The following protocol is intended for the systematic treatment of common cardiac dysrhythmia and cardiac arrest scenarios in the pediatric patient. Perform all assignments in “Pit Crew” fashion and make all efforts to obtain Return of Spontaneous Circulation (ROSC) prior to leaving the scene. Refer to Handtevy system as a guide for appropriate pediatric vital signs, treatment, dosages, and equipment.

A. CPR Guidelines

CPR will be performed according to the most current American Heart Association (AHA) standards. Always keep in mind that high quality CPR with **uninterrupted chest compressions, early defibrillation, and early ventilation** are the top priorities when attempting to resuscitate a pulseless and apneic patient. When performing CPR, the following guidelines will be adhered to:

1. Check for responsiveness, looking for no breathing or occasional gasps while simultaneously checking for a pulse.

2. If no pulse, perform high-quality, uninterrupted chest compressions approximately 1.5” (4 cm) in infants, 2” (5 cm) deep in children and at a rate of 100 to 120/min.

3. Allow for full **chest recoil** after each chest compression by not leaning on the chest.

4. **MINIMIZE INTERRUPTIONS** in chest compressions.

5. **Do not interrupt compressions for more than 10 seconds.**

    a) Rotate compressor every 2 minutes, or sooner to limit rescuer fatigue to provide high-quality chest compressions.

Note: During defibrillation attempts, perform chest compressions while AED/cardiac monitor is charging.

6. **Avoid excessive ventilation**:

   a) When ventilating without an advanced airway with a single rescuer, perform cycles of 30 compressions with a short pause to administer 2 breaths per cycle.

   b) When ventilating without an advanced airway with two rescuers, perform cycles of 15 compressions with a short pause to administer 2 breaths per cycle.

   c) When an advanced airway (supraglottic/endotracheal) is in place, provide continuous compressions at a rate of at least 100 to 120/min and ventilate the patient once every 6 seconds (10 breaths/min).

7. High quality chest compressions are achieved when the ETCO2 value is at least 10 mmHg or greater.

8. All patients found in cardiac arrest or who arrest prior to transport will be resuscitated in place (limit movement, no attempts in loading or transport). Patient transportation for definitive care can be done as soon as **ALL** the following have been established:

   a) Initiation of CPR (device assisted or manual)
   b) Establishment of an airway (supraglottic/endotracheal) with end tidal CO2 monitoring
   c) Establishment of vascular access (IV or IO)
   d) Completion of 4 full cycles of CPR (to include medications and evaluation of cardiac rhythm strip for possible defibrillation)

   Our goal is to provide high quality resuscitation in the pre-hospital setting. We aim to stabilize the patient, optimize circulation and oxygenation, and prepare for transport to the nearest appropriate facility while also considering the safety of both the patient and the crew. Even if all four criteria are met, it is up to the judgement of the paramedics on scene to determine when patient transport is appropriate.

B. Pediatric Cardiopulmonary Resuscitation

EMS/BLS

1. Initial Assessment/Care **Protocol 1P**. The “Pit Crew” approach will be used, and initial procedures/treatments will be completed concurrently.

   a) Assess for responsiveness.

   b) Simultaneously look for no breathing or occasional gasps and check for a pulse, to reduce the time to first chest compression.

   The initial assessment should take no more than 10 seconds to complete.

2. If the patient has a pulse but is not breathing:

Top

a) Open the airway.

a. Infants – Head positioned to a neutral, sniffing position, DO NOT hyperextend the neck.

b. Child – Head-tilt/chin lift

a) **Give 2 full ventilations with BVM to determine airway patency.** If obstructed, see **Protocol 7P**, Section E.

b) Provide 1 rescue breath every 6 seconds (10 breaths/min).

c) using a BVM and insert an appropriately sized airway adjunct**.** Reassess for a pulse every 2 minutes.

d) Continue to ventilate patient while advanced airway device is prepared for insertion.

a. Insert supraglottic airway (SGA) if airway is patent and no gag reflex is present.

e) Provide 1 rescue breath every 6 seconds (10 breaths/min).

Note: SGA can be utilized by EMTs through departmental approval.

