	COUNTY OF SACRAMENTO EMERGENCY MEDICAL SERVICES AGENCY	Document #	9014.21
	PROGRAM DOCUMENT:	Initial Date:	01/30/95
	PEDIATRIC	Last Approved Date:	11/01/15
	Cardiac Dysrhythmias	Effective Date:	05/01/18
		Next Review Date:	09/01/19

 EMS Medical Director

 EMS Administrator

Purpose:

- A. To serve as the treatment standard for EMT's and Paramedics in treating pediatric patients with symptomatic bradycardias.
- B. To serve as the treatment standard for EMT's and Paramedics in treating pediatric patients with tachyarrhythmia's with pulses.

Authority:

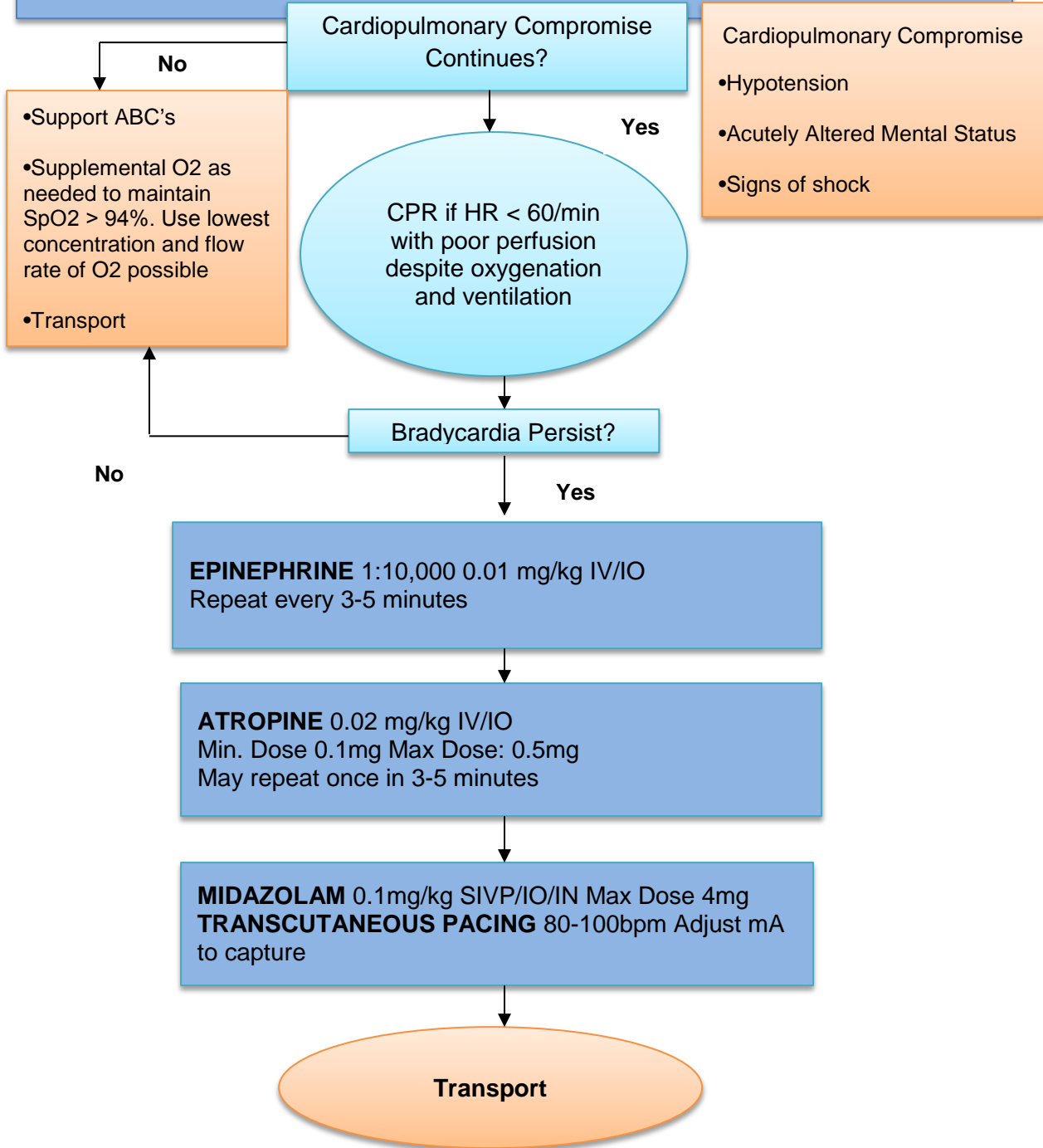
- A. California Health and Safety Code, Division 2.5
- B. California Code of Regulations, Title 22, Division 9

