From PRIMARY ASSESSMENT

Known or suspected hypothermia

Yes → Algorithm C: Hypothermic CPA

No → Shockable rhythm (VT or pVT)

Yes → Algorithm A: Shockable Rhythm

No → Algorithm B: Non-shockable Rhythm

Algorithm A:

VF or pVT

Yes

Algorithm B:

PEA or Asystole

Yes
### INDICATIONS:
- Cardiopulmonary arrest (CPA) not due to trauma
- EMS personnel with Intermediate Care delegations and above

### CONTRAINDICATIONS:
- Obvious signs of death
- Confirmation of valid health care directive prohibiting resuscitation from CPA

### NOTES:
- In the event of out of hospital CPA with shockable rhythm (VF or pVT) make every effort to resuscitate on scene. At no time should EMS personnel put themselves or the general public at risk from emergent transport that will not benefit the patient.
- In children CPA is often the end-result of the progression of untreated respiratory failure and/or shock. Sudden collapse of a previously well child suggests shockable rhythm precipitating CPA.
- At any time, if a ventricular fibrillation (VF) or pulseless ventricular tachycardia (pVT) degenerates into a non-shockable rhythm refer to algorithm B. If pulseless electrical activity (PEA) deteriorates to a shockable rhythm refer to algorithm A.
- Do not interrupt cardiopulmonary resuscitation (CPR) to perform any procedure(s).
- If the airway cannot be opened and maintained with a basic procedure, providers must attempt to establish a patent airway with a blind insertion airway device (BIAD). If the airway cannot be opened with a BIAD, providers with appropriate delegation must attempt to establish a patent airway with an endotracheal tube (ETT).
- If the airway cannot be opened with a BIAD or ETT, continue CPR and initiate emergent transport. Note that one attempt at defibrillating a shockable rhythm may be undertaken where appropriate before transporting a patient with an obstructed airway.
- After each reassessment or shock delivery immediately resume CPR for two minutes beginning with chest compressions. **Do not stop CPR unless the patient shows purposeful movements.**
- Dialysis-dependent patients with CPA due to VF, VT or PEA should be treated as hyperkalemic CPA. Administer CALCIUM and SODIUM BICARBONATE as per M10 Hyperkalemia Therapy. Consider insulin and glucose upon return of spontaneous circulation (ROSC).
- Consider magnesium sulfate administration as per M14 Resuscitation Drugs for polymorphic VT known or suspected to be *torsades des pointes.*
- For pulseless electrical activity providers may consider administering IV solution (0.9% Saline or Ringer’s Lactate) by bolus infusion (20 ml/kg up to 1000 ml per bolus) for non-traumatic cardiopulmonary arrest known or suspected to be due to hypovolemia or toxin/poison.
- For pulseless electrical activity providers with appropriate delegation should initiate needle thoracostomy as soon as tension pneumothorax is suspected.
- If there is no return of spontaneous circulation (ROSC) after maximal on-scene interventions initiate emergent transport regardless of rhythm.
- While en route perform CPR as long as you are able to do so safely and effectively. Do not stop CPR or reassess / reanalyze. Do not interrupt transport or defibrillate regardless of rhythm.
- If the patient shows purposeful movement, perform a brief pulse check (less than ten seconds). If there is no palpable pulse, CPR should be resumed and not interrupted.
- **At any time, EMS personnel may initiate on-line clinical support for assistance with transport decision-making.**
DEFIBRILLATION:
- First shock = 2 J/kg
- Second and all subsequent shocks = 4 J/kg (up to adult maximum)

EPINEPHRINE:
- 0.01 mg/kg (maximum = 1 mg); IV or IO; repeat every 3 to 5 minutes as required

AMIODARONE:
- 5 mg/kg (maximum = 300 mg); IV or IO; repeat 5 mg/kg (maximum = 150 mg) up to twice as required

MAGNESIUM SULFATE:
- For suspected torsades de pointes only
  - 50 mg/kg (maximum = 1 gm); IV or IO; repeat once

CALCIUM CHLORIDE 10% (for suspected hyperkalemia only)
- 0.2 ml/kg or 20 mg/kg; IV or IO; administer once only
  - Max dose = 10 ml (1 gm) at 50 kg

CALCIUM GLUCONATE 10% (for suspected hyperkalemia only)
- 0.6 ml/kg or 60 mg/kg; IV or IO; administer once only
  - Max dose = 10 ml (1 gm) at 17 kg

SODIUM BICARBONATE 8.4% (for suspected hyperkalemia only)
- 1 ml/kg or 1 mmol/kg; IV or IO; administer once only
  - Max dose = 50 ml (50 mmol)

SODIUM BICARBONATE 4.2% (for suspected hyperkalemia only)
- 2 ml/kg or 1 mmol/kg; IV or IO; administer once only
  - Max dose = 100 ml (50 mmol)
Establish IV or IO access
Consider hyperkalemia
Administer EPINEPHRINE

Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
VF or pVT

Yes
Clear & shock
CPR x 2 min

No
Reassess after 2 min:
Pulse present

ROSC

Perform
continuous CPR

TRANSPORT

Yes
Algorithm B:
Non-shockable Rhythm

Clear & shock
CPR x 2 min

Administer AMIODARONE
Consider MAGNESIUM

Repeat EPINEPHRINE

Repeat AMIODARONE

Repeat EPINEPHRINE

Repeat AMIODARONE

Repeat EPINEPHRINE

PEA or
Asystole

C02C Advanced Resuscitation
ALGORITHM B:
NON-SHOCKABLE RHYTHM
(PEA or ASYSTOLE)

- Exclude tension pneumo
- CPR x 2 min
- Reassess after 2 min: PEA or Asystole
- Yes: Perform continuous CPR
- No: VF or pVT
- Yes: VF or pVT
- No: ROSC
- ROSC
- POST ARREST CARE
- TRANSPORT
- Consider On-line Medical Support

- Establish IV or IO access
- Consider hyperkalemia
- Administer EPINEPHRINE
- Consider hypovolemia
ALGORITHM C: HYPOTHERMIC CPA

1. Hypothermic arrest known or suspected
   - Yes: VF or pVT
   - No: Shockable rhythm

2. VF or pVT
   - Yes: Clear & shock once
     - Resume CPR
     - Establish IV or IO access
     - Administer EPINEPHRINE once
   - No: Reassess after 2 min:
     - Pulse present
       - Yes: POST ARREST CARE
       - No: Consider advanced airway
         - Limit further heat loss
   - No: Reassess after 2 min:
     - Pulse present
       - Yes: POST ARREST CARE
       - No: Consider advanced airway
         - Limit further heat loss

3. Reassess after 2 min:
   - Pulse present
     - Yes: POST ARREST CARE
   - No: Consider advanced airway
     - Limit further heat loss

4. Perform continuous CPR

TRANSPORT