3. If the patient has no pulse:

a) Perform chest compressions immediately at a rate of 100-120/minute. Only interrupt chest compression to analyze rhythm and determine airway patency.

b) Give 2 full ventilations with BVM to determine airway patency.

c) Insert SGA airway is patent. If obstructed, see Protocol 7P, Section E.

d) If SGA is utilized perform asynchronous ventilations 1 every 6 seconds (if no SGA, continue with 30 compressions and 2 ventilations/15 compressions and 2 ventilations depending on 1 person CPR or 2 person CPR).

Note: SGA can be utilized by EMTs through departmental approval.

4. If AED is available, place device on patient using appropriate pediatric pads. If no pediatric pads are available, use adult size pads. Consider anterior/posterior placement of the adult pads and ensure the placement of each pad does not overlap one another.

5. Apply the AED as soon as possible:

a) Follow the AED prompts and if shock is advised, deliver shock as soon as possible.

Top

If shock is advised, minimize interruptions in chest compressions before and after shock by performing chest compressions while the AED is charging.

b) Leave the AED on the patient and turned on throughout the resuscitation effort.

c) The AED will prompt reassessment of a pulse and rhythm analysis every 2 minutes.

d) Resume CPR beginning with chest compressions immediately after each shock and continue to follow the prompts of the AED.

e) Consider the Lucas device application at pulse checks if child is over the age of 12 **Procedure 26**. Manual chest compressions should be continued during the placement of mechanical compression device. Do not interrupt compressions for more than 10 seconds.

ALS

6. Initial Assessment **Protocol 1P** The "Pit Crew" approach will be used, and initial procedures/treatments will be completed concurrently.

a) Assess for responsiveness.

b) Simultaneously look for no breathing or occasional gasps and check for a pulse, to reduce the time to first chest compression.

The initial assessment should take no more than 10 seconds to complete.

7. If the patient has a pulse, but is not breathing:

a) Open the airway

b) Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7P**, Section E.

c) Insert SGA if airway is patent.

a. Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see **Procedure 49** for contraindication.

d) Provide 1 rescue breath every 6 seconds (10 breaths/min).

e) Attach and monitor End Tidal CO_2 and waveform capnography **Procedure 11**.

Note: SGA can be utilized by EMTs through departmental approval.

Top

1. If the patient has no pulse:

   a) Perform immediate chest compressions. Only interrupt chest compressions to analyze rhythm and to determine airway patency.

   b) Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7P**, Section E.

   c) Insert SGA if airway is patent. If obstructed, see **Protocol 7P**, Section E.

      i. Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see **Procedure 49** for contraindications.

   d) Provide 1 ventilation every 6 seconds (10 breaths/min.).

   e) Attach and monitor End Tidal CO_2 and waveform capnography **Procedure 11**.

   Note: SGA can be utilized by EMTs through departmental approval.

   f) Reassess for a pulse every 2 minutes.

8. Immediately apply and attach defibrillator pads.

9. Turn on the Monitor/Defibrillator and switch the monitor to "paddles."

10. Analyze for a shockable rhythm:

    a) Ventricular Fibrillation (V-Fib or VF)
    b) Pulseless Ventricular Tachycardia (pVT) (Monomorphic V-Tach or VT)
    c) Torsades de Pointes or Polymorphic VT

11. If the patient presents with a shockable rhythm, deliver shock as soon as possible.

    a) **Defibrillate at 2 J/kg** and subsequent defibrillations should escalate beginning at **4 J/kg every 2 minutes as needed**, up to MAX dose of 10 J/kg (or adult dose) every 2 minutes.

    b) **Resume CPR** beginning with chest compressions immediately after each shock,

       i. 15 compressions 2 breaths for 10 cycles (2 minutes) if no advanced airway in place.

       ii. Once an advanced airway is in place, ventilate 1 breath every 6 seconds with continuous chest compressions (2 minutes).

    c) Consider the Lucas device application at pulse checks if child is over the age of 12 **Procedure 26**. Manual chest compressions should be continued during the placement of mechanical compression device. Do not interrupt compressions for more than 10 seconds.

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12. If the patient does not present with a shockable rhythm:

    a) **Resume CPR** beginning with chest compressions after each reassessment.

13. Reassessment shall be done after every 2 minutes of CPR, simultaneously checking for a pulse and confirming the underlying rhythm.

14. **Establish vascular access via IV (preferred) or IO** as soon as possible without delaying chest compressions. **Procedure 13** or **Procedure 14**.

15. Deliver medications in accordance with the rhythm-based protocol the patient is being treated under the proceeding sections in this protocol.

C. Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/pVT)

ALS

1. **Defibrillate at 2 J/kg** and subsequent defibrillations should escalate beginning at **4 J/kg** up to **MAX dose** of **10 J/kg (or adult dose)**.

    a) Analyze for a shockable rhythm and repeat defibrillation as necessary for recurrent VF/pVT after every 2 minutes of high-quality CPR.

2. **Establish vascular access via IV (preferred) or IO** **Procedure 14** as soon as possible without delaying chest compressions.

3. Administer **Epinephrine (1 mg/10mL) 0.01 mg/kg**, (0.1 mL/kg) IV/IO push every 3-5 minutes for the duration of the arrest.

    a) Follow the drug administration with a 5 – 10 mL NS flush and high-quality CPR to circulate for 2 minutes prior to another rhythm analysis and pulse check

4. Establish an advanced airway (supraglottic or endotracheal) **Protocol 7P** at with limited to no interruptions in CPR and monitor with continuous quantitative waveform capnography (EtCO2).

5. Administer **Amiodarone *OR* Lidocaine**. The selection of ***one*** anti-arrhythmic will continue for the remainder of the VF/pVT algorithm.

    NOTE: Amiodarone is contraindicated in patients taking Coumadin (Warfarin).

    a) **Amiodarone**
        i. Initial dose: **5 mg/kg** IV/IO push (max 300 mg)
        ii. May repeat every 3-5 minutes, up to a total of 3 doses for refractory VF/pVT. (max 150 mg subsequent doses).
        iii. Do not exceed a total dose of 450 mg.

    OR

    b) **Lidocaine**
        i. Initial dose: **1 mg/kg** IV/IO push
        ii. Additional dose: **1 mg/kg** IV/IO push in 3-5 minutes, may repeat once, up to maximum total dose of **3 mg/kg**

c) Follow the drug administration with a 5-10 mL NS flush and high-quality CPR to circulate for 2 minutes prior to another rhythm analysis and pulse check.

6. If patient is in polymorphic ventricular tachycardia (Torsades de Pointes) or refractory V-Fib, administer **Magnesium Sulfate 50 mg/kg IV/IO** (Max dose of 2 gm) over 2 min (can be done at any time after the first epinephrine).

7. Consider underlying causes and manage as soon as possible. indicated in **"Potentially Reversible Causes in Cardiac Arrest"** at the end of Section H, PEA.

8. After ROSC, refer to the Post Resuscitative Care Protocol **Section J.**

D. Asystole, Agonal rhythm, Idioventricular with rate 20 bpm or less, or Pulseless Bradycardias

ALS

1. Initiate CPR according to AHA standards. Two minutes of CPR will be done prior to stopping and reassessing the rhythm.

2. Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7P**, Section E.

3. Insert SGA if airway is patent. If obstructed, see **Protocol 7P**, Section E.

a) Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see **Procedure 49** for contraindications.

4. IV/IO Access **Procedure 13** & **Procedure 14** will be done concurrently with CPR. Medication administration will begin as soon as an appropriate route becomes available.

5. Administer **Epinephrine 1mg/10mL, 0.01 mg/kg** IV/IO (0.1 mL/kg), MAX DOSE of 1 mg.

a) Subsequent doses of **Epinephrine 1mg/10mL, 0.01 mg/kg** IV/IO (0.1 mL/kg) should be administered every 3-5 minutes, MAX 1 mg per dose.

6. Consider underlying causes and manage as soon as possible, indicated in "**Potentially Reversible Causes in Cardiac Arrest**" at end of Section H, PEA.

E. Pulseless Electrical Activity (PEA)

ALS

1. Initiate CPR according to AHA standards. Two minutes of CPR will be done prior to stopping and reassessing the rhythm.

Top

2. Give 2 full ventilations with BVM to determine airway patency. If obstructed, see **Protocol 7P**, Section E.

3. Insert SGA if airway is patent. If obstructed, see **Protocol 7P**, Section E.

    a) Intubation should only be performed if you are unable to successfully manage the patient's airway with an SGA, see **Procedure 49** for contraindications.

4. IV/IO Access **Procedure 13** & **Procedure 14** will be done concurrently with CPR. Medication administration will begin as soon as an appropriate route becomes available.