Protocol:

- A. Most pediatric bradycardias can be corrected by hyperventilation with 100% oxygen
- B. When Cardiopulmonary Resuscitation (CPR) is indicated, high quality CPR improves survival: "Push hard, push fast, minimize interruptions; allow full chest recoil, and don't hyperventilate"
- C. In the prehospital setting with short transport times, Bag Valve Mask (BVM) ventilation is the method of choice for children who required ventilator support
- D. Symptomatic Brady and Tachy-Dysrhythmias frequently have an underlying cause which should be recognized and treated in addition to any treatment directed at the dysrhythmia itself. It is critically important to determine the cause of the patient's instability in order to properly direct treatment. Search for and treat possible contributing factors (i.e. Hypothermia, Hyperkalemia, Hypovolemia, Hypoxia, Hypoglycemia, Tamponade, Thrombosis, Tension Pneumo, Toxins, Trauma, etc.)

Pediatric Bradycardia- OLD FLOW CHART

- Identify and Treat underlying Cause
- Maintain Patent Airway; Assist Breathing as Necessary
- Supplemental O₂ as needed to maintain SpO₂ > 94%. Use lowest concentration and flow rate of O₂ possible
- Cardiac Monitor; Monitor BP and SPO₂ Oximetry
- IV/IO Access with Saline Lock

