

Dysrhythmias

Protocol

Douglas County KS EMS System

November 2022

Reference Procedures: [12 lead](#), [Synchronized Cardioversion](#), [Transcutaneous Pacing](#)

Goals for Patient Care:

- Identify life-threatening dysrhythmias
- Maintain oxygenation, ventilation and perfusion while treating underlying cause (if able)

Medications:

ADULT Medications:

- **Atropine:** 1mg IV/IO q 3-5 min.
(Max of 3mg)
- **Adenosine:** 6mg repeat at 12 mg in 1-2 min. 3rd dose of 12 in 1-2 min IV/IO
(AC preferred)
- **Amiodarone:**
 - VF/Pulseless VT: 300mg repeat in 3-5 min at 150mg.
 - Non cardiac arrest: 150mg over 10min.
(100gtts/min. 150mg in 100cc of NS with 10gtts set)
- **Dopamine:** 400 mg / 250 cc NS infused at 5-20 mcg/kg/min (titrated to effect) IV/IO
Refer to dopamine formulary for drip rate chart
- **Epinephrine:**
 - Cardiac arrest (1/10,000):
1 mg every 5 min. IV/IO
 - Bradycardia: 2-10 mcg/min infusion
(10-50 gtts/min, 1mg 1:1,000 in 500 ML NS with 10 drop set)
- **Magnesium Sulfate:** 1-2 g IV/IO push

PEDIATRIC Medications: Refer to HandTevy

- **Atropine:** 0.02mg/kg IV/IO repeat only once in 5min. (Max of 1mg)
- **Adenosine:** 0.1mg/kg (6mg max) repeat at 0.2mg/kg IV/IO (12mg max) (AC preferred)
- **Amiodarone:**
 - VF/Pulseless VT: 5mg/kg q 5 min max of 15mg/kg
 - Non cardiac arrest: 5mg/kg over 20-60 min.
- **Dopamine:** 400 mg / 250 cc NS infused at 5-20 mcg/kg/min (titrated to effect) IV/IO
Refer to dopamine formulary for drip rate chart
- **Epinephrine:**
 - Cardiac arrest (1/10,000):
0.01 mg/kg every 3-5 min. IV/IO
 - Bradycardia: 0.01 mg/kg IVSP
- **Magnesium Sulfate:** 25-50mg/kg IV/IO push

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Procedures/ Interventions:

- Transport while frequently monitoring vital signs and cardiac rhythm
- Determine stability by assessing the cardiac, respiratory, and neurologic systems. Particularly note any signs of poor perfusion such as altered level of consciousness, cool clammy skin, or hypotension
- Begin treatment of underlying dysrhythmia if able
- Administer 500mL NS via IV/IO to hypotensive/unstable patient
- For pediatric bradycardia HR is less than 60 and signs of cardiopulmonary collapse initiate chest compressions.

STABLE/UNSTABLE CRITERIA

Stable: Dysrhythmia without below signs/symptoms. If uncertain about the patient's stability, contact medical control. ☎ If stable, consider 12 Lead EKG (and transmit to med. Control)

Unstable: Patients with a dysrhythmia are unstable if they have any one of the following:

- Altered mental status
- severe chest pain (consistent with ischemia)
- Clinical signs of shock
- Severe shortness of breath/pulmonary edema
- Cyanotic on 100% oxygen with adequate ventilations
- If unstable, proceed according to specific dysrhythmia sub-section

CARDIOVERSION ENERGY SETTINGS

- **Narrow/Regular:** 50J - 100J - 150J
- **Narrow/Irregular:** 120J – 150J – 200J
- **Wide/ Regular:** 120J – 150J – 200J
- **Wide/ Irregular:** Defib 120J – 150J – 200J

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SPECIAL CONSIDERATIONS

- Consider sedation if cardioversion or external pacing is planned and patient is awake
- For, polymorphic VT (with pulse) associated with QT prolongation (torsades de pointes) administer Magnesium sulfate IV
- For OHCA due to VF or pulseless VT (unresponsive to cardiopulmonary resuscitation, defibrillation, and epinephrine) administer amiodarone:
 - Amiodarone is 300 mg (undiluted) rapid bolus (IV preferred over IO); if VF or pulseless VT continues after subsequent defibrillation attempt or reoccurs after initially achieving ROSC, administer supplemental dose of 150 mg IV/IO
- Stable VT – administer IV amiodarone
 - Amiodarone is 150 mg over 10 minutes, then 1 mg/minute for 6 hours,
- ☎ For atrial fibrillation with rapid ventricular rate, consider IV fluid bolus and amiodarone if patient is hypotensive or severely symptomatic
 - ☎ IV amiodarone is 150 mg over 10 minutes

