



KEY ADVANCES CLINICAL POLICY ALERT

American Heart Association Focused Updates for ACLS from 2018, 2019, and 2020

Updated January 2023

2018 American Heart Association Focused Update on Advanced Cardiovascular Life Support Use of Antiarrhythmic Drugs During and Immediately After Cardiac Arrest: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (1)

2019 American Heart Association Focused Update on Advanced Cardiovascular Life Support Use of Advanced Airways, Vasopressors, and Extracorporeal Cardiopulmonary Resuscitation During Cardiac Arrest: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (2)

Adult Basic and Advanced Life Support Writing Group. Part 3: Adult Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care (3)

Policy Recommendations and Focus Points in bold

2018 Recommendations for Use of Antiarrhythmic Drugs During Resuscitation From Adult Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/pVT) Cardiac Arrest

Patient Management Recommendations:

Amiodarone and Lidocaine Recommendation—Updated

- **Amiodarone or lidocaine may be considered for VF/pVT that is unresponsive to defibrillation. These drugs may be particularly useful for patients with witnessed arrest, for whom time to drug administration may be shorter (Class IIb; Level of Evidence B-R).**

Magnesium Recommendation—Updated 2018

- **The routine use of magnesium for cardiac arrest is not recommended in adult patients (Class III: No Benefit; Level of Evidence C-LD). Magnesium may be considered for torsades de pointes (i.e., polymorphic VT associated with long-QT interval) (Class IIb; Level of Evidence C-LD). The wording of this recommendation is consistent with the American Heart Association’s 2010 advanced cardiovascular life support guidelines.**

2018 Recommendations for Antiarrhythmic Drugs Immediately After Return of Spontaneous Circulation (ROSC) Following Cardiac Arrest

β-Blocker Recommendation—Updated 2018

- **There is insufficient evidence to support or refute the routine use of a β-blocker early (within the first hour) after ROSC.**

Lidocaine Recommendations—Updated 2018

- **There is insufficient evidence to support or refute the routine use of lidocaine early (within the first hour) after ROSC.**
- **In the absence of contraindications, the prophylactic use of lidocaine may be considered in specific circumstances (such as during emergency medical services transport) when treatment of recurrent VF/pVT might prove to be challenging (Class IIb; Level of Evidence C-LD).**

2019 Recommendations for Use of Advanced Airways, Vasopressors, and Extracorporeal Cardiopulmonary Resuscitation (CPR) During Cardiac Arrest

Patient Management Recommendations:

Choice of an Advanced Airway—Updated 2019

- **Either bag-mask-valve or an advanced airway strategy may be considered during CPR for adult cardiac arrest in any setting (Class 2b; Level of Evidence B-R).**
- **If an advanced airway is used, the supraglottic airway device (SGA) can be used for adults with out-of-hospital cardiac arrest (OHCA) in settings with low tracheal intubation success rate or minimal training opportunities for endotracheal tube (ETT) placement (Class 2a; Level of Evidence B-R).**
- **If an advanced airway is used, either the SGA or ETT can be used for adults with OHCA in settings with high tracheal intubation success rates or optimal training opportunities for ETT placement (Class 2a; Level of Evidence B-R).**
- **If an advanced airway is used in the in-hospital setting by expert providers trained in these procedures, either the SGA or ETT can be used (Class 2a; Level of Evidence B-R).**
- **Frequent experience or frequent re-training is recommended for providers who perform endotracheal intubation (Class 1; Level of Evidence B-NR).**

- **Emergency medical services systems that perform prehospital intubation should provide a program of ongoing quality improvement to minimize complications and to track overall SGA and ETT placement success rates (Class 1; Level of Evidence C-EO).**

Use of Vasopressors in Cardiac Arrest—Updated 2019

Recommendation: Standard-Dose Epinephrine—Updated 2019

- **We recommend that epinephrine be administered to patients in cardiac arrest (Class 1; Level of Evidence B-R). On the basis of the protocol used in clinical trials, it is reasonable to administer 1 mg every 3 to 5 minutes (Class 2a; Level of Evidence C-LD).**

Recommendation: Standard-Dose Epinephrine Versus High-Dose Epinephrine—Unchanged

- **High-dose epinephrine is not recommended for routine use in cardiac arrest (Class 3: No Benefit; Level of Evidence B-R).**

Recommendation: Vasopressin Versus Epinephrine—Updated 2019

- **Vasopressin may be considered in a cardiac arrest but offers no advantage as a substitute for epinephrine in cardiac arrest (Class 2b; Level of Evidence C-LD).**

Recommendation: Epinephrine in Combination With Vasopressin Versus Epinephrine Only—Updated 2019

- **Vasopressin in combination with epinephrine may be considered during cardiac arrest but offers no advantage as a substitute for epinephrine alone (Class 2b; Level of Evidence C-LD).**