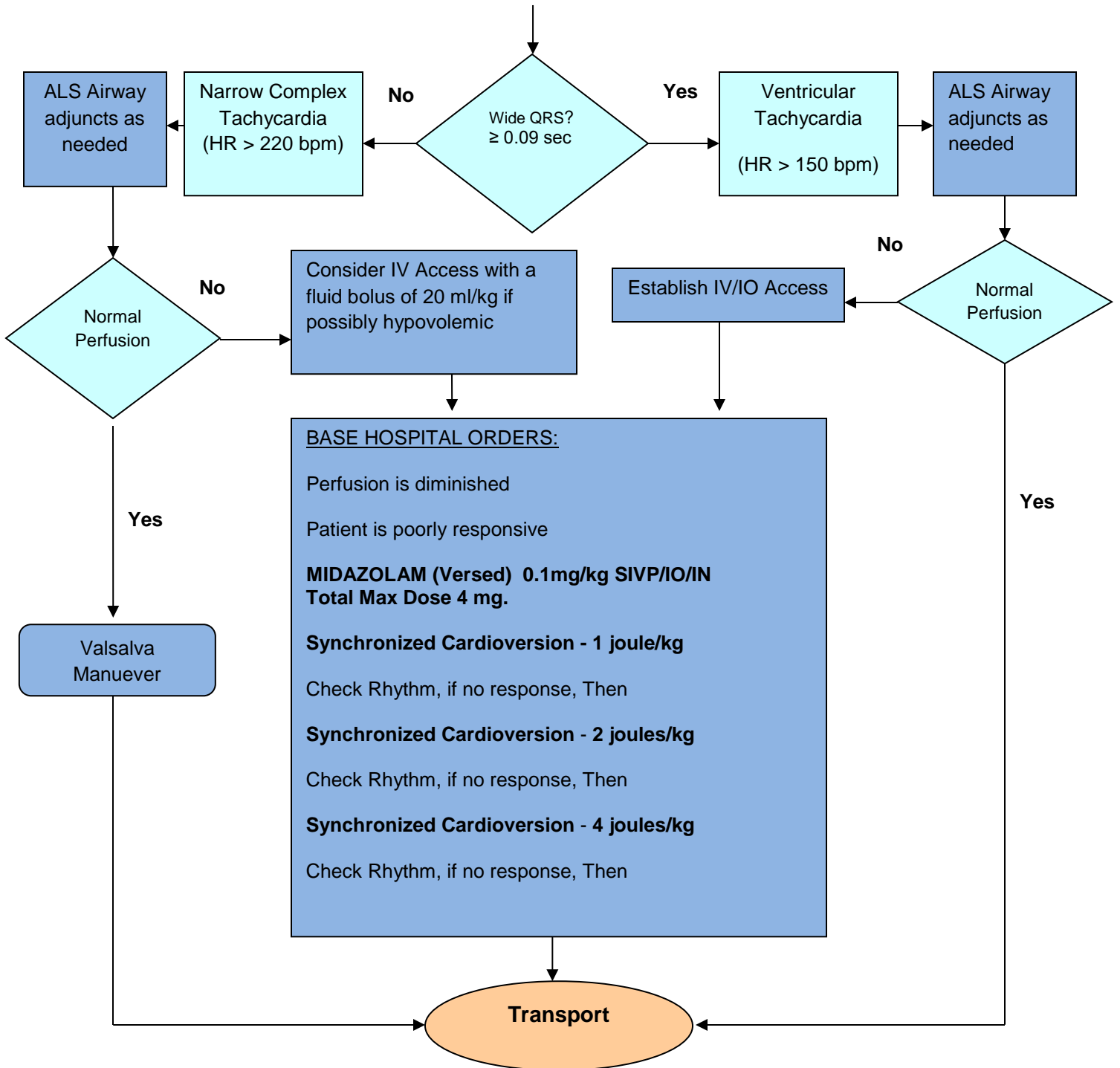


- Cardiopulmonary Compromise**
- Hypotension
 - Acutely Altered Mental Status
 - Signs of shock

- Support ABC's
- Supplemental O₂ as needed to maintain SpO₂ > 94%. Use lowest concentration and flow rate of O₂ possible
- Transport

