MAINE MEDICAL CENTER
Therapeutic Hypothermia (TH) Protocol
Revised 1-9-13

1. All patients should receive therapeutic hypothermia after cardiac arrest unless:
   i. The patient can follow verbal commands
   ii. More than 8 hours have elapsed since ROSC (flexible)
   iii. There is life-threatening bleeding or infection
   iv. Cardiopulmonary collapse is imminent, despite vasopressor support
   v. Aggressive care not warranted
2. Use the EPIC “therapeutic hypothermia” order set.
3. Please notify the SCU Research office when a cardiac arrest patient is admitted (662-2066).
4. Physician performs and document the neurologic exam. If seizure activity is suspected, arrange for cEEG through neurology consultation, and treat seizure activity.*
5. Infuse 30-40cc/kg as a rapid infusion (15-30 minutes/L) of cold NS or LR solution (total 2-4L) – this is kept in the CICU medication refrigerator and must be replaced after usage.
6. Insert bladder probe and initiate cooling with Arctic Sun device set to 33°C. An esophageal temperature probe (inserted by physician) may be substituted if UOP<30 cc/hr. Cooling pads are expensive and must be sized properly. The cooling pads are stored in the Clean Supply room in CICU, and are a chargeable item through Par-X.
7. Place a Bair hugger set to maximum temperature over the patient and the Arctic Sun pads. This will help control shivering. Leave the device in place for the full 72h of therapy.
8. Defibrillation can be performed, if necessary, in several ways. Hands-off defibrillation can be performed with defibrillation pads placed under the hypothermia pads. Cath lab radiolucent pads can be used in the same way. Hypothermia pads can also be peeled back to deliver a shock directly to the skin.
9. Place the BIS monitor. Call SCU research or the SCU coordinator if there is no device or if you