Recommendations: Timing of Epinephrine Administration—Updated 2019

- **With respect to timing, for cardiac arrest with a nonshockable rhythm, it is reasonable to administer epinephrine as soon as feasible (Class 2a; Level of Evidence C-LD).**
- **With respect to timing, for cardiac arrest with a shockable rhythm, it may be reasonable to administer epinephrine after initial defibrillation attempts have failed (Class 2b; Level of Evidence C-LD).**

Recommendations: Extracorporeal CPR (ECPR)—Updated 2019

- **There is insufficient evidence to recommend the routine use of ECPR for patients with cardiac arrest.**
- **ECPR may be considered for selected patients as rescue therapy when conventional CPR efforts are failing in settings in which it can be expeditiously implemented and supported by skilled providers (Class 2b; Level of Evidence C-LD).**

Use of Resuscitation Adjuncts—Updated 2020

Recommendation: Use of End-tidal CO₂ (ETCO₂) in Resuscitation

- **Continuously measuring ETCO₂ during Advanced Cardiovascular Life Support (ACLS) resuscitation may be useful to improve CPR quality (Class 2b, LOE C-LD).**

Recommendation: Use of Double Sequential Defibrillation

- **Routine use of double sequential defibrillation is not recommended (Class 2b, LOE C-LD).***
- **Note: A recent randomized trial has demonstrated survival benefit of double sequential defibrillation for patients with refractory ventricular fibrillation (i.e., ventricular fibrillation persists after 3 standard shocks) (4)**

Special Considerations—Updated 2020

Recommendations: Cardiac Arrest in Pregnancy

- **Management of cardiac arrest in pregnancy focuses on maternal resuscitation, with preparation for early perimortem cesarean delivery if necessary to save the infant and improve the chances of successful resuscitation of the mother (Class 1, LOE C-LD).**
- **Fetal monitoring should not be undertaken during cardiac arrest in pregnancy because of potential interference with maternal resuscitation (Class 1, LOE C-EO).**
- **Targeted temperature management for pregnant women who remain comatose after resuscitation from cardiac arrest is recommended (Class 1, LOE C-EO).**
- **During targeted temperature management of the pregnant patient, it is recommended that the fetus be continuously monitored for bradycardia as a potential complication, and obstetric and neonatal consultation should be sought (Class 1, LOE C-EO).**

Recommendation: Resuscitation Debriefing

- **After a resuscitation, debriefing for lay rescuers, emergency medical services providers, and hospital-based healthcare workers may be beneficial to support their mental health and well-being (Class 2b, LOE C-LD).**

References:

1. Panchal AR, Berg KM, Kudenchuk PJ, Del Rios M, Hirsch KG, Link MS, Kurz MC, Chan PS, Cabañas JG, Morley PT, Hazinski MF, Donnino MW. 2018 American Heart Association focused update on advanced cardiovascular life support use of antiarrhythmic drugs during and immediately after cardiac arrest: an update to the American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2018;138:e740–e749. doi:10.1161/CIR.0000000000000613.
2. Panchal AR, Berg KM, Hirsch KG, Kudenchuk PJ, Del Rios M, Cabañas JG, Link MS, Kurz MC, Chan PS, Morley PT, Hazinski MF, Donnino MW. 2019 American Heart Association focused update on advanced cardiovascular life support use of advanced airways, vasopressors, and extracorporeal cardiopulmonary resuscitation during cardiac arrest: an update to the American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2019;140:e881–e894. doi:10.1161/CIR.0000000000000732.
3. Panchal AR, Bartos JA, Cabañas JG, Donnino MW, Drennan IR, Hirsch KG, Kudenchuk PJ, Kurz MC, Lavonas EJ, Morley PT, O'Neil BJ, Peberdy MA, Rittenberger JC, Rodriguez AJ, Sawyer KN, Berg KM; Adult Basic and Advanced Life Support Writing Group. Part 3: Adult Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2020;142(16_suppl_2):S366-S468. doi: 10.1161/CIR.0000000000000916. Epub 2020 Oct 21. PMID: 33081529.
4. Cheskes S, Verbeek R, Drennan IR, et al. Defibrillation strategies for refractory ventricular fibrillation. *N Engl J Med*. 2022;387:1947-1956.

Resources for additional learning:

<https://pubmed.ncbi.nlm.nih.gov/?term=adult+emergency+cardiac+arrest>

<https://www.resuscitationacademy.org/blog/>

<https://rebelem.com/rebel-cast-ep77-2019-acls-update/>

<https://www.ahajournals.org/doi/epub/10.1161/CIR.0000000000000732>

<https://canadiem.org/2020-american-heart-association-guidelines-for-adult-basic-and-advanced-life-support/>