5. Administer **Epinephrine 1mg/10mL at 0.01 mg/kg IV/IO** (0.1 mL/kg) MAX SINGLE DOSE 1mg.

    a) Subsequent doses of **Epinephrine 1mg/10mL at 0.01 mg/kg** IV/IO (0.1 mL/kg) should be administered every 3-5 minutes.

6. Consider causes and manage as soon as possible, indicated in the following chart, "**Potentially Reversible Causes in Cardiac Arrest.**"

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Potentially Reversible Causes in Cardiac Arrest (H's and T's)	
Hypovolemia	Fluid bolus of 20 mL/kg; 10 mL/kg for neonates (< 1 month), rapid transport
Hypoxemia	Confirm adequacy of oxygenation, airway management, consider establishing advanced airway.
Hydrogen-ions (Acidosis)	Provide assisted ventilation with an advanced airway (supraglottic or endotracheal) and monitor EtCO2 Administer Sodium Bicarbonate 1 mEq/kg IV/IO
Hypothermia	Active rewarming of patient
Hypoglycemia	Treat per **Protocol 36P**, Impaired Consciousness
Hyperkalemia	Calcium Chloride and/or Sodium Bicarbonate.
Tension Pneumothorax	Perform chest needle decompression **Procedure 5**
Tamponade, Cardiac	Outside of EMS Scope of Practice – Transport to closest most appropriate hospital
Toxins	Refer to **Protocol 15P**
Thrombosis (Pulmonary/Coronary)	Transport to a STEMI – PCI capable facility
Trauma	Refer to **Section K**

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F. Wide Complex Tachycardia – Regular (Monomorphic) with a Pulse

Infants: Rate ≥ 220/min.

Children: Rate ≥ 180/min.

Wide Complex Tachycardia - Unstable Patient

Regular, Wide Complex (QRS > 0.09 sec) Tachycardia with a Pulse.

"Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a. Acutely altered mental status

b. Signs of shock

c. Hypotension

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. If conscious, attempt to sedate by administering **Midazolam (Versed), 0.1 mg/kg** slow IV/IO or IM**. DO NOT** delay cardioversion to sedate patient or obtain a 12-Lead EKG if they are unstable.
3. Begin **synchronized cardioversion at 1 j/kg**. (If rhythm irregular and unable to synchronize, defibrillate as in **Section C**. Ventricular Fibrillation/Pulseless Ventricular Tachycardia Pediatric). If patient does not convert after initial cardioversion of 1 J/kg and reassessment of underlying rhythm and the presence of a pulse after each synchronized cardioversion, increase dose:
   a. **2 j/kg** Synchronized
   b. Repeat 2 j/kg until successfully cardioverted.
4. Consider **Adenosine 0.1 mg/kg** rapid IVP (Max dose of 6 mg) as a diagnostic tool, if rhythm is regular and the QRS are monomorphic.
5. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, move immediately to appropriate rhythm-based algorithm.

Wide Complex Tachycardia – Stable

ALS

1. Obtain EKG and determine **regularity of R-R waves**.

Top

2. Consider **Adenosine 0.1 mg/kg** rapid IVP (max dose 6 mg) if rhythm is regular and QRS complexes are monomorphic as a diagnostic tool.

3. Administer **Amiodarone 5 mg/kg IV over 20 minutes.** (Max dose of 150 mg).

4. Mix appropriate weight-based dosage into a 50 mL NS bag with a 10 gtt/mL set and run at 30 gtts/min (1 drop every 2 seconds) may be repeated once in 20 minutes.

5. If the patient's condition deteriorates at any time, move immediately to "*unstable pediatric patient*" below or to VF/Pulseless VT, **Section C**.

G. Torsades de Pointes – Irregular (Polymorphic) VT

Polymorphic (irregular) VT requires immediate defibrillation with the same protocol for VF. For polymorphic VTs, due to the QRS complex appearance, it will be virtually impossible for cardiac monitors for synchronization. Although some patients may present with a pulse, it typically will deteriorate quickly to a pulseless VT.

Torsades de Pointes – Irregular (Polymorphic) VT - Unstable Patient

"Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a. Acutely altered mental status

b. Signs of shock

c. Hypotension

ALS

1. Obtain EKG and determine **regularity of R-R waves**.

2. If conscious, attempt to sedate by administering **Midazolam (Versed), 0.1 mg/kg** slow IV/IO or IM**. DO NOT** delay cardioversion to sedate patient and obtain a 12-Lead EKG if they are unstable.