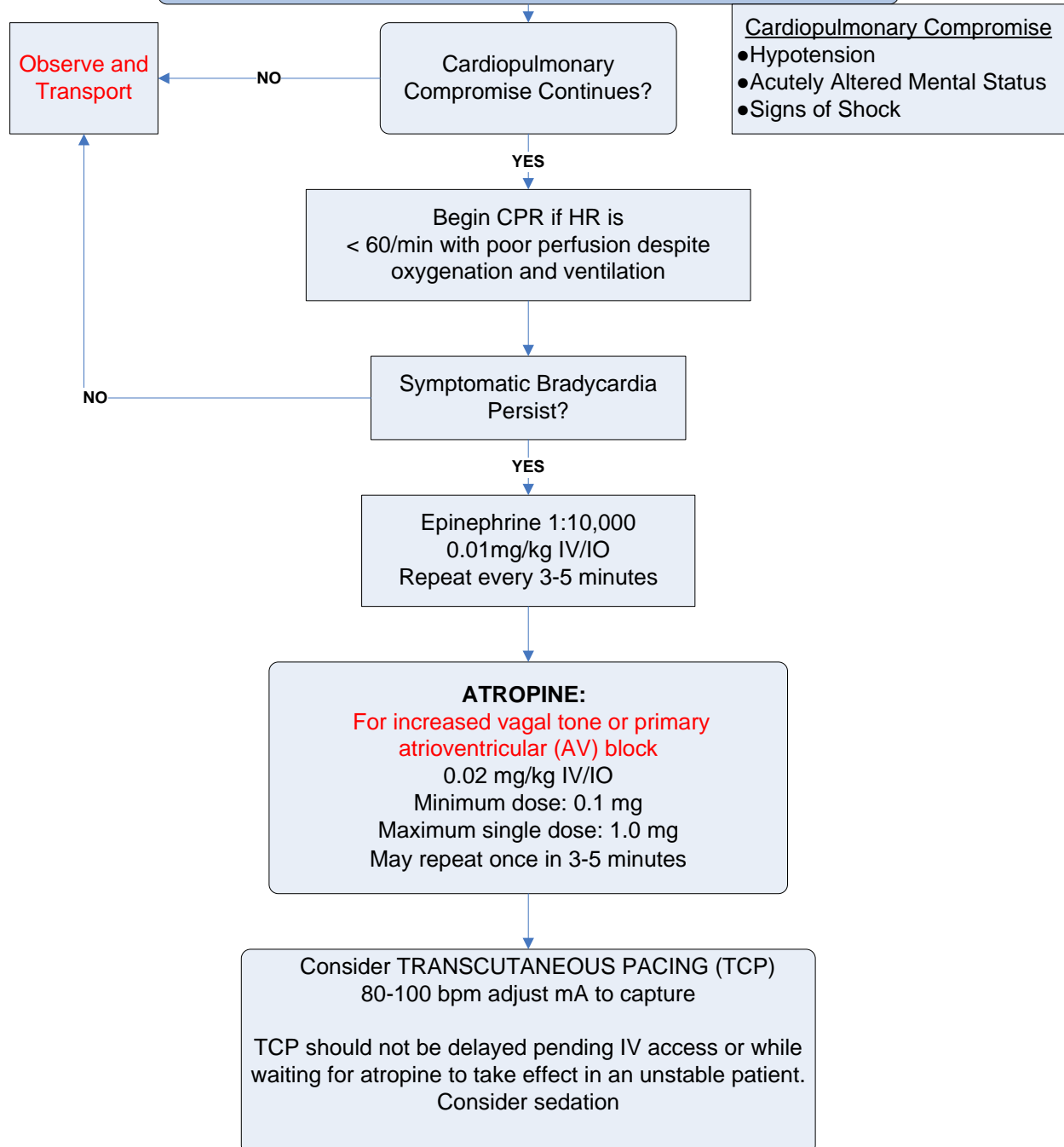
Pediatric Tachycardia-OLD FLOW CHART

- Identify and Treat Underlying Cause
- Maintain Patent Airway; assist breathing as necessary
- Supplemental O₂ as needed to maintain SpO₂>94%. Use lowest concentration and flow rate of O₂ Possible
- ECG to identify rhythm; monitor blood pressure and SPO₂
- IV/IO Access With Saline Lock



PEDIATRIC BRADYCARDIA

- Identify and Treat underlying cause.
→Hypoxemia → Hypothermia → Head Injury → Heart Block
→Toxins/drugs →Beta Blockers or Calcium Channel Blockers
- Maintain patent airway: Assist breathing as necessary.
- Supplemental O2 as needed to maintain SpO2 ≥ 94%. Use lowest concentration and flow rate of O2 as possible.
- Cardiac monitor, monitor B/P and SpO2 oximetry.
- IV/IO access with saline lock (SL).



Pediatric Tachycardia

- Identify and treat underlying causes
- Maintain patent airway: Assist breathing as necessary
- Supplemental O2 as needed to maintain SpO2 ≥ 94%. Use lowest concentration and flow rate of O2 as possible.

Cardiac Monitor to identify rhythm.
Monitor blood pressure and SpO2

Narrow QRS (≤ 0.08 sec)

Wide QRS (> 0.08 sec)

Sinus Tachycardia

- Compatible history consistent with known cause
- P waves present and normal
- Variable R-R and constant P-R
- Infants: rate usually < 220 bpm
- Children : rate usually < 180 bpm

Supraventricular Tachycardia

- Compatible history (vague, nonspecific)
- P waves absent or abnormal
- HR constant
- Infants: rate usually ≥ 220 bpm
- children: rate usually ≥ 180 bpm

Possible Ventricular Tachycardia
(Heart Rate > 150 BPM)

Treat underlying cause
Consider IV/IO fluid challenge of 20 ml/kg if possibly hypovemic

Cardiopulmonary compromise?

Contact Base Hospital for treatment consultation

Vagal Maneuvers

Monitor
Reassess
Transport

Successful?

IV/IO NS TKO
May consider fluid bolus of 20 ml/kg.

BASE HOSPITAL ORDER:

- Adenosine:**
- 0.1 mg/kg rapid IV/IO (max dose 6 mg)
 - If no response, administer second dose
 - 0.2 mg/kg rapid IV/IO (max dose 12 mg)

Successful?

BASE HOSPITAL ORDER:

Perfusion is diminished
Patient is poorly responsive

MIDAZOLAM (VERSED) 0.1 mg/kg Slow Intravenous Push (SIVP)/IO/IN
Total max dose 4 mg.

- **SYNCHRONIZED CARディオVERSION** - 0.5 Joule/kg-1Joule/kg, check rhythm. If no response
- **SYNCHRONIZED CARディオVERSION** - 2 Joules/kg, check rhythm. If no response
- **SYNCHRONIZED CARディオVERSION** - 4 Joules/kg, check rhythm
- **Transport**

Cross Reference: Pediatric Airway Management, PD# 8837