Inclusion Criteria
- Non Traumatic Cardiac Arrest with Return of Spontaneous Circulation (ROSC)
- Core Temperature greater than (34°C) at presentation
- Time to initiation of hypothermia is less than 6 hours
- Comatose after ROSC: GCS less than 8, and no purposeful movements to pain

Exclusion Criteria
- Uncontrolled GI bleeding
- Patient requiring Mannitol therapy
- Conflict with Advanced Directives or DNR status
- Cardiovascular instability as evidenced by: Uncontrollable arrhythmias
- Refractory hypotension (unable to achieve target MAP of 75 mm Hg despite interventions)
- Sepsis as suspected cause of cardiac arrest
- Suspected intracranial hemorrhage
- Major intracranial, intrathoracic or intrabdominal surgery within 14 days
- Gravid pregnancy

Check boxes where appropriate. Mark through undesired orders.

ORDER AND PHYSICIAN'S SIGNATURE
(This is not a stand alone order set; MUST be used in conjunction with unit specific admission orders)

DATE:  [ ] Time:  (TIME of ROSC: _____________) **

ADMIT STATUS:  [ ] Inpatient  [ ] Admit to adult ICU  Admit to __ICU

DIAGNOSIS:  S/P Cardiac Arrest.  Other: _____________________________________

ADMITTING PHYSICIAN:

CONSULTS:  [ ] Critical Care/Intensivist ________________________
[ ] Cardiologist ____________________________________________
[ ] Other ________________________________________________

LINE PLACEMENT:
[ ] Consult _________________ for A-line placement (MUST have Arterial line placed)
[ ] Consult _________________ service for CoolGard catheter placement unless placed in ED
[ ] Consult _________________ service if additional CVC or PA catheter needed
[ ] Place temperature-sensing foley to monitor temp

COOLING PHASE:  (GOAL is to get core temp to 32°C-34°C within 6 hrs of onset of arrest)
[ ] If core temperature is greater than (34°C) at initiation of protocol, bolus with refrigerated 0.9% NS until patient’s core temperature is (34°C). Bolus at 100mL/min with a maximum of 2 liters total; this is to include ED and EMS volume. May obtain cold saline from ED. (Omit if already given by EMS or ED).
[ ] Initiate CoolGard protocol for 24 hours. (preferred method). Set machine to 33°C.
[ ] If unable to use intravascular catheter above, initiate surface cooling by placing:
  - two cooling blankets (one anterior, and one posterior). Observe bony skin areas q 2hrs for any signs of breakdown. Place ice packs around neck, in axillary areas, and in groin.
  - Place rectal probe; slave to cardiac monitor to have secondary source of temperature.
  - Correlate and record secondary temp q 2hrs. Document source of secondary temp (may be rectal or PA Catheter).

[ ] Place temperature-sensing foley to monitor temp
[ ] IF patient has recurring arrhythmias, discontinue active cooling, begin re-warming & call MD STAT.
[ ] IF unable to obtain target core temperature consult MD for further cooling orders

VITAL SIGNS:
[ ] BP, MAP, HR, O2 saturation, ETCO2 and cardiac rhythm hourly and prn monitoring. Monitor CVP q 2hrs.
[ ] Record foley temperature q 15 minutes until (32°C-34°C) is achieved. Then q 30 minutes. Do not cool less than (32°C)

IV:  [ ] 0.9% NS at ______ mL/hr
(All fluids during the cooling and re-warming phase should be dextrose free if at all possible)
**Adult Induced Hypothermia and/or Re-warming**

