The Pediatric Tachycardia With a Pulse Algorithm

Text in cascading boxes describes the actions that providers should perform in sequence when treating pediatric tachycardia with a pulse. Arrows guide the provider from one box to the next as the provider performs the actions. Some boxes have 2 arrows that lead outward, each to a different pathway depending on the outcome of the most recent action taken. Pathways are hyperlinked.

Box 1

Initial assessment and support

- Maintain patent airway; assist breathing as necessary
- Administer oxygen
- Cardiac monitor to identify rhythm; monitor pulse, blood pressure, and oximetry
- IV/IO access
- 12-Lead ECG if available

Box 2

Evaluate rhythm with 12-lead ECG or monitor.

If rhythm indicates probable sinus tachycardia, proceed to Box 3.
If the rhythm indicates a cardiopulmonary compromise, proceed to Box 5.

Box 3

Probable sinus tachycardia *if*

- P waves present/normal
- Variable RR interval
- Infant rate usually less than 220 per minute
- Child rate usually less than 180 per minute

Proceed to Box 4.

Box 4

Search for and treat cause.

Box 5

Is there **cardiopulmonary compromise?**

- Acutely altered mental status
- Signs of shock
- Hypotension

If Yes, proceed to Box 6.
If No, proceed to Box 11.

Box 6

Evaluate QRS duration.

If it is narrow (less than or equal to 0.09 seconds), proceed to Box 7.
If it is wide (greater than 0.09 seconds), proceed to Box 9.

Box 7

Probable supraventricular tachycardia

- P waves absent/abnormal
- RR interval not variable
- Infant rate usually greater than or equal to 220 per minute
- Child rate usually greater than or equal to 180 per minute
- History of abrupt rate change.

Proceed to Box 8.

Box 8
- If IV/IO access is present, give **adenosine** *or*
- If IV/IO access is not available, or if adenosine is ineffective, perform synchronized cardioversion

Box 9
Possible ventricular tachycardia
Proceed to Box 10.

Box 10
Synchronized cardioversion
Expert consultation is advised before additional drug therapies.

Box 11
Evaluate QRS duration.
If it is narrow (less than or equal to 0.09 seconds), proceed to Box 12.
If it is wide (greater than 0.09 seconds), proceed to Box 15.

Box 12
Probable supraventricular tachycardia
- P waves absent/abnormal
- RR interval not variable
- Infant rate usually greater than or equal to 220 per minute
- Child rate usually greater than or equal to 180 per minute
- History of abrupt rate change

Proceed to Box 13.

Box 13
Consider vagal maneuvers.
Proceed to Box 14.

Box 14
If IV/IO access is present, give **adenosine**.

Box 15
Possible ventricular tachycardia
Proceed to Box 16.

Box 16
If rhythm is **regular** and QRS **monomorphic**, consider **adenosine**.
Proceed to Box 17.

Box 17
Expert consultation is recommended.

Sidebar

Doses and Details
Synchronized cardioversion
Begin with 0.5 to 1 Joules per kilogram; if not effective, increase to 2 Joules per kilogram. Sedate if needed, but don't delay cardioversion.

Drug Therapy
Adenosine IV/IO dose
- First dose: 0.1 milligrams per kilogram rapid bolus (maximum: 6 milligrams)

- Second dose: 0.2 milligrams per kilogram rapid bolus (maximum second dose: 12 milligrams)