BRADYCARDIA HEART RATE CRITERIA

- ≥ 1 y/o -- HR less than 60 per minute with symptoms
- < 1y/o -- HR less than 80 per minute

HYPOTENSION CRITERIA

- Pts under 10 y/o: SBP < (70 + 2 x age in years)
- Adults: SBP < 90mmHg

Pediatric respiratory rate and heart rate lower limit, normal range, and upper limit by age*

Age	Respiratory rate (breaths/minute)			Heart rate (beats/minute)		
	Lower limit (1 st percentile)	Normal range (10 th to 90 th percentile)	Upper limit (99 th percentile)	Lower limit (1 st percentile)	Normal range (10 th to 90 th percentile)	Upper limit (99 th percentile)
0 to 3 months	25	34 to 57	66	107	123 to 164	181
3 to <6 months	24	33 to 55	64	104	120 to 159	175
6 to <9 months	23	31 to 52	61	98	114 to 152	168
9 to <12 months	22	30 to 50	58	93	109 to 145	161
12 to <18 months	21	28 to 46	53	88	103 to 140	156
18 to <24 months	19	25 to 40	46	82	98 to 135	149
2 to <3 years	18	22 to 34	38	76	92 to 128	142
3 to <4 years	17	21 to 29	33	70	86 to 123	136
4 to <6 years	17	20 to 27	29	65	81 to 117	131
6 to <8 years	16	18 to 24	27	59	74 to 111	123
8 to <12 years	14	16 to 22	25	52	67 to 103	115
12 to <15 years	12	15 to 21	23	47	62 to 96	108
15 to 18 years	11	13 to 19	22	43	58 to 92	104

* The respiratory and heart rates provided are based upon measurements in awake, healthy infants and children at rest. Many clinical findings besides the actual vital sign measurement must be taken into account when determining whether a specific vital sign is normal in an individual patient. Values for heart rate or respiratory rate that fall within normal limits for age may still represent abnormal findings that are caused by underlying disease in a particular infant or child.

Data from: Fleming S, Thompson M, Stevens R, et al. Normal ranges of heart rate and respiratory rate in children from birth to 18 years of age: A systematic review of observational studies. Lancet 2011; 377:1011.

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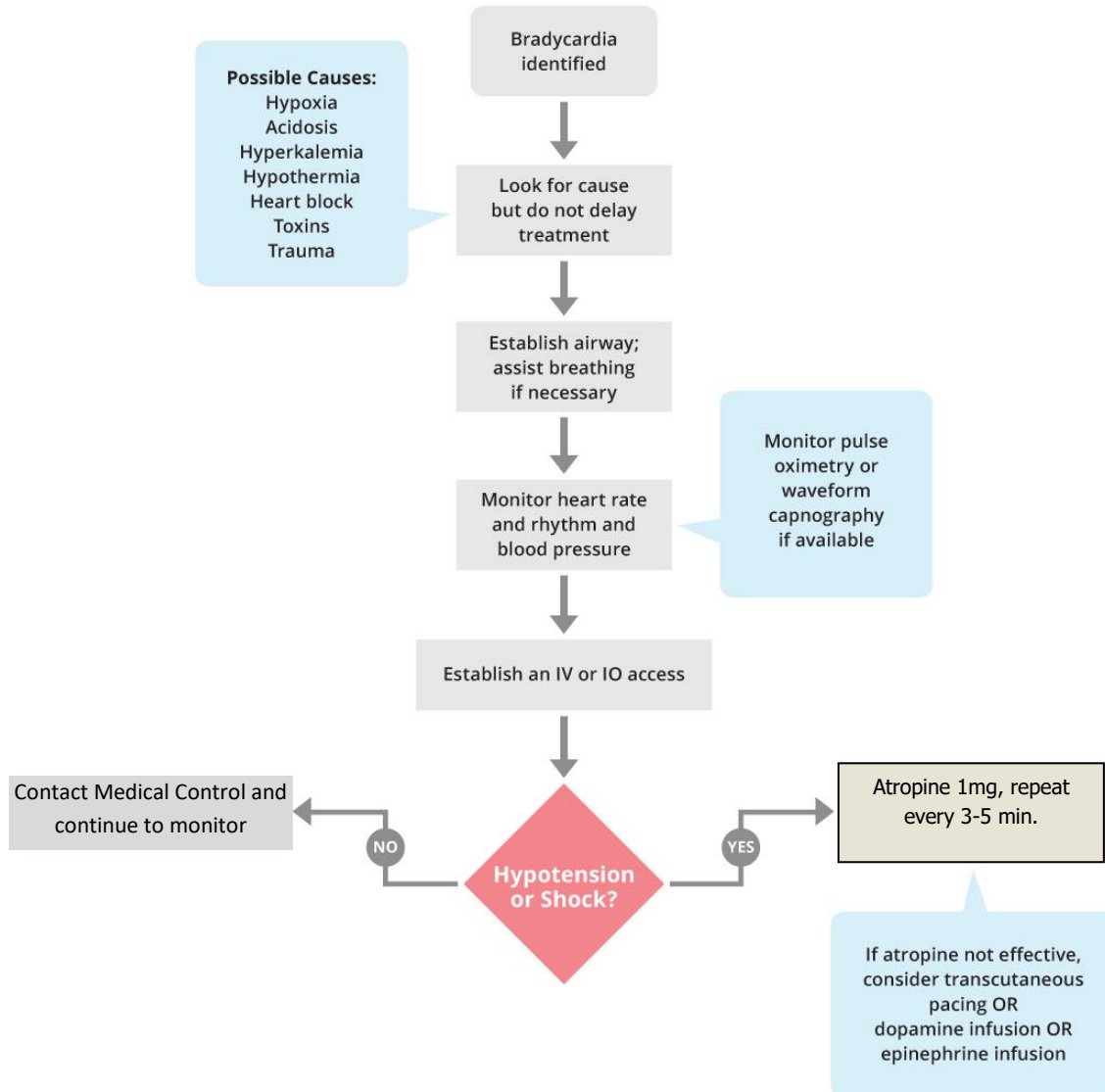
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ADULT BRADYCARDIA



