Shock/Hypoperfusion/Bleeding Control (124)

Base Hospital Contact Required	**Base Hospital Contact Required**
Trauma • Give 250 mL fluid bolus to maintain Systolic B/P >80 mmHg **Post-Partum Hemorrhage** • Consider Tranexamic Acid 1 gram administered over 10 minutes for the initial dose. Mix 1 gram (10 mL) in 100 mL of NS and infuse via: - Macro 10gtts/mL over 10 minutes @ 110 gtts.	**Trauma** • Give 5 mL/kg fluid bolus to maintain Systolic B/P. ○ 1-10 years old >70 mmHg ○ 10 + years old >80 mmHg

124 SHOCK/HYPOPERFUSION

Special Considerations

1. Signs and symptoms:

- Altered Mental Status
- Tachycardia
- Tachypnea
- Skin pale, cool, diaphoretic, mottled
- Delayed capillary refill
- Weak peripheral pulses
- Narrowed pulse pressure
- Hypotension

2. Special treatment situations:

- Open chest wounds- Cover with commercially available chest seal. If signs of tension pneumothorax develop (distended neck veins, cyanosis, tracheal shift, absent breath sounds on one side, falling BP, dyspnea), remove dressing, allow air to escape, and reapply dressing.
- External hemorrhage control should include:

1) For exsanguinating hemorrhage go straight to a tourniquet
2) Direct pressure
3) Compression dressings
    a) Gauze pad and elastic bandage
    b) Blood pressure cuff
    c) Air splint
4) Tourniquet for extremity injuries
    a) Use tourniquet with windlass such as CAT Tourniquet
    b) Apply 2-3 inches proximal to the wound.
    c) May apply a second tourniquet above the first if needed.
    d) Tighten enough to stop all bleeding.
    e) Time and date must be written on tourniquet when applied.

f) Once applied do not remove until arrival at the hospital. Due to possible surgical needs attempt to transport to a trauma center.

5) Hemostatic gauze dressing or commercially available junctional tourniquet for uncontrolled junctional hemorrhage.
   a) Direct pressure and wound packing should be applied with the hemostatic dressing.
   b) Use only hemostatic gauze. DO NOT use granular type hemostatic agents.

3. Fluid challenge in trauma patients should be avoided due to increased mortality.

4. Epinephrine drip 2-8mcg/mL preparation

- **Option 1**
  - Begin with a 100mL bag of normal saline and apply medication label to indicate epinephrine drip.
  - Obtain 1 ampules or vials of epinephrine 1:1000
  - With a 10mL syringe and a filtered needle withdraw 1mg of epinephrine 1:1000
  - Remove filtered needle attach hypodermic needle and inject 1mg of epinephrine 1:1000 in labeled 100mL saline bag. Shake well.
  - Attach the 60 drops/mL IV tubing set to the extension set with flow controller (Dial-a-flow). Prime the line and set your desired drops, see below for rates.
    - 2mcg/min set rate to 15 drops
    - 4mcg/min set rate to 30 drops
    - 6mcg/min set rate to 45 drops
    - 8mcg/min set rate to 60 drops
- **Using 10 drops/mL IV tubing is not recommended for anaphylaxis, bradycardia, or respiratory distress.**

5. Push dose epinephrine:

- Push Dose epinephrine is 1mL (0.1 mg) of 1 mg in 10 mL epinephrine (cardiac epinephrine 1:10,000) mixed with 9 mL of N/S resulting in Epinephrine 0.01 mg/mL.
  - Begin with an empty 10mL syringe and apply a medication label to indicate push dose epinephrine.
  - Withdraw 1 mL of 0.1 mg/mL preparation (cardiac epinephrine 1:10,000)
  - Withdraw 9 mL of normal saline. Shake well.
  - Mixture now provides 10 mL of epinephrine at a 10 mcg/mL concentration.
  - Push Dose: 0.5 mL (5 mcg) IV/IO, every 1-5 minutes.

6. Ketamine should be first line pain medication for hypotensive patients, or patients at risk for respiratory depression.

V-FIB/Pulseless V-Tach (125)

Adults	Pediatrics *(13 years and under)*
Public Safety First Aid Procedures: only	**Public Safety First Aid Procedures: Only**
• Begin High-Performance CPR • Attach AED and follow prompts • Ensure Fire/ALS have been requested	• Begin High-Performance CPR • Attach AED and follow prompts use pediatric pads and dose attenuator if available • Ensure Fire/ALS have been requested
BLS Procedures: EMT's and Paramedics start here	**BLS Procedures: EMT's and Paramedics start here**
• Begin High-Performance CPR • Attach AED/monitor and follow prompts • Resume High-Performance CPR immediately post shock • Pulse checks every 2 minutes for no longer than 10 seconds • If no change after 30 minutes consider termination of efforts per determination of death policy	• Begin High-Performance CPR • Attach AED/monitor and follow prompts use pediatric pads and dose attenuator if available • Resume High-Performance CPR immediately post shock • Pulse checks every 2 minutes for no longer than 10 seconds • Request ALS rendezvous. Initiate transport if ALS ETA is greater than 10 min
ALS Prior to Base Hospital Contact: Paramedic only	**ALS Prior to Base Hospital Contact: Paramedic only**
• Give 1 Shock device specific, see Energy Doses for Defibrillation Chart. • Pulse/Rhythm checks every 2 minutes for no longer than 10 seconds • Deliver repeat shocks during rhythm checks, continue High-Performance CPR while defibrillator is charging • Lidocaine 1-1.5 mg/kg IV/IO first dose then 0.5-0.75 mg/kg every 5-10 minutes MAX 3 doses or 3 mg/kg. First Lidocaine dose should be given at the 2nd shock. • If a patient is in refractory V-Fib after 3 shocks, begin Vector Change pad placement. The D-Fib pads will be changed from anterior lateral to anterior posterior (Vector Change). If no improvement consider dual sequential defibrillation if feasible. • Torsades De Pointes Give Magnesium Sulfate 1-2 Grams diluted in 10 mL Saline IV/IO. • If no change after 30 minutes consider termination of efforts per determination of death policy	• Give 1 shock see Energy Doses for Defibrillation Chart. • Pulse/Rhythm checks every 2 minutes for no longer than 10 seconds • Deliver repeat shocks during rhythm checks, continue High-Performance CPR while defibrillator is charging • Lidocaine 1 mg/kg IV/IO first dose then 0.5-0.75 mg/kg may repeat dose X 2 in 3-5 minutes with 1 mg/kg for 3 mg/kg MAX. First Lidocaine dose should be given at the 2nd shock. • If a patient is in refractory V-Fib after 3 shocks, begin Vector Change pad placement. The D-Fib pads will be changed from anterior lateral to anterior posterior (Vector Change). If no improvement consider dual sequential defibrillation if feasible. • Torsades De Pointes give Magnesium Sulfate 25mg/kg diluted in 10 mL Saline IV/IO. 2 Grams MAX dose. Given 1 time only