PEDIATRIC PROTOCOL

SHOCK

TYPES OF SHOCK	SIGNS AND SYMPTOMS
CARDIOGENIC SHOCK	• Hypotension • Difficulty breathing • Cool, clammy skin • Weakness
HYPOVOLEMIC SHOCK	• Tachycardia • Weak, thready pulse • Hypotension with narrow pulse pressure • Hypotension or falling systolic BP • Pale skin • Clammy or dry skin • Dyspnea • Altered LOC / coma • Decreased urine output • Restlessness • Irritability • Decreased urine output
ANAPHYLACTIC SHOCK (Distributive Shock)	• Hypotension • Severe respiratory distress • Shock • Dyspnea • Wheezing • Hoarseness / stridor • Cyanosis • Facial / airway edema • Urticaria / hives • Warm burning feeling • Itching • Rhinorrhea • Altered LOC / coma • Pulmonary edema
NEUROGENIC SHOCK (Distributive Shock)	• Hypotension with a narrow pulse pressure • Evidence of trauma (lacerations, bruising, swelling, deformity) • Normal or bradycardic HR • Compromise in neurological function • Normal or flushed skin color
SEPTIC SHOCK (Distributive Shock)	• Hypotension with a narrow pulse pressure • Dyspnea • Febrile • Tachycardia • Signs of infection • History of UTI • Hypovolemia (Fever, Sweating) • Dehydration • Altered LOC / coma
OBSTRUCTIVE SHOCK	• Obstruction that interferes with preload / afterload • Commonly caused by tension pneumothorax / pulmonary embolism • Hypotension • Chest pain • Hypoxia • Absent lung sounds (tension pneumothorax) • Present lung sounds (pulmonary embolism)

SHOCK

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
• Blood loss • Fluid loss • Vomiting • Diarrhea • Fever • Infection	• Restlessness, confusion, weakness • Dizziness • Increased HR, rapid pulse • Decreased BP • Pale, cool, clammy skin • Delayed capillary refill	• Trauma • Infection • Dehydration • Vomiting • Diarrhea • Fever • Congenital heart disease • Medication or toxin

ALLERGIC REACTION / ANAPHYLAXIS

HISTORY	SIGNS AND SYMPTOMS	DIFFERENTIAL DIAGNOSIS
• Onset and location • Insect sting or bite • Food allergy / exposure • Medication allergy / exposure • New clothing, soap, detergent • History of reactions • Past medical history • Medication history	• Warm burning feeling • Itching • Rhinorrhea • Hoarseness • Stridor • Wheezing • Respiratory distress • Altered LOC / coma • Cyanosis • Pulmonary edema • Facial / airway edema • Urticaria / hives • Dyspnea	• Urticaria (rash only) • Anaphylaxis (systemic effect) • Shock (vascular effect) • Angioedema (drug induced) • Aspiration / airway obstruction • Vasovagal event • Asthma

Do Not Confuse Epinephrine 1 mg / ml and 0.1 mg / ml

Fluid Resuscitate IF HYPOTENSIVE to systolic of 70 + 2 x age

KEY POINTS

- **Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro**
- Consider all possible causes of shock and treat per appropriate protocol.
- Decreasing heart rate is a sign of impending collapse.
- Most maternal medications pass through breast milk to the infant. Examples: Narcotics, Benzodiazepines.
- Be sure to use the appropriately sized BP cuff.
- Findings in the primary assessment should alert you that the patient is in shock. Pay attention to the patient's mental status, tachycardia, skin color, and capillary refill.
- Shock is not only caused by blood loss. The provider must evaluate for fluid loss from other causes. such as excessive vomiting and / or diarrhea, heat exposure and malnutrition.
- Do not use only the patient's blood pressure in evaluating shock; also look for lower body temperature, poor capillary refill, decreased LOC, increased heart rate and / or poor skin color or turgor.
- Routinely reassess the patient and provide supportive care.

Addisonian Crisis / Adrenal Crisis

- 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.
- 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.
- 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.

Airway / Breathing

Circulation / Shock

Cardiac

Medical

Trauma

PEDIATRIC PROTOCOL

ANAPHYLACTIC REACTION / SHOCK

3-5 kg	6-7 kg	8-9 kg	10-11 kg	12-14 kg	15-18 kg	19-23 kg	24-29 kg	30-36 kg
6-11 lbs	13-15 lbs	18-20 lbs	22-24 lbs	26-31 lbs	33-40 lbs	42-51 lbs	53-64 lbs	66-81 lbs
18-24 in	24-26 in	26-29 in	29-33 in	33-38 in	38-43 in	43-48 in	48-52 in	52-57 in

UNIVERSAL PATIENT CARE PROTOCOL

OXYGEN

CAPNOGRAPHY PROCEDURE

IV / IO PROCEDURE

Apply Cardiac Monitor and Assess Vitals

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**

Mild

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

diphenhydrAMINE
1 mg / kg
slow IV / IM / IO
No Repeat
Max Dose 50 mg

EMT Consider - If history of severe reaction
EPINEPHrine
≤ 30 kg (66 lbs)
0.15 mg IM or
AUTO-INJECTOR JR
> 30 kg (66 lbs)
0.3 mg IM or
AUTO-INJECTOR
q 5 min prn
STOP EMT may draw and administer IM only with proper training

Consider - If history of severe reaction
EPINEPHrine
1 mg / ml Concentration
0.01 mg / kg IM
q 5 min prn - Max Dose 0.5 mg
STOP Never Given IV

