

I ICE Induced Cooling by EMS



History: <ul style="list-style-type: none"> Cardiac Arrest not related to blunt/penetrating trauma or hemorrhage ≥ 16 years of age 	Signs / Symptoms: <ul style="list-style-type: none"> Cardiac Arrest 	Differential: <ul style="list-style-type: none"> Continue to address specific differentials associated with the original dysrhythmia
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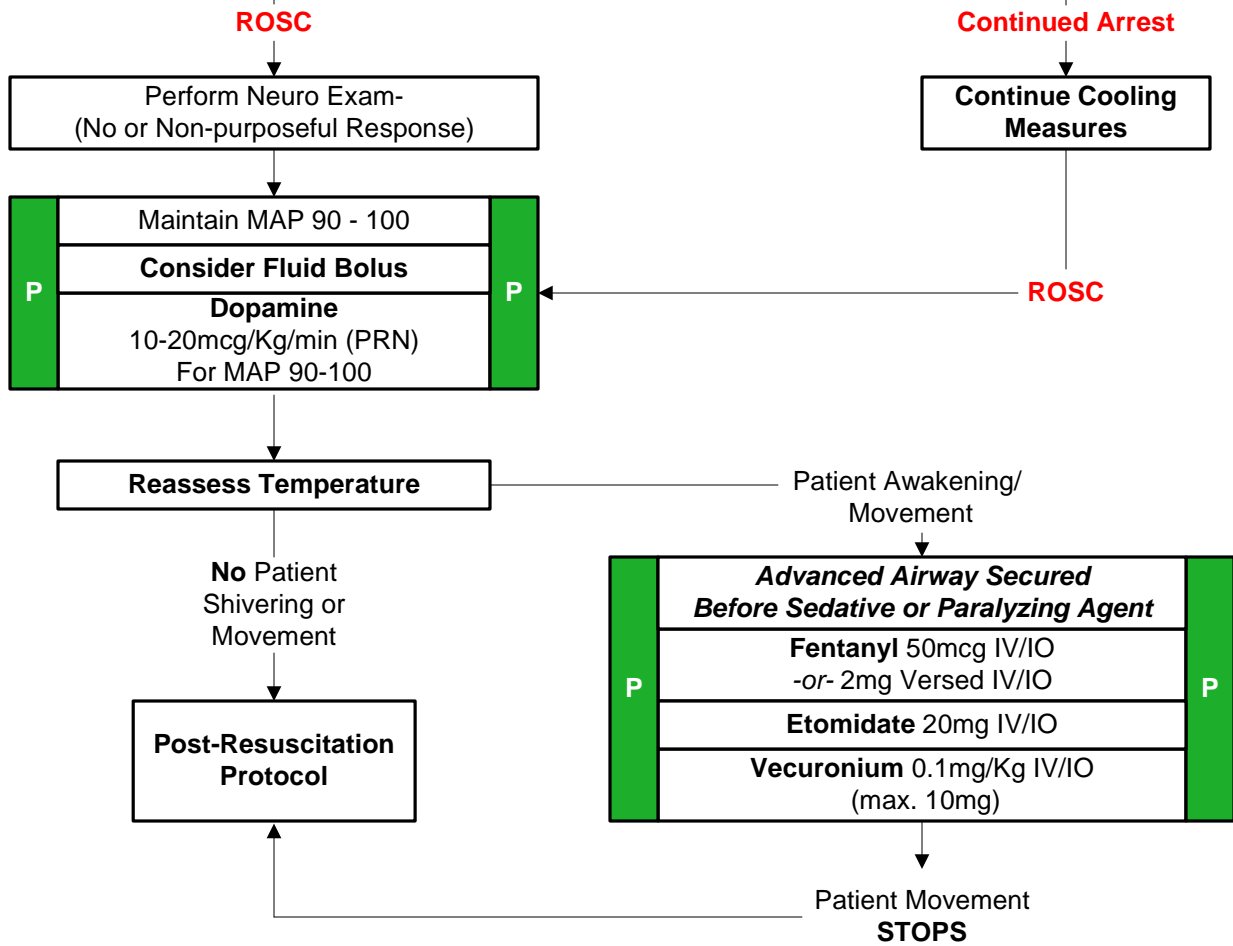
Cardiac Arrest / Rhythm-Appropriate Protocol

