

# 2019 American Heart Association Guidelines Update on Adult Advanced Cardiovascular Life Support

## Advanced Airways During CPR

**2019 Recommendation:** Bag-mask ventilation or advanced airway can be considered for adult CPR in any setting.



### Out-of-Hospital Advanced Airway Needed

If **high** endotracheal (ET) tube **success rate/optimal** ET tube training opportunities

Supraglottic airway or ET tube can be used

If **low** ET tube **success rate/minimal** ET tube training opportunities

Supraglottic airway can be used

EMS systems performing prehospital intubation should have a quality improvement program to minimize complications and track intubation success rates.



### In-Hospital Advanced Airway Needed

If providers are **trained** in **advanced airways**

Supraglottic airway or ET tube can be used

Providers performing ET intubation require frequent experience and retraining.

Recommendations assume providers have adequate training and skills to perform the procedures. Providers must also have the capacity to clinically assess when advanced airways are needed.

## Vasopressors During CPR

It is reasonable to administer 1 mg of epinephrine every 3 to 5 minutes.

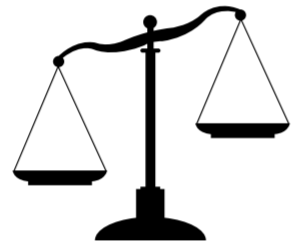
**2019 Recommendation:** It is recommended that epinephrine be administered for cardiac arrest.



Randomized controlled trials (RCTs) demonstrated **improved 30-day survival and survival to discharge**.



However, epinephrine was **not shown** to increase rates of survival with favorable **neurological outcome**. Although 1 large study found an increase in short-term survival with unfavorable neurological outcome, this **difference did not persist for more than 30 days**.



The benefits of epinephrine **support the recommendation for its use**, despite some remaining uncertainty about overall impact on neurological outcome.

Standard-Dose Epinephrine

vs

~~High-Dose Epinephrine~~

Epinephrine

vs

Vasopressin

Since 2015, no new studies were identified, so the 2015 recommendation of **standard-dose epinephrine remains unchanged**.

Vasopressin may be considered in cardiac arrest, but it offers **no advantage** as a substitute for epinephrine.

Although studies showed vasopressin or vasopressin + epinephrine was equal to epinephrine, the AHA **recommends epinephrine alone to maintain simplicity** in the cardiac arrest algorithm.

Epinephrine

vs

Epinephrine + Vasopressin

Vasopressin

Vasopressin combined with epinephrine may be considered in cardiac arrest, but it offers **no advantage** as a substitute for epinephrine alone.

## Dose and Timing of Epinephrine Administration



16 observational studies

10 of which compared early vs late administration of epinephrine

### 2019 Recommendations



Shockable Rhythm

It may be reasonable to administer epinephrine **after defibrillation attempts have failed**.

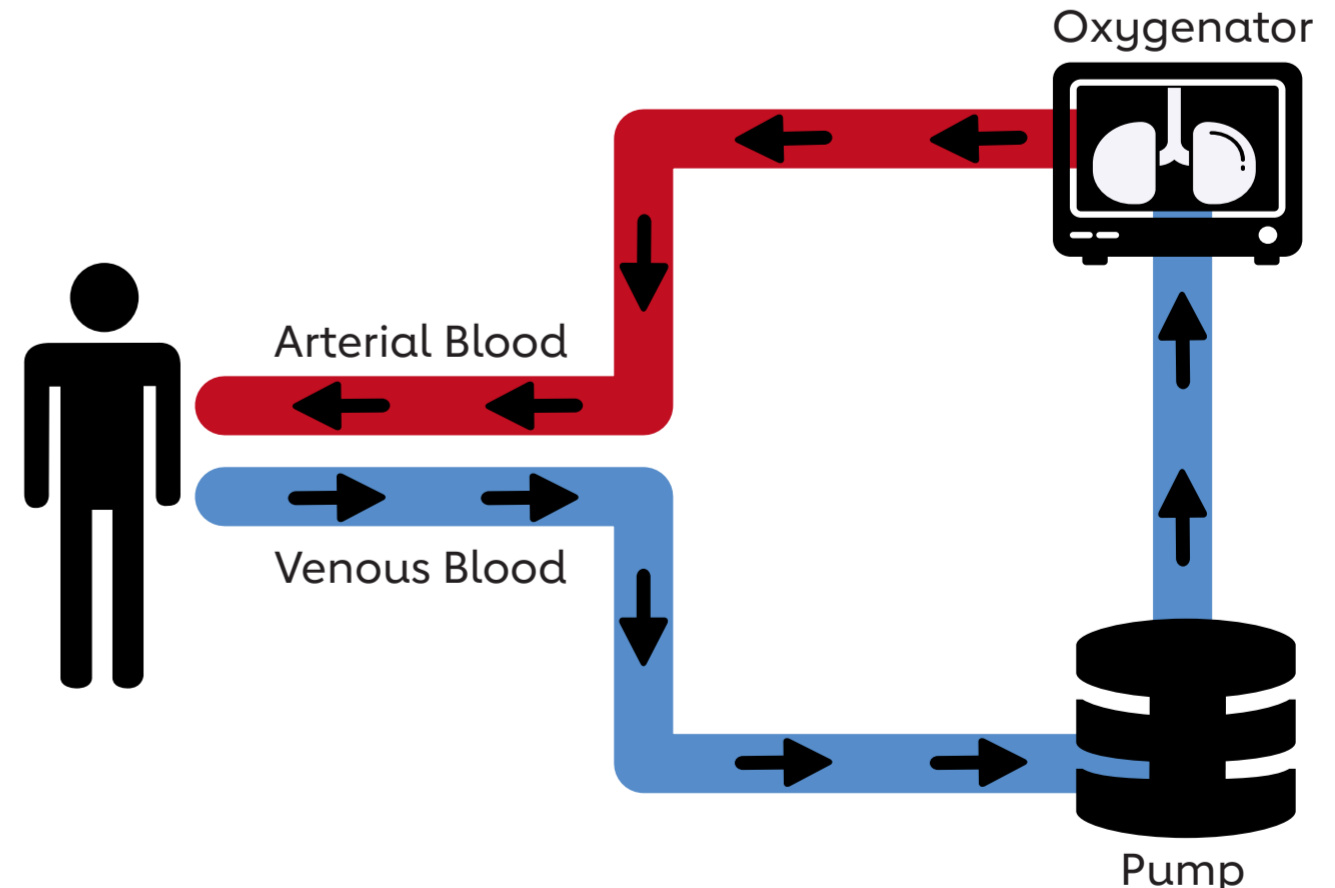


Nonshockable Rhythm

It is reasonable to administer epinephrine **as soon as feasible**.

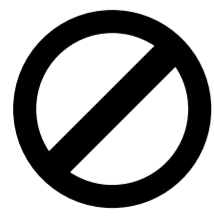
## Extracorporeal CPR

Extracorporeal CPR refers to a cardiopulmonary bypass, which **maintains organ perfusion** while cardiac arrest causes are addressed.



Extracorporeal CPR is performed with an **extracorporeal membrane oxygenation device**. It includes a venous cannula, a pump, an oxygenator, and an arterial cannula.

### 2019 Recommendations



Extracorporeal CPR is **not recommended for routine use** in cardiac arrest.



**Consider** extracorporeal CPR when conventional CPR is **failing** and if providers are skilled and can implement it quickly.

### Why?

RCTs

No published RCTs assessed ECPR in cardiac arrest.

Observational Studies

Although results were inconsistent across studies, some found improved survival and neurological outcome in select patients treated with extracorporeal CPR.

Systematic Review

Most studies used young, healthy patients but no current method to identify ideal patients.