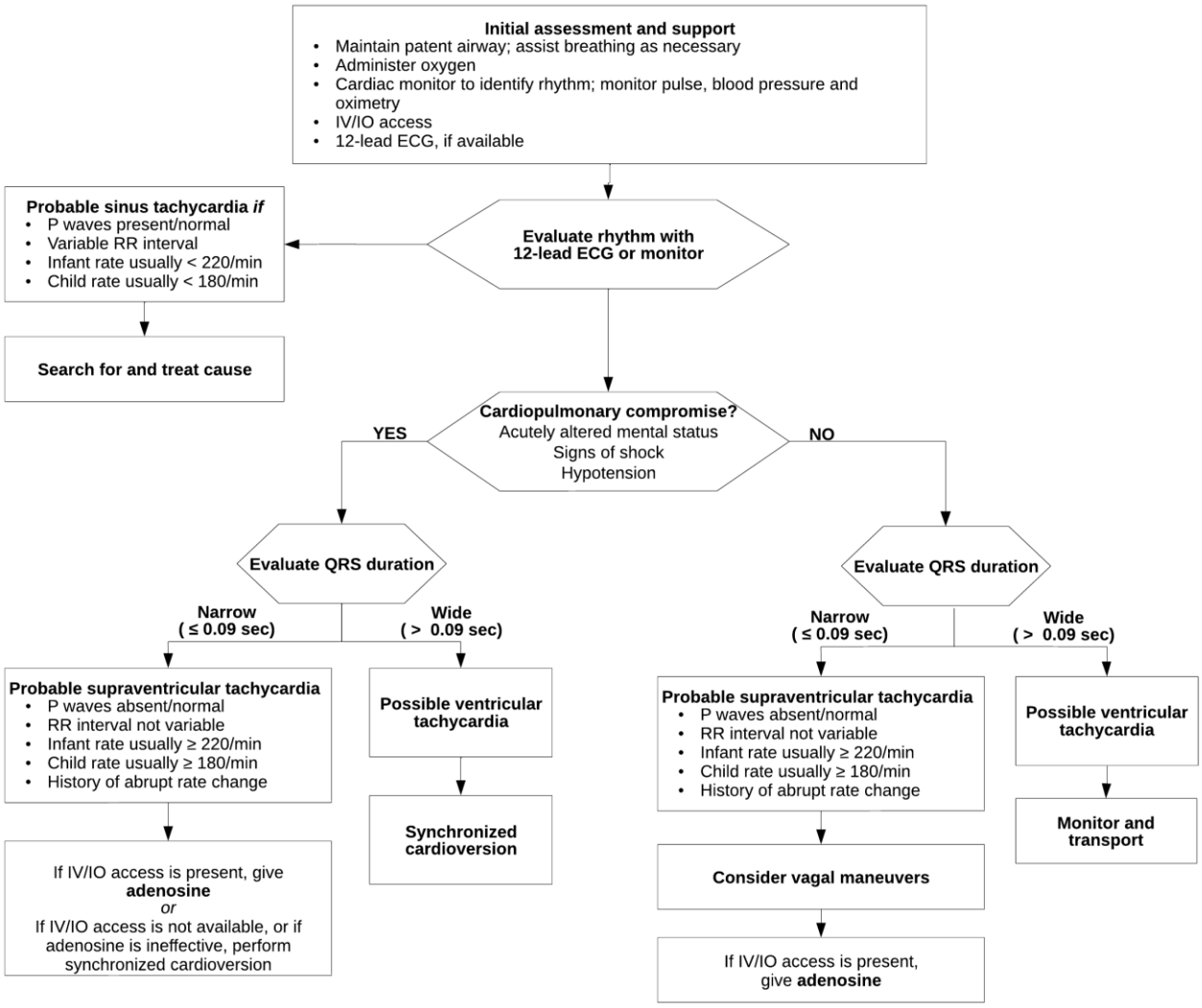
REGION 11 CHICAGO EMS SYSTEM PROTOCOL	Title: Pediatric Tachycardia with a Pulse – BLS/ALS
	Section: Cardiovascular
	Approved: EMS Medical Directors Consortium
	Effective: March 6, 2025