Temperature Monitoring

Intra-arrest Therapeutic Hypothermia
Cryo-Cooling Element applied to neck

Monitor EtCO2
**DO NOT
HYPERVENTILATE**

Legend		
	EMT	
P	EMT-P	P
M	MC Order	M





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Current research has shown, almost universally, that therapeutic hypothermia improves mortality and functional neurologic outcomes in patients resuscitated from pulseless arrest.

Paramedics play an important role in beginning the therapeutic hypothermia process, which usually must continue for a minimum of 24 hours following cardiac arrest. Since therapeutic hypothermia benefits decrease drastically after a delay of even a few minutes, EMS may be in the best position to begin immediate treatment.

Criteria for Induced Hypothermia:

1. Cardiac arrest not related to trauma or hemorrhage
2. Age \geq 16
3. Not obviously pregnant

Special Considerations:

1. Intra-arrest therapeutic hypothermia is accomplished by placing an Excel Cryo-Cooling element on the anterior surface of the neck at (or near) the beginning of resuscitation. Cooling elements should be changed every 20 minutes during the resuscitative process.
2. During intra-arrest therapeutic hypothermia (IATH), measure initial patient temperature with tympanic thermometer. Continually monitor temperature readings throughout cardiac arrest care.
3. Continue to address specific differentials associated with original dysrhythmia or cause of arrest (H's and T's).

Return of Spontaneous Circulation

1. In patients with return of spontaneous circulation (ROSC), the first visualized sign may be a significant increase in capnographic waveform and capnogram value. CO₂ washout through the lungs upon return of mechanical circulation proves a valuable sign of ROSC and should prompt the paramedic in the field to assess patient circulation (pulses). Monitor EtCO₂ frequently and target value at 40mm Hg. If EtCO₂ values fall below 20mm Hg, consider possible loss of pulses.



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Intra-Arrest Therapeutic Hypothermia (cont.),

2. Patient assessment is critical upon achieving ROSC. Assure sustained perfusing rhythm and vital signs. Patients should be prepared for transport to the closest assigned hypothermia center.
3. During post-arrest therapy, patient assessment is critical for ongoing care: With any witnessed signs of patient movement (i.e., gasping, seizure activity, or movement) during IATH therapy, administer 50mcg Fentanyl IV/IO (**in the absence of Fentanyl, administer 2mg Versed IV/IO**), 20mg Etomidate IV/IO and Vecuronium (Norcuron) 0.1mg/Kg IV/IO (max. 10mg). **NOTE: An advanced airway MUST be secured in place before administration of sedative or paralytic agents.** Repeat dosing of sedative or paralytic agents, if necessary during on-going care, may be administered through **On-Line Medical Control** order.
4. Maintaining cerebral perfusion is essential during the therapeutic hypothermia process. Maintain MAP (Mean Arterial Pressure) at 90-100. Fluid bolus may be necessary to maintain MAP. MAP values below 90 after saline infusion may require pressor administration (Dopamine) for adequate perfusion pressures.
5. Reassess the patient's airway frequently and with every patient movement.
6. **DO NOT** hyperventilate.
7. If there is a loss of ROSC at any time, continue intra-arrest therapeutic hypothermia and go to appropriate protocol for treatment.

Transport Considerations

1. Any adult (≥ 16) cardiac arrest not related to trauma or hemorrhage should be triaged to the closest "STEMI" / "Hypothermia" Center. Upon notification, LCEMS Dispatch will determine the closest open facility, and assign med channel for MC contact.
2. "STEMI"/ "Hypothermia" Centers include St. Lukes, St. Vincent Mercy Medical Center (SVMMC), The Toledo Hospital (TTH), and The University of Toledo Medical Center (UTMC) and Mercy St. Anne.
3. Upon patient delivery to ED measure final patient temperature with tympanic thermometer.