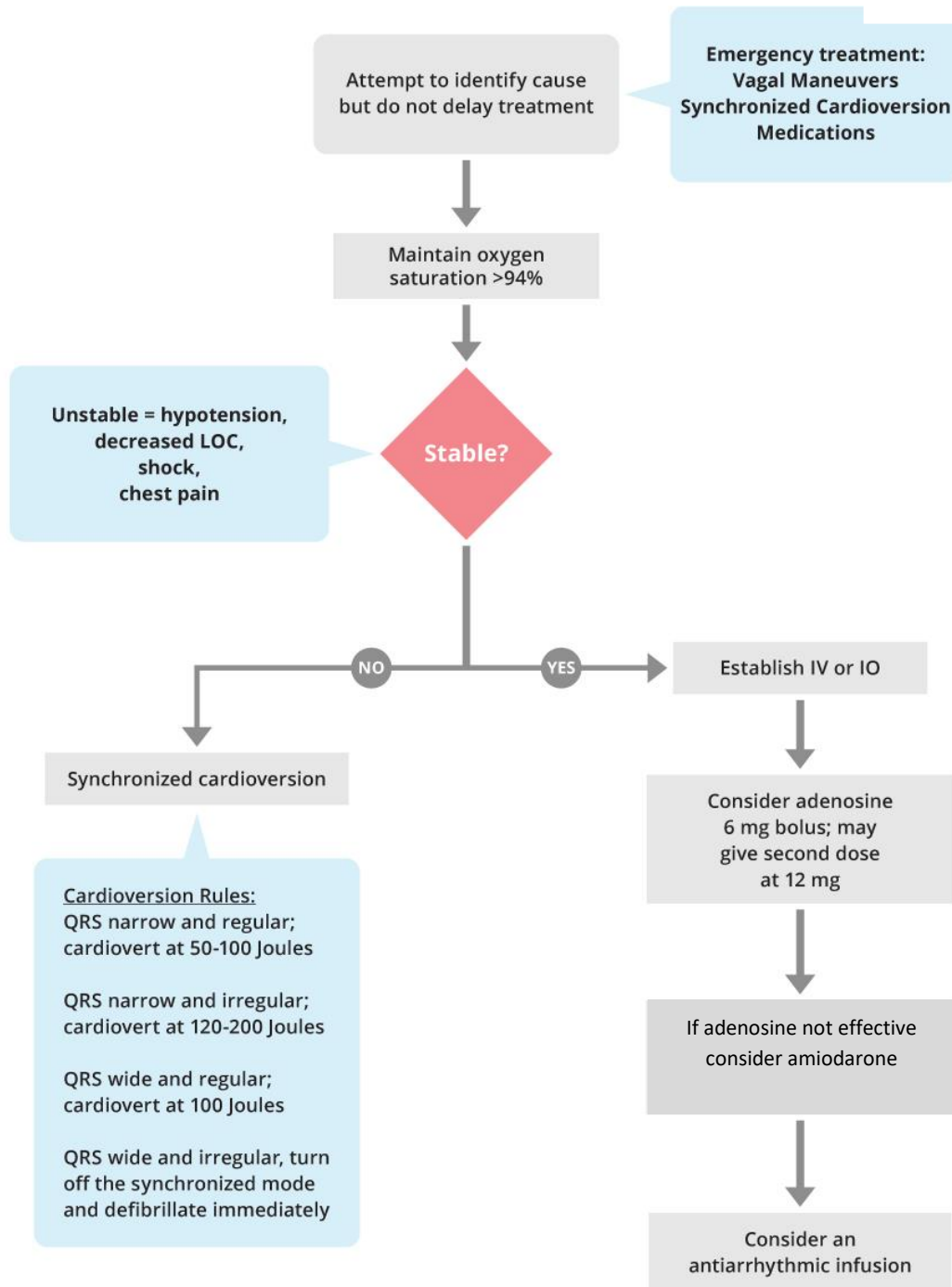
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ADULT TACHYCARDIA



