Algorithm for Pediatric Tachycardia With Poor Perfusion

- BLS Algorithm: Assess, support ABCs
- Pulse present?
  - No: Initiate CPR; See pulseless arrest algorithm
  - Yes:
- Provide oxygen and ventilation as needed
- Attach monitor/defibrillator
- 12-lead ECG if practical
- Evaluate QRS duration

QRS duration normal for age (approximately ≤0.08 sec) → *Evaluate the tachycardia*

QRS duration wide for age (approximately >0.08 sec) → *Evaluate the tachycardia*

During evaluation
- Provide ***oxygen*** and ventilation as needed
- Support ABCs
- Confirm continuous monitor/pacer attached
- Consider expert consultation
- Prepare for ***cardioversion*** (consider sedation)

Identify and treat possible causes
- **H**ypoxemia
- **H**ypovolemia
- **Hyper**thermia
- **H**yper-/hypokalemia and metabolic disorders
- **T**amponade
- **T**ension pneumothorax
- **T**oxins/poisons/drugs
- **T**hromboembolism
- Pain

Probable sinus tachycardia
- History compatible
- P waves present/normal
- HR often varies with activity
- Variable RR with constant PR
- Infants: rate usually <220 bpm
- Children: rate usually <180 bpm

Probable supraventricular tachycardia
- History incompatible
- P waves absent/abnormal
- HR not variable with activity
- Abrupt rate changes
- Infants: rate usually >220 bpm
- Children: rate usually >180 bpm

Probable ventricular tachycardia
- Immediate ***cardioversion*** 0.5 to 1.0 J/kg (consider sedation, do not delay cardioversion)

Consider vagal maneuvers (no delays)

Consider alternative medications
- ***Amiodarone*** 5 mg/kg IV over 20 to 60 minutes
  or
- ***Procainamide*** 15 mg/kg IV over 30 to 60 minutes
  (Do not routinely administer amiodarone and procainamide together)
  or
- ***Lidocaine*** 1 mg/kg IV bolus (wide-complex only)
- Consult pediatric cardiologist
- 12-lead ECG

Immediate cardioversion *or*
- Attempt ***cardioversion*** with 0.5 to 1.0 J/kg (may increase to 2 J/kg if initial dose is ineffective)
- Use sedation if possible
- Sedation must not delay cardioversion

Immediate IV/IO Adenosine
- ***Adenosine:*** use if IV access is immediately available
- Dose: ***Adenosine*** 0.1 mg/kg IV/IO (maximum *first dose:* 6 mg)
- May double and repeat dose once (maximum *second dose:* 12 mg)
- Technique: use rapid bolus technique

Algorithm for Pediatric Tachycardia With Adequate Perfusion

- BLS Algorithm: Assess and support ABCs (assess signs of circulation and pulse; provide oxygen and ventilation as needed)
- Provide oxygen
- Attach monitor/defibrillator
- Evaluate 12-lead ECG if practical

What is the QRS duration?

QRS duration normal for age (approximately ≤0.08 sec) → *Evaluate rhythm*

QRS duration wide for age (approximately >0.08 sec) → *Probable ventricular tachycardia*

Probable sinus tachycardia
- History compatible
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Consider alternative medications
- ***Amiodarone*** 5 mg/kg IV over 20 to 60 minutes
  (Do not routinely administer amiodarone and procainamide together)
  or
- ***Procainamide*** 15 mg/kg IV over 30 to 60 minutes
  (Do not routinely administer amiodarone and procainamide together)
  or
- ***Lidocaine*** 1 mg/kg IV bolus

Consider vagal maneuvers

- Establish vascular access
- Consider ***adenosine*** 0.1 mg/kg IV (maximum first dose: 6 mg)
- May double and repeat dose once (maximum second dose: 12 mg)
- Use rapid bolus technique

During evaluation
- Provide ***oxygen*** and ventilation as needed
- Support ABCs
- Confirm continuous monitor/pacer attached
- Consider expert consultation
- Prepare for ***cardioversion*** 0.5 to 1.0 J/kg (consider sedation)

Identify and treat possible causes
- **H**ypoxemia
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- Consult pediatric cardiologist
- Consider ***cardioversion*** with 0.5 to 1.0 J/kg (may increase to 2 J/kg if initial dose ineffective)
- Sedation prior to cardioversion
- 12-lead ECG