**Status Post Cardiac Arrest Orders – PILOT**

<table>
<thead>
<tr>
<th>BP &amp; VOLUME MANAGEMENT:</th>
<th><em>(Goal MAP to be at least 75 mm Hg)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>✓</strong> Replace urine output q 1 hr with:</td>
<td><strong>☐</strong> NS  <strong>☐</strong> ½ NS  <strong>☐</strong> LR using:</td>
</tr>
<tr>
<td>0.5 mL/ 1 ml IVF replacement to urine output</td>
<td>1 mL/ 1 ml IVF replacement to urine output</td>
</tr>
<tr>
<td><strong>Observe closely for fluid overload.</strong> Consider using Pressors next if urine output is &gt; 0.5 ml/kg/hr</td>
<td></td>
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<tr>
<td><strong>✓</strong> CVP goal of 6-10 mmHg or</td>
<td>Additional IV volume support:</td>
</tr>
<tr>
<td><strong>✓</strong> Norepinephrine (Levorad) IV start at 0.5 mcg/min and titrate as needed to keep MAP greater than 75.</td>
<td></td>
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<tr>
<td><strong>☐</strong> Other pressor agent:</td>
<td><strong>☐</strong> Nitroglycerin IV start if MAP over 120 or <strong>☐</strong> . Start at 5 mcg/min, increase by 5 mcg/min increments q 3-5 min until a BP response is noted. Goal is to keep MAP* less than 120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANALGESIA</th>
<th>Use numeric rating scale (1-10) or other pain scale to assess for pain/discomfort prior to administering a NeuroMuscular Blocking Agent (NMBA.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal for analgesia:</td>
<td><strong>☐</strong> less than or equal to 3, on 1-10 scale, or minimal pain behaviors.</td>
</tr>
<tr>
<td><strong>☐</strong> Other:</td>
<td><strong>☐</strong> Fentanyl</td>
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<td><strong>☐</strong> Morphine</td>
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<tr>
<td>(Consider if patient is hemodynamically unstable or has renal insufficiency, or if Creatinine Clearance &lt; 50 mL/min.) OR:</td>
<td></td>
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<tr>
<th>SEDATION</th>
<th>Use Riker scale of 1-7 to assess sedation prior to administering an NMBA.</th>
</tr>
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<tbody>
<tr>
<td>Goal for sedation:</td>
<td><strong>☐</strong> 2-3 on Riker Scale of 1-7</td>
</tr>
<tr>
<td><strong>☐</strong> Other:</td>
<td><strong>☐</strong> Lorazepam (Ativan): mg/hr (0.01 mg/kg/hr initially) continuous infusion, titrate until at goal.</td>
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<tr>
<td><strong>☐</strong> Propofol (Diprivan):</td>
<td></td>
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<tr>
<th>NEUROMUSCULAR BLOCKING AGENT (NMBA)</th>
<th>Before starting neuromuscular blocking agent (NMBA), verify that the patient is adequately medicated with analgesic and sedative agents at goal and receiving mechanical ventilation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(For prevention of shivering)</td>
<td>Obtain baseline “train of four” (TOF) then Q 1 Hour. Adjust degree of NMBA to achieve 1-2 of 4. If unable to obtain TOF, titrate NMBA to prevent shivering.</td>
</tr>
<tr>
<td><strong>☐</strong> Vecuronium (Norcuron):</td>
<td>mg (0.1 mg/kg) IV bolus x 1 (unless NMBA bolus given by ED or EMS)</td>
</tr>
<tr>
<td>Vecuronium (Norcuron):</td>
<td>mcg/min (0.8-1.2 mcg/kg/min) continuous infusion. (Pharmacy to mix 1:1 in NS) (Avoid in significant renal or hepatic impairment.)</td>
</tr>
<tr>
<td><strong>☐</strong> Cisatracurium (Nimbex):</td>
<td>mg (0.2 mg/kg) IV bolus x 1 (unless NMBA bolus given by ED or EMS)</td>
</tr>
<tr>
<td>Cisatracurium (Nimbex):</td>
<td>mcg/min (2.5-3 mcg/kg/min) continuous infusion</td>
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<tr>
<th>DVT PROPHYLAXIS</th>
<th><strong>✓</strong> Sequential compression devices (SCDs). Use Foot Pumps if unable to use SCDs</th>
</tr>
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<tbody>
<tr>
<td><strong>☐</strong> Heparin 5000 units subcutaneously Q 8 Hours</td>
<td><strong>☐</strong> Dalteparin (Faraparin) 5000 units subcutaneously daily</td>
</tr>
<tr>
<td><strong>☐</strong> Other:</td>
<td><strong>☐</strong> If significant renal or hepatic dysfunction, consider:</td>
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</tbody>
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<tr>
<th>STRESS ULCER PROPHYLAXIS</th>
<th><strong>☐</strong> Famotidine (Pepcid) 20 mg PO/NG tube/IV Q 12 Hours stress ulcer prophylaxis</th>
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</thead>
<tbody>
<tr>
<td><strong>☐</strong> If Creatinine Clearance &lt; 50 mL/min, give famotidine (Pepcid) 20 mg PO/NG tube/IV Q 24 Hours</td>
<td><strong>☐</strong> Other:</td>
</tr>
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## Adult Induced Hypothermia and/or Re-warming
### Status Post Cardiac Arrest Orders – PILOT

**OTHER MEDICATIONS**
- **Lacrilube** to both eyes Q 4 Hours and PRN while on NMBA.
- Initiate unit-specific (Glucomander or Adult Intensive Insulin Protocol) hyperglycemic management order set (Goal BG 80-110 mg/dL). Do NOT use fingersticks.
- For intubated/trached patients: Chlorhexidine gluconate 0.12% (*Peridex*) 15 mL Q 12 Hours. Swab all oral surfaces (buccal, pharyngeal, gingival, tongue and tooth surfaces) for 30 seconds. Discontinue when patient extubated. If trached, continue for 6 months and then reevaluate. **Note: Solution not to be swallowed.**
- Acetaminophen (*Tylenol*)* 650mg per feeding / NG tube / PR q 4hr PRN hyperthermia (which is temp above 98.6°F / 37°C) during re-warming phase. If given via tube, clamp x 30 min. **Dosage not to exceed 4gm/24hrs. Consider all sources.**
  - Caution: Do not administer any medication to hypothermic patient if medication is labeled “Do not refrigerate”. (Example: Mannitol)