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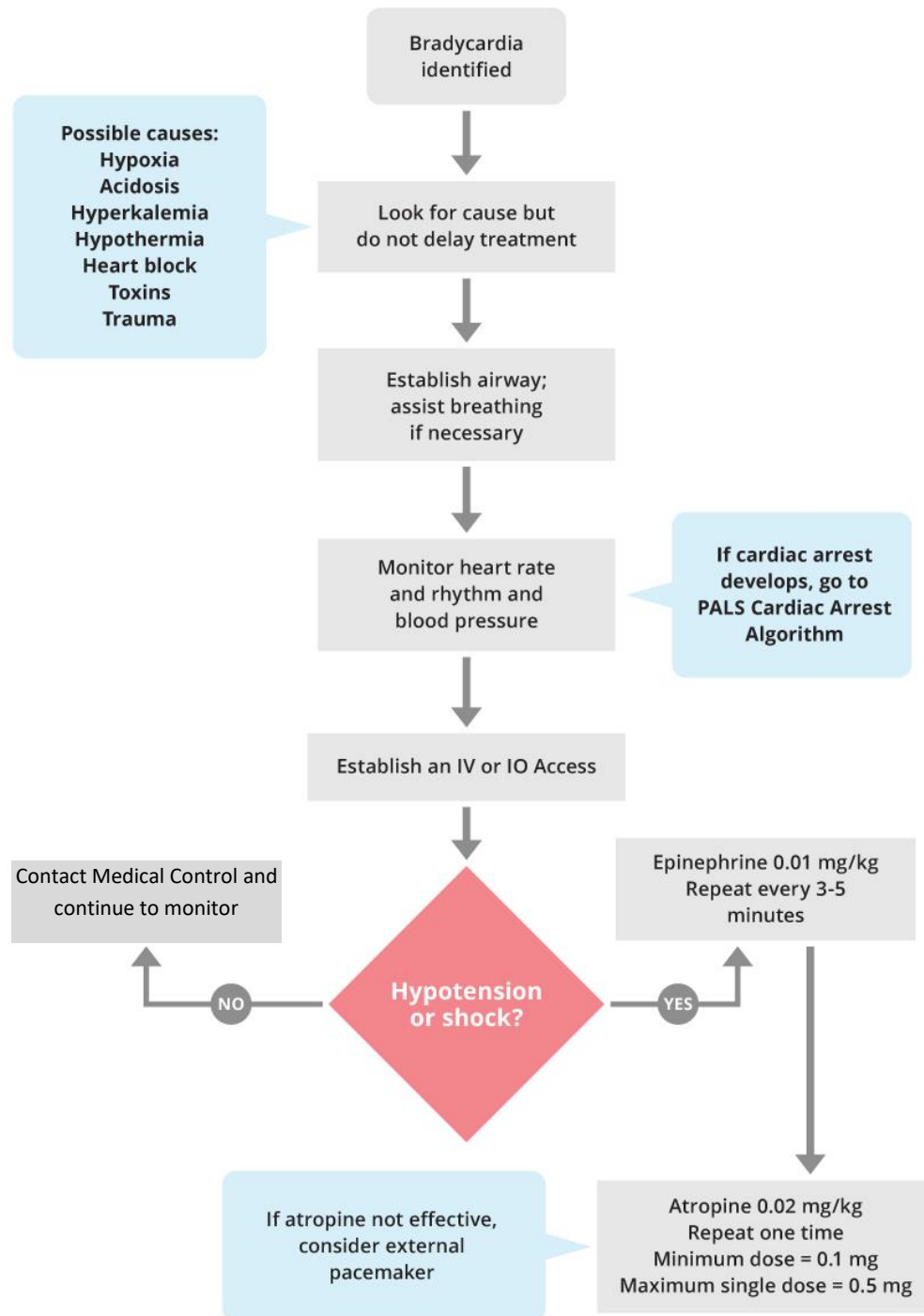
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PEDIATRIC BRADYCARDIA

