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

VF or pVT

No → 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.
- 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 **M24.1** 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 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.
- If there is continuous pulselessness for 20 minute, appropriate on-scene interventions have been performed, and asystole is confirmed and judged to be refractory to further interventions, discontinue resuscitation.
- At any time, EMS personnel may initiate On-line Medical Support for assistance with transport decision-making.
This care map has been developed in accordance with the Heart & Stroke Foundation of Canada’s 2015 Canadian Resuscitation & First Aid Guidelines (Advanced Cardiac Life Support).

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<thead>
<tr>
<th>DEFIBRILLATION:</th>
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<tbody>
<tr>
<td>Biphasic – default or maximum</td>
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<td>Monophasic – 360 J</td>
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<th>EPINEPHRINE</th>
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<td>- 1 mg; IV or IO; repeat every 3 to 5 minutes as required</td>
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<th>AMIODARONE</th>
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<td>- 300 mg; IV or IO; repeat 150 mg once</td>
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<th>MAGNESIUM SULFATE (for suspected torsades de pointes only)</th>
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<td>- 2 gm; IV or IO; repeat once</td>
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<tr>
<th>CALCIUM CHLORIDE 10% (for suspected hyperkalemia only)</th>
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<td>- 10 ml (1 gm); IV or IO; once only</td>
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<tr>
<th>CALCIUM GLUCONATE 10% (for suspected hyperkalemia only)</th>
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<td>- 10 ml (1 gm); IV or IO; once only</td>
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<tr>
<th>SODIUM BICARBONATE 8.4% (for suspected hyperkalemia only)</th>
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<td>- 2 x 50 ml (100 mmol); IV or IO; once only</td>
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ALGORITHM B:
NON-SHOCKABLE RHYTHM
(PEA or ASYSTOLE)

Exclude tension pneumo

Establish IV or IO access
Consider hyperkalemia
Administer EPINEPHRINE
Consider hypovolemia

CPR x 2 min

Reassess after 2 min:
PEA or Asystole

Yes

Perform continuous CPR

TRANSPORT

Refractory asystole

Discontinue resuscitation

No

Algorithm A:
Shockable Rhythm

VF or pVT

Yes

ROSC

No

POST ARREST CARE
ALGORITHM C: HYPOTHERMIC CPA

Hypothermic arrest known or suspected

Yes

VF or pVT

Shockable rhythm

No

Perform continuous CPR

Clear & shock once
Resume CPR
Establish IV or IO access
Administer EPINEPHRINE once

Reassess after 2 min:
Pulse present

No

POST ARREST CARE

Consider advanced airway
Limit further heat loss

Yes

TRANSPORT

Perform continuous CPR

No

POST ARREST CARE

Hypothermic arrest known or suspected