3. Begin **Defibrillation at 2 J/kg**. (Defibrillate as in **Section C**. Ventricular Fibrillation/Pulseless Ventricular Tachycardia Pediatric). If patient does not convert after initial defibrillation of 2 J/kg and reassessment of underlying rhythm and the presence of a pulse each energy delivery, increase doses:

   a. **4 J/kg**

   b. **6 J/kg** up to 10 J/kg

4. If the patient's condition deteriorates at any time and becomes unresponsive and pulseless, immediately to appropriate rhythm-based algorithm

5. Regardless of the cause, consider treatment of Torsades de Pointes early, administer

Magnesium Sulfate 50 mg/kg (MAX 2 gm) IV/IO.

Torsades de Pointes – Irregular (Polymorphic) VT – Stable Patient

Infants: Rate ≥ 220/min.

Children: Rate ≥ 180/min

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. Administer **Magnesium Sulfate 50 mg/kg** (MAX 2 gm) mixed into a 50 mL of NS over 8-9 minutes with a 10 gtt (macro) drip set at 1 drop/second.
3. If the patient's condition deteriorates at any time, move immediately to "*Unstable Patient*" below, or immediately to appropriate rhythm-based algorithm.

H. Sustained Narrow Complex Tachycardia – Regular Narrow Complex (QRS ≤ 0.09 sec)

SVT - Unstable Patient

Infants: Rate ≥ 220/min.

Children: Rate ≥ 180/min

"Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a. Acutely altered mental status

b. Signs of shock

c. Hypotension

ALS

1. Obtain EKG and determine **regularity of R-R waves**.

a. If conscious, attempt to sedate by administering **Midazolam (Versed) 0.1 mg/kg** slow IV/IO or IM.

b. Begin **synchronized cardioversion at 1 j/kg**. (If impossible to synchronize, defibrillate as in **Section C**. Ventricular Fibrillation /Pulseless Ventricular Tachycardia Pediatric). If patient does not convert after initial cardioversion of **1 j/kg** and reassessment of underlying rhythm and the presence of a pulse each energy delivery, increase doses:

i. **2 j/kg** Synchronized

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ii. Repeat **2 j/kg** until successfully cardioverted.

2. Administer **Adenosine, 0.1 mg/kg** rapid IVP (Max dose of 6 mg).
3. Administer a **fluid challenge of 20 mL/kg**.
4. If the patient's rhythm fails to convert, consult MCP for further treatment instructions.

SVT - Stable Patient

Infants: Rate ≥ 220/min

Children: Rate ≥ 180/min.

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. Consider underlying causes of tachycardia.
    a) Refer to Handtevy system as a guide for appropriate pediatric vital signs, treatment, dosages, and equipment.
3. Consider vagal maneuvers.
4. Administer **Adenosine, 0.1 mg/kg** rapid IVP (Max first dose of 6 mg). This may be repeated in 1-2 minutes at 0.2 mg/kg rapid IVP (Max second dose of 12 mg).
    a) Adenosine should be administered through a large-bore catheter preferably at the antecubital fossa and followed by a rapid flush of 5-10 mL of IV solution.
5. If the QRS width is thought to be wide (> 0.09 sec) then follow **Section D**, "Regular, Wide Complex Tachycardia with a Pulse" Pediatric).
6. If the patient's condition deteriorates at any time, move immediately to "*unstable patient*" below.

Sustained Sinus Tachycardia – Stable Patient

Infants: Rate < 220/min

Children: Rate < 180/min

Sinus tachycardia is usually greater than the normal rate, but the rate may vary. Upon acquiring history, it is compatible and consistent with known cause; P waves are present and normal, variable R-R with a constant PR interval.

Top

ALS

1. Obtain EKG and determine **regularity of R-R waves**.
2. Consider underlying causes of tachycardia, probable sinus tachycardia.

   Refer to Handtevy system as a guide for appropriate pediatric vital signs, treatment, dosages, and equipment.

   a) Seek for and treat the underlying cause. (*Examples of causes:* hyperthermia, dehydration, etc.)

   b) Contact MCP for consultation.

I. Symptomatic Bradycardia

Causes of bradycardia in the pediatric population may be caused by hypoxemia, heart block, heart defects, hypothermia, head injury, and/or toxin/drug induced.

Care must be taken to ensure the adequacy of oxygenation and airway patency. Hypoxemia is the leading cause of bradycardia in children. If heart rate is < 60/min. in an infant or child, along with poor systemic perfusion, begin chest compressions.

Symptomatic / "Unstable" includes patients presenting with **ANY** of the following signs of cardiopulmonary compromise:

a) Acutely altered mental status

b) Signs of shock

c) Hypotension

BLS

1. Initial Assessment/Care **Protocol 1P**.
2. Provide oxygen.
3. Begin assisting ventilations and oxygenate patient via BVM if HR < 100, reassess every 2 min.
4. Initiate CPR according to AHA standards **Section A** if patient's heart rate < 60 despite of assistance of ventilations & oxygenation.
5. Two minutes of CPR will be done prior to stopping and assessing the rhythm.

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ALS

6. Airway Management **Protocol 7P** and IV/IO Access **Procedure 13** & **Procedure 14** will be done concurrently with CPR. Medication administration will begin as soon as an appropriate route becomes available.

7. Administer **Epinephrine 1mg/10mL at 0.01 mg/kg** IV/IO (0.1 mL/kg). For ET use 1:1,000, 0.1 mg/kg. May be repeated every 3-5 min. (No more adult dose)

Administer **Atropine, 0.02 mg/kg** IV/IO. 0.1 mg is the minimum single dose (0.5 mg is maximum single dose), for increased vagal tone or primary AV block, may be repeated once in 3-5 min. (not to exceed a maximum dose of 0.04 mg/kg)

8. External pacing (TCP), **Procedure 23**. Should **only considered** if the child remains unstable despite oxygenation, ventilation, compressions, and medications ***Start at 80 bpm and 20 milliamps and titrate to capture.***

9. During the reassessment every 2 minutes and patient becomes pulseless, continue resuscitation efforts and follow **Section B**, Pediatric Cardiopulmonary Resuscitation.

10. Consider causes and manage as indicated in the following chart, "**Potentially Reversible Causes in Cardiac Arrest.**"

J. Post Resuscitative Care (ROSC)

ALS

1. Optimize ventilation and oxygenation.

   a) Maintain oxygen saturation ≥ 94% to avoid potential oxygen toxicity due to excessive ventilation, titrate to a target ETCO2 35-40 mmHg.

   b) Glycemic control measures should be implemented since there is an increased risk for hypoglycemia in the post-arrest phase. Measure and treat hypoglycemia **Protocol 36P**.

2. Assess and treat for persistent shock.

   a) Administer a **fluid bolus up to 20 mL/kg of NS**. Consider smaller boluses (10 mL/kg), if poor cardiac function is suspected. Monitor the patient's B/P or perfusion in the most appropriate manner (peripheral circulation: pulses, CRT, skin condition) and lung sounds often. It is not mandatory to administer the max dose of fluid bolus prior to proceeding to Epinephrine or Dopamine. Clinical judgement should be utilized in determining when to proceed to Epinephrine.

   b) Epinephrine Infusion at 0.1 mcg/kg/min and titrate to desired effect up to a max of 1 mcg/kg/min. **Appendix 9.2**.

c) If the desired effects are not achieved with the Epinephrine Infusion, administer Dopamine Infusion at 5 mcg/kg/minute and titrate to a max of 20 mcg/kg/minute **Appendix 9.1**

3. Monitor and treat seizures and agitation.

4. Transport to the most appropriate pediatric facility for management and definitive care.

K. Pediatric Traumatic Arrest

EMR/BLS

1. Begin cardiopulmonary resuscitation as outlined in **Section B**.

   a) Resuscitation efforts can be terminated if the patient meets criteria outlined in **Protocol 27**.

2. Perform airway management **Protocol 7P**.

3. Simultaneous interventions:

   a) Hemorrhage Control as necessary **Protocol 21P**.

ALS

   b) Perform bilateral needle decompression if suspicion of possible tension pneumothorax **Procedure 5**, beginning on the most injured side first.

   c) Establish at least two large-bore IVs.

   d) Administer fluid bolus at 20 mL/kg, maybe repeated 1 time.

   e) Consider the administration of TXA if severe hemorrhage is known or suspected.

4. Follow the most appropriate ACLS algorithm according to rhythm presented and consider the potential etiology of the arrest.

5. Transport to the closest Pediatric Trauma Center.

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