Pediatric Cardiac Arrest Algorithm for Suspected or Confirmed COVID-19 Patients

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Don PPE

- Limit personnel

Start CPR

- Ventilate with oxygen using bag-mask device with filter and tight seal, if unavailable use nonbreathing face mask
- Attach monitor/defibrillator
- Prepare to intubate

Rhythm shockable? 9

No

VF/pVT

Yes

Asystole/PEA

Prioritize Intubation / Resume CPR

- Pause chest compressions for intubation
- If intubation delayed, consider supraglottic airway or bag-mask device with filter and tight seal
- Connect to ventilator with filter when possible

CPR 2 min

IO/IV access

Rhythm shockable? 5

No

Yes

CPR 2 min

Epinephrine every 3-5 min

Rhythm shockable? 6

No

Yes

CPR 2 min

Epinephrine every 3-5 min

Rhythm shockable? 7

No

Yes

CPR 2 min

Epinephrine or lidocaine

Treat reversible causes

CPR 2 min

IO/IV access

Rhythm shockable? 11

No

Yes

CPR 2 min

Treat reversible causes

Rhythm shockable? 12

No

Yes

Go to 5 or 7

- If no signs of return of spontaneous circulation (ROSC), go to 10 or 11
- If ROSC, go to Post–Cardiac Arrest Care

CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 15:2 compression-ventilation ratio.

Shock Energy for Defibrillation

First shock 2 J/kg, second shock 4 J/kg, subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose

Advanced Airway

- Minimize closed-circuit disconnection
- Use intubator with highest likelihood of first pass success
- Consider video laryngoscopy
- Prefer cuffed endotracheal tube if available
- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Drug Therapy

- Epinephrine IO/IV dose: 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Repeat every 3-5 minutes.
- Amiodarone IO/IV dose: 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.
- or
- Lidocaine IO/IV dose: Initial: 1 mg/kg loading dose. Maintenance: 20-50 mcg/kg per minute infusion (repeat bolus dose if infusion initiated >15 minutes after initial bolus therapy).

Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypoglycemia
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary