Since 2015, no new studies were identified, and the 2015 recommendation of the 2019 Guidelines remains unchanged:

**Advanced Airways During CPR**

- Bag-mask ventilation or advanced airway can be considered for adult CPR in any setting.
- The benefits of epinephrine support the recommendation for its use, despite some remaining uncertainty about overall impact on neurological outcome.
- Vasopressin may be considered in cardiac arrest, but it offers no advantage as a substitute for epinephrine.

**Vasopressors During CPR**

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

- 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 a large study found an increase in short-term survival with unfounded neurological outcome, this difference did not persist for more than 30 days.

**Dose and Timing of Epinephrine Administration**

- It is reasonable to administer 1 mg of epinephrine after defibrillation attempts have failed.
- It is reasonable to administer epinephrine as soon as feasible.

**Extracorporeal CPR**

- Extracorporeal CPR is performed with an extracorporeal membrane oxygenation device. It includes a venous cannula, a pump, an oxygenator, and an arterial cannula.
- Extracorporeal CPR refers to a cardiopulmonary bypass, which maintains organ perfusion while cardiac arrest or cardiac arrest plus are addressed.

- Extracorporeal CPR is not recommended for routine use in cardiac arrest.
- Consider extracorporeal CPR when conventional CPR is failed and providers are skilled and can implement it quickly.

**Why?**

- RCTs and observational studies
- No published RCTs assessed ECPR in cardiac arrest
- Although results were inconsistent across studies, some found improved survival and neurological outcomes with the use of ECPR:

**Observational Studies**

- Most studies used young, healthy patients but no current data
- Must study using young, healthy patients to identify ideal patients.