**NURSING:**
- Insert NG/OG to low intermittent wall suction
- Intake and output hourly; Call MD if urine output is less than 0.5 mL/kg/hr despite above volume given
- Monitor CVP and A-line; use saline flush only for pressure line
- If femoral line, place in reverse Trendelenberg to raise HOB as much as possible without kinking line
- Do NOT bathe patient during hypothermic or rewarming period

**VENT MANAGEMENT:**
- Vent Settings: _____________________________________________________________
  - Calculate Ideal Body Weight on admission; to be used for ventilator management only: ________
  - No warm humidified air
  - Continuous ETCO₂ monitoring
  - ABG prn monitor oxygenation and/or acid/base status (make sure temperature corrected) (Goal PaCO₂ 35-45)

**IF NOT DONE IN ED: STAT LABS:**
- BMP ☑ Calcium ☑ Phos ☑ ABG (temp corrected)
- CBC ☑ PT ☑ Magnesium ☑ Troponin
- UA ☑ PTT ☑ Lactate ☑ Urine HCG
- Other:

**STAT DIAGNOSTICS**
- PCXR ☑ 12 lead ECG ☑ Other: __________________________

**LABS EVERY 6 HOURS X 24HRS**
- BMP ☑ Calcium ☑ Phos
- PT ☑ CBC with diff ☑ Other: __________________________
- PTT ☑ Magnesium

**12 HOURS AFTER INITIATION OF PROTOCOL**
- Blood Culture x 2 at ________
- Other: __________________________

**DAILY**
- PCXR and ABG while on ventilator
- CBC and BMP every am
- Other:

**OTHER LABS OR DIAGNOSTICS**
- Troponin
- CK’s q ___ hrs x ___
- Other:

**ELECTROLYTE REPLACEMENT**
- **Do not replace potassium unless it is less than 3 meq/L during cooling phase. Call MD for specific replacement dose. Make sure time to rewarm phase is communicated.**

**DO NOT USE PRE-EXISTING ELECTROLYTE REPLACEMENT ORDERS**

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Patient Identification:
**Adult Induced Hypothermia and/or Re-warming**
**Status Post Cardiac Arrest Orders – PILOT**

<table>
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<tr>
<th><strong>RE-WARMING PHASE:</strong></th>
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<tbody>
<tr>
<td><strong>A. TIME RE-WARMING STARTED:</strong></td>
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<td><strong>B. TIME COOLING STARTED IN ED:</strong></td>
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<td><strong>C. TIME RE-WARMING FINISHED:</strong></td>
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**Target temperature (36.1°- 37°C)**
- Begin rewarming 24hrs from time cooling was started in Emergency Department.
- Target temperature to be obtained in 6-8hrs; STOP re-warming once (36.1°C) is reached to prevent overshoot.
- Empty foley at start of rewarming. Strict I & O (see volume replacement section)
- Activate re-warming (program CoolGard for 0.5°C/hr and 36.1°C).
- If external cooling devices used, remove cool packs and cooling blankets.
- May place warm blankets (do NOT use Bair Hugger)
- Monitor temp/VS/rhythm closely q 30 minutes until target temp is reached, then q 1hr x 12 additional hours, followed by temp/VS q 4hrs IF patient remains normothermic or more if condition warrants
- Continue sedation and neuromuscular blocking agent (NMBA) until temperature is equal to or greater than (36.1°C). (Discontinue NMBA first, then wean sedation.)
- Do not permit Hyperthermia in first 24hrs after cooling phase.
- IF temp greater than (37°C) administer Acetaminophen
- Continue labs as ordered (anticipate increase in potassium)
- Continue monitoring I & O q 1hr (anticipate hypovolemia)
- Once normothermic goal reached at end of 48 hrs, consult with MD service for D/C of femoral line

**SHIVERING**:
- Observe for shivering q 1 hour
- If off neuromuscular blockade, and shivering occurs during rewarming phase apply warm blankets.
- Meperidine (Demerol) 12.5mg IV, may repeat in 5 minutes x 1
- IF above methods(s) ineffective, call MD STAT for further orders (may need to restart NMBA and sedation)

**Physician signature required:**  
**Transcribed by:**  
**Checked by (Nurse):**  

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<th>Beeper #:</th>
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