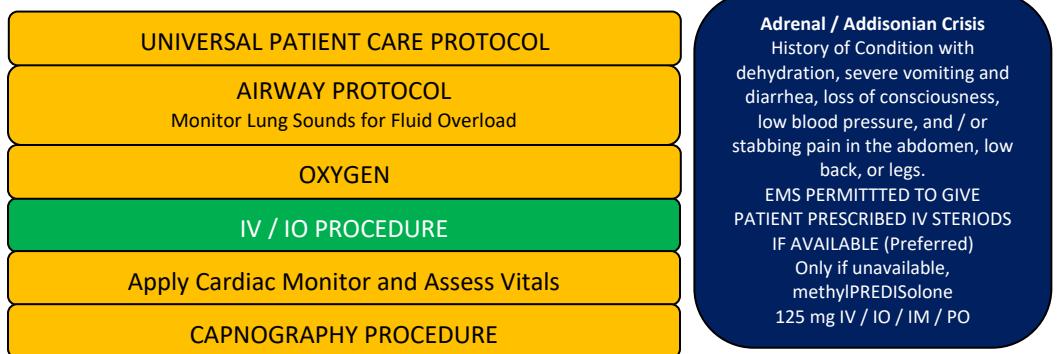
AEMT Intervention

PARAMEDIC Intervention

Online Medical Control

# HYPVOLEMIC, NEUROGENIC, CARDIOGENIC, AND SEPTIC SHOCK

DO NOT CONFUSE	
EPINEPHRine	
1mg / ml (1000 mcg / ml)	1:1000 IM Epi
0.1 mg / ml (100 mcg / ml)	1:10,000 Cardiac Epi
10 mcg / ml	Push Dose Epi



# HYPVOLEMIC, NEUROGENIC, CARDIOGENIC, AND SEPTIC SHOCK

Airway / Breathing

Circulation / Shock

Cardiac

Medical

Trauma

SIRS Checklist	
Clinical Findings	History
Temp > 38.3C (100.9F) or < 36C (96.8F) Heart Rate > 90 BPM Respiratory Rate > 20 BPM <b>or</b> Capnography < 32 mmHg Altered Mental Status SBP <90 or MAP <70 Need for CPAP	Pneumonia Urinary Tract Infection Cellulitis Septic Arthritis Diarrhea ABD pain Wound Infection Decubitus Ulcer Indwelling Catheter or Device Fever Decreased urine output last 8 hours Prolonged bleeding
Severe Sepsis Checklist	
Clinical Findings (Present and <i>NEW</i> to Patient)  SBP < 90 SPo <sub>2</sub> < 90 No Urine Output last 8 Hours Prolonged bleeding from gums Lactate $\geq$ 4	

## Push Dose EPINEPHrine Preparation

Mix 1 mg EPINEPHrine of 1mg / ml in 100 ml of D5 or Normal Saline

*This makes 10 mcg / ml concentration*

Shake bag well to mix

Draw from bag and administer

10 mcg (1 ml) prn - Titrated to Maintain MAP > 65 or SBP 90 if MAP Unavailable or Radial Pulses

May give up to 50 mcg (5 ml) per dose if required