PEDIATRIC TACHYCARDIA WITH A PULSE – BLS/ALS



Doses/Details
Synchronized Cardioversion Begin with 1 J/kg; if not effective, increase to 2 J/kg Administer analgesia if needed, but don't delay cardioversion
Drug Therapy
Adenosine IV/IO dose First dose: 0.1 mg/kg rapid bolus (maximum: 6 mg) Second dose: 0.2 mg/kg rapid bolus (maximum second dose: 12 mg)

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I. PATIENT CARE GOALS

1. Maintain adequate oxygenation, ventilation, and perfusion.
2. Control ventricular rate.
3. Restore regular sinus rhythm in unstable patient.
4. Search for underlying cause:
    a. Medications (caffeine, diet pills, thyroid, decongestants)
    b. Drugs (cocaine, amphetamines)
    c. History of dysrhythmia
    d. Congestive heart failure (CHF)

II. PATIENT PRESENTATION

Patients will manifest elevated heart rate for age and may or may not also present with associated signs or symptoms such as palpitations, dyspnea, chest pain, syncope/near-syncope, hemodynamic compromise, altered mental status, or other signs of end organ decreased perfusion.

Rhythms include:
- *Atrial fibrillation (A-fib)*
- *Atrial flutter*
- *Multifocal atrial tachycardia (MAT)*
- *Supraventricular tachycardia (SVT)*
- *Torsades de pointes*
- *Ventricular tachycardia (VT)*

A. Inclusion Criteria

Heart rate with relative tachycardia in pediatric patients – assess per clinical condition and hemodynamic instability.

B. Exclusion Criteria

Sinus tachycardia with hemodynamic stability.

III. PATIENT MANAGEMENT

A. Pediatric Management

1. Manage airway as necessary.

2. Administer oxygen as appropriate with a target of achieving 94–98% saturation.

3. Initiate monitoring and perform 12-lead ECG.

4. Establish IV access.

5. Check blood glucose and treat if needed.

6. For ALS clinicians, evaluate the tachycardia and assess for patient stability.

   a. Assess for hemodynamic stability
   b. Assess narrow (QRS ≤ 0.09 second) or wide (QRS > 0.09 second)
   c. Assess regular or irregular rhythm.

7. Apply defibrillation pads in the Anterior-Posterior position.

8. Consider the following additional therapies if tachycardia with signs and symptoms or hemodynamic instability continues:

   a. Regular Narrow Complex Tachycardia – Stable (SVT)
      i. Perform vagal maneuvers
      ii. Adenosine 0.1 mg/kg (maximum of 6 mg)
      iii. If unsuccessful, may repeat with 0.2 mg/kg (maximum of 12 mg)

   b. Regular Narrow Complex Tachycardia – Unstable
      i. Deliver a synchronized shock: 1 J/kg for the first dose per Synchronized Cardioversion Procedure
      ii. Repeat doses should be 2 J/kg

   c. Regular Wide Complex Tachycardia — Stable
      i. Monitor hemodynamic status and transport

   d. Regular, Wide Complex Tachycardia – Unstable
      i. Synchronized cardioversion 1.0 J/kg per Synchronized Cardioversion Procedure
      ii. Repeat doses should be 2 J/kg

IV. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. Causes:

   a. Hypovolemia
   b. Hypoxia
   c. Hydrogen (acidosis)
   d. Myocardial infarction

e. Hypokalemia/Hyperkalemia
f. Hypoglycemia
g. Hypothermia
h. Toxins/Overdose
i. Tamponade
j. Tension pneumothorax
k. Thrombus – central or peripheral
l. Trauma
m. Hyperthyroidism

2. Atrial fibrillation rarely requires cardioversion in the field. As it is difficult to ascertain the onset of this rhythm, the risk of stroke needs to be considered prior to cardioversion.

3. A wide-complex irregular rhythm should be considered pre-excited atrial fibrillation; extreme care must be taken in these patients.

   a. Characteristic ECG findings include a short PR interval and, in some cases, a delta wave.
   b. Avoid AV nodal blocking agents such as adenosine in patients with pre-excitation atrial fibrillation (e.g., Wolff-Parkinson-White Syndrome) because these drugs may cause a paradoxical increase in the ventricular response.
   c. Blocking the AV node in some of these patients may lead to impulses that are transmitted exclusively down the accessory pathway, which can result in ventricular fibrillation.