BLS Healthcare Provider Adult Cardiac Arrest Algorithm for Suspected or Confirmed COVID-19 Patients

Updated April 2020

Verify scene safety
- Don PPE
- Limit personnel

Victim is unresponsive. Shout for nearby help. Activate emergency response system via mobile device (if appropriate). Get AED and emergency equipment (or send someone to do so).

Monitor until emergency responders arrive.

Normal breathing, has pulse

Look for no breathing or only gasping and check pulse (simultaneously). Is pulse definitely felt within 10 seconds?

No normal breathing, has pulse

No breathing or only gasping, no pulse

By this time in all scenarios, emergency response system or backup is activated, and AED and emergency equipment are retrieved or someone is retrieving them.

CPR
Begin cycles of 30 compressions and 2 breaths using bag-mask device with filter and tight seal
OR continuous compressions with passive oxygenation using face mask. Use AED as soon as it is available.

AED arrives.

Check rhythm. Shockable rhythm?

Yes, shockable

Give 1 shock. Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

No, nonshockable

Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

©2020 American Heart Association
BLS Healthcare Provider
Pediatric Cardiac Arrest Algorithm for 2 or More Rescuers for Suspected or Confirmed COVID-19 Patients

Verify scene safety
- Don PPE
- Limit personnel

Victim is unresponsive. Shout for nearby help. First rescuer remains with victim. Second rescuer activates emergency response system and retrieves AED and emergency equipment.

Normal breathing, has pulse
- Monitor until emergency responders arrive.

Look for no breathing or only gasping and check pulse (simultaneously). Is pulse definitely felt within 10 seconds?

No normal breathing, has pulse

CPR
First rescuer begins CPR with 30:2 ratio (compressions to breaths) using bag-mask device with filter and tight seal.
When second rescuer returns, use 15:2 ratio (compressions to breaths). Use AED as soon as it is available.

Yes, shockable
- Give 1 shock. Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

No, nonshockable
- Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

Provide rescue breathing using bag-mask device with filter and tight seal.
- 1 breath every 3-5 seconds, or about 12-20 breaths/min.
- Add compressions if pulse remains ≤60/min with signs of poor perfusion.
- Activate emergency response system (if not already done) after 2 minutes.
- Continue rescue breathing; check pulse about every 2 minutes. If no pulse, begin CPR (go to "CPR" box).
BLS Healthcare Provider
Pediatric Cardiac Arrest Algorithm for the Single Rescuer for Suspected or Confirmed COVID-19 Patients

Updated April 2020

Verify scene safety
- Don PPE
- Limit personnel

Victim is unresponsive. Shout for nearby help. Activate emergency response system via mobile device (if appropriate).

No breathing or only gasping, no pulse

Normal breathing, has pulse

Look for no breathing or only gasping and check pulse (simultaneously). Is pulse definitely felt within 10 seconds?

No

Witnessed sudden collapse?

Yes

CPR
1 rescuer: Begin cycles of 30 compressions and 2 breaths using bag-mask device with filter and tight seal. (Use 15:2 ratio if second rescuer arrives.) Use AED as soon as it is available.

After about 2 minutes, if still alone, activate emergency response system and retrieve AED (if not already done).

AED analyzes rhythm. Shockable rhythm?

Yes

Give 1 shock. Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

No

Nonshockable

Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

No normal breathing, has pulse

Activate emergency response system (if not already done). Return to victim and monitor until emergency responders arrive.

Provide rescue breathing using bag-mask device with filter and tight seal.
- 1 breath every 3-5 seconds, or about 12-20 breaths/min.
- Add compressions if pulse remains ≤60/min with signs of poor perfusion.
- Activate emergency response system (if not already done) after 2 minutes.
- Continue rescue breathing; check pulse about every 2 minutes. If no pulse, begin CPR (go to “CPR” box).
Pediatric Cardiac Arrest Algorithm for Suspected or Confirmed COVID-19 Patients

**Updated April 2020**

**A**
- **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?**
- Yes
  - VF/pVT
  - Shock
- No
  - Asystole/PEA

**B**
- 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?**
- Yes
  - Shock
- No

**Rhythm shockable?**
- Yes
  - CPR 2 min
    - Epinephrine every 3-5 min
  - Treat reversible causes
- No

**CPR 2 min**
- Amiodarone or lidocaine
- Treat reversible causes

**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 (>60% 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 videolaryngoscopy
- 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.
- 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
- Hypoglycemia
- Hypoxia
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, cardiac
- Thrombosis, coronary

© 2020 American Heart Association