Pediatric Tachycardia
Wide Complex (> 0.09 sec)

History
- Past medical history
- Medications or Toxic Ingestion (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Drugs (nicotine, cocaine)
- Congenital Heart Disease
- Respiratory Distress
- Syncope or Near Syncope

Signs and Symptoms
- Heart Rate: Child > 180/bpm
  Infant > 220/bpm
- Pale or Cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered Level of Consciousness
- Pulmonary Congestion
- Syncope

Differential
- Heart disease (Congenital)
- Hypo / Hyperthermia
- Hypovolemia or Anemia
- Electrolyte imbalance
- Anxiety / Pain / Emotional stress
- Fever / Infection / Sepsis
- Hypoxia, Hypoglycemia
- Medication / Toxin / Drugs (see HX)
- Pulmonary embolus
- Trauma, Tension Pneumothorax

Assess tachycardia in context of clinical condition
Identify and treat underlying cause of tachycardia

Unstable / Serious Signs and Symptoms
AMS, shock, hypotension
HR Typically > 180 Child
HR Typically > 220 Infant

YES →

P
Cardiac Monitor
Cardioversion Procedure CSP 2
1 J / kg Repeat and increase to **2 J / Kg** May increase to **4 J / Kg** Or adult maximum
Consider sedation Do NOT delay cardioversion **Midazolam 0.2 mg / kg** **IV / IO / IN** May repeat every 5 minutes as needed **Maximum Single Dose 2 mg** **Maximum Total Dose 5 mg**

NO ↓

B	12 Lead ECG Procedure CSP 1
P	Cardiac Monitor
	IV / IO Access Protocol UP 6

Single lead ECG able to diagnose and treat arrhythmia

12 Lead ECG not necessary to diagnose and treat, but preferred when patient is stable.

Regular Rhythm?

NO → **Contact Medical Control**

YES ↓

Probable Ventricular Tachycardia

P
If QRS Regular and Monomorphic **Adenosine 0.1 mg / kg IV / IO** **Maximum 6 mg** May repeat **Adenosine 0.2 mg / kg IV / IO** **Maximum 12 mg**
Expert consultation recommended for further medication management and/ or cardioversion procedure

Notify Destination or Contact Medical Control

AT ANY TIME

Pulseless

Go to Pediatric Pulseless Arrest Protocol

Pediatric Cardiac Protocol Section

Pediatric Tachycardia
Wide Complex (> 0.09 sec)

** Refer to Length Based Medication Tape for Medication Doses IF pediatric patients weight is unknown **

Pearls

- **Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention**
- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Neuro**
- **Monomorphic QRS:**
  All QRS complexes in a single lead are similar in shape.
- **Polymorphic QRS:**
  QRS complexes in a single lead will change from complex to complex.
- **Use length-based or weight-based pediatric resuscitation system for medication, equipment, cardioversion, and defibrillation guidance. Pediatric paddles should be used in children < 10 kg.**
- **Rhythm should be interpreted in the context of symptoms and pharmacological or electrical treatment given only when symptomatic, otherwise monitor and reassess.**
- **12-Lead ECG:**
  12-Lead ECG is not necessary to diagnose and treat arrhythmia. A single lead ECG is often all that is needed.
  Obtain 12-Lead when patient is stable and/ or following a rhythm conversion.
  When administering adenosine, obtaining a continuous 12-Lead can be helpful later to physicians.
- **Unstable condition:**
  Condition which acutely impairs vital organ function and cardiac arrest may be imminent.
  If at any point patient becomes unstable move to unstable arm in algorithm
- **Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.**
- **Serious Signs and Symptoms:**
  Respiratory distress/ failure.
  Signs of shock/ poor perfusion with or without hypotension.
  AMS
  Sudden collapse with rapid, weak pulse
- **Wide Complex Tachycardia (> 0.09 seconds):**
  SVT with aberrancy.
  VT: Uncommon in children. Rates may vary from near normal to > 200/ minute.
  Most children with VT have underlying heart disease / cardiac surgery/ long QT syndrome/ cardiomyopathy.
  Amiodarone 5 mg / kg over 20 – 60 minutes or Procainamide 15 mg / kg over 30 – 60 minutes IV / IO are recommended agents. They should not be administered together. Consultation with Medical Control is advised when these agents are considered.
- **Torsade's de Pointes/ Polymorphic (multiple shaped) Tachycardia:**
  Rate is typically 150 to 250 beats/ minute.
  Associated with long QT syndrome, hypomagnesaemia, hypokalemia, many cardiac drugs.
  May quickly deteriorate to VT.
  Separating the child from the caregiver may worsen the child's clinical condition.
- Monitor for respiratory depression and hypotension associated if Diazepam, Lorazepam, or Midazolam is used.
- Continuous pulse oximetry is required for all SVT patients if available.