Moderate / Severe

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

EMT EPINEPHrine
≤ 30 kg (66 lbs)
0.15 mg IM or
AUTO-INJECTOR JR
> 30 kg (66 lbs)
0.3 mg IM or
AUTO-INJECTOR
q 5 min prn
STOP EMT may draw and administer IM only with proper training

EPINEPHrine
1 mg / ml Concentration
0.01 mg / kg IM
q 5 min prn - Max Dose 0.5 mg
STOP Never Given IV

diphenhydrAMINE
1 mg / kg
slow IV / IM / IO
No Repeat - Max Dose 50 mg

ALBUTEROL
Nebulized Unit Dose 2.5 mg
STOP EMT use only with ONLINE Medical Control

IV NORMAL SALINE BOLUS
10 - 20 ml / kg
May Repeat up to 3 times as required

Consider repeat IM EPINEPHrine after 5 min. if no improvement

methylPREDNISolone
2 mg / kg - IV / IO / IM
No Repeat - Max Dose 125 mg

Impending Arrest

Anaphylactic Shock

NO Radial Pulses
Severe Hypotension
Any AGE
Decreased LOC
Airway compromise

Secure Airway and Ventilate

Double Check

EPINEPHrine
0.01 mg / kg IV / IO
0.1 mg / ml (100 mcg / ml)
Concentration
q 5 min prn - Max Dose 0.5 mg

If ONLY AEMT Available
EPINEPHrine
1 mg / ml Concentration
0.01 mg / kg IM
q 5 min prn - Max Dose 0.5 mg

IF ONLY EMT Available
EPINEPHrine
≤ 30 kg (66 lbs)
0.15 mg IM or
AUTO-INJECTOR JR
> 30 kg (66 lbs)
0.3 mg IM or
AUTO-INJECTOR
q 5 min prn
STOP EMT may draw and administer IM only with proper training

diphenhydrAMINE
1 mg / kg
slow IV / IM / IO
No Repeat - Max Dose 50 mg

IV NORMAL SALINE BOLUS
10 - 20 ml / kg
May Repeat up to 3 times as required

methylPREDNISolone
2 mg / kg - IV / IO / IM
No Repeat - Max Dose 125 mg

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

PEDIATRIC PROTOCOL

HYPOVOLEMIC, NEUROGENIC, CARDIOGENIC, AND SEPTIC SHOCK

3-5 kg	6-7 kg	8-9 kg	10-11 kg	12-14 kg	15-18 kg	19-23 kg	24-29 kg	30-36 kg
6-11 lbs	13-15 lbs	18-20 lbs	22-24 lbs	26-31 lbs	33-40 lbs	42-51 lbs	53-64 lbs	66-81 lbs
18-24 in	24-26 in	26-29 in	29-33 in	33-38 in	38-43 in	43-48 in	48-52 in	52-57 in

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**

UNIVERSAL PATIENT CARE PROTOCOL

AIRWAY PROTOCOL
Monitor Lung Sounds for Fluid Overload

OXYGEN

IV / IO PROCEDURE

Apply Cardiac Monitor and Assess Vitals

CAPNOGRAPHY PROCEDURE

Adrenal / Addisonian Crisis
History of Condition with dehydration, severe vomiting and diarrhea, loss of consciousness, low blood pressure, and / or stabbing pain in the abdomen, low back, or legs.
EMS PERMITTTED TO GIVE PATIENT PRESCRIBED IV STERIODS IF AVAILABLE (Preferred)
Only if unavailable,
methylPREDISolone
2 mg / kg IV / IM / PO

Hypovolemic Shock

IV NORMAL SALINE BOLUS
10 - 20 ml / kg
May Repeat up to 3 times as required

BLOOD GLUCOSE PROCEDURE

Treatment per Appropriate Trauma Protocol If Indicated

Cardiogenic Shock

IV NORMAL SALINE BOLUS
10 ml / kg
max 500 ml

BLOOD GLUCOSE PROCEDURE

Contact Medical Control for the use of vasopressors if failed fluid bolus
EPINEPHrine
PUSH DOSE
Make 10 mcg / ml

1 mcg / kg
Max Dose 10 mcg
2 - 5 min - slow push
Titrate to effect

Neurogenic Shock

Consider
SPINAL MOTION RESTRICTION PROCEDURE

IV NORMAL SALINE BOLUS
10 - 20 ml / kg
May Repeat up to 3 times as required

BLOOD GLUCOSE PROCEDURE

Contact Medical Control for the use of vasopressors if failed fluid bolus
EPINEPHrine
PUSH DOSE
Make 10 mcg / ml

1 mcg / kg
Max Dose 10 mcg
2 - 5 min - slow push
Titrate to effect

Septic Shock

IV NORMAL SALINE BOLUS
10 - 20 ml / kg
May Repeat up to 3 times as required

BLOOD GLUCOSE PROCEDURE

Contact Medical Control for the use of vasopressors if failed fluid bolus
EPINEPHrine
PUSH DOSE
Make 10 mcg / ml

1 mcg / kg
Max Dose 10 mcg
2 - 5 min - slow push
Titrate to effect

methylPREDNISolone (SOLU-MEDROL)
2 mg / kg IV / IO / IM / PO
No Repeat - Max Dose 125 mg

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

HYPOVOLEMIC, NEUROGENIC, CARDIOGENIC, AND SEPTIC SHOCK

SIRS Checklist

Clinical Findings	History
Temp > 38.3C (100.9F) or < 36C (96.8F) Heart Rate > 90 BPM Respiratory Rate > 20 BPM ***or*** 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 *NEW* to Patient)

SBP < 90
SpO_2 < 90
No Urine Output last 8 Hours
Prolonged bleeding from gums
Lactate ≥ 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