If HR is less than 60 and signs of cardiopulmonary collapse initiate chest compressions



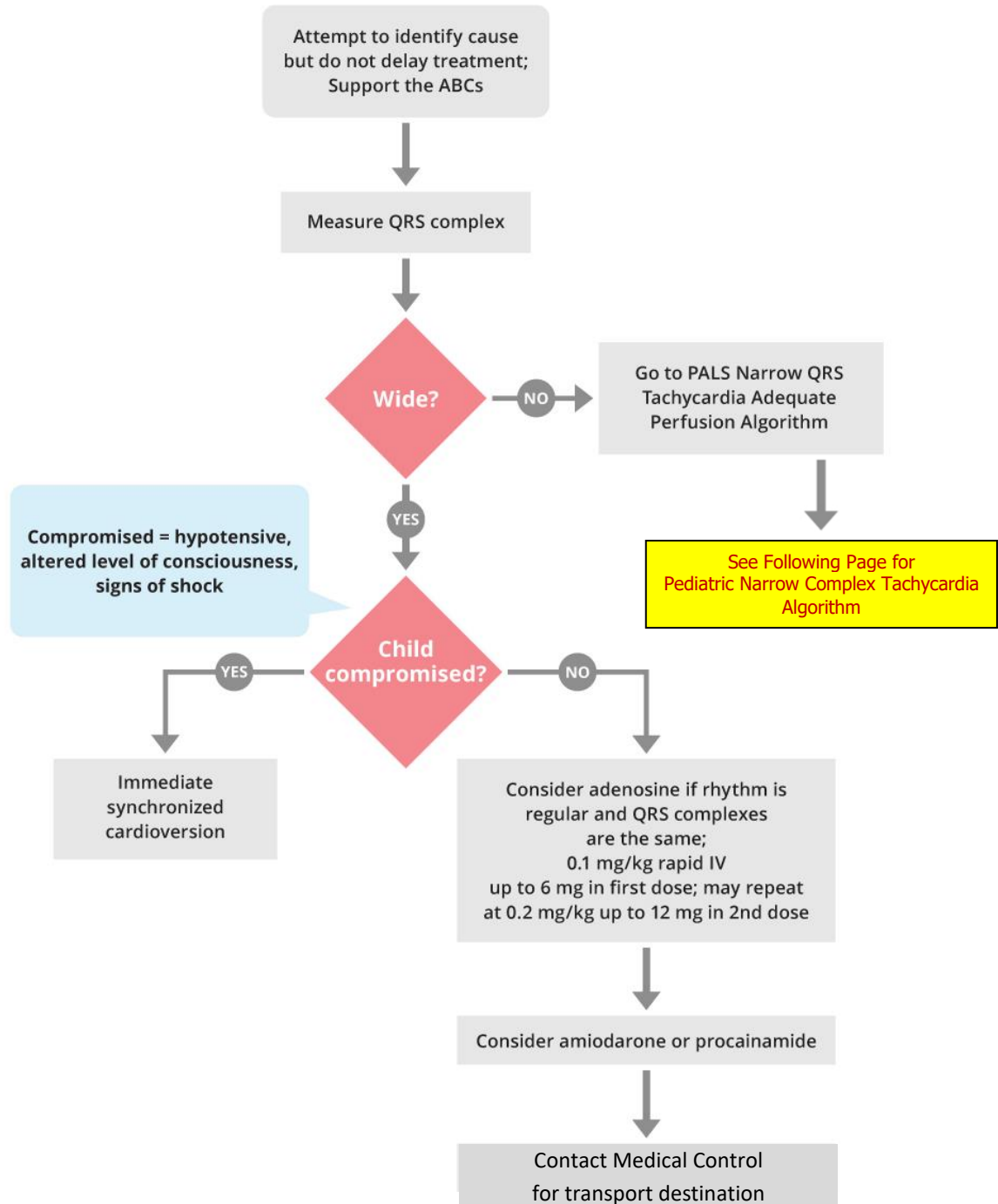
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PEDIATRIC TACHYCARDIA



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PEDIATRIC NARROW QRS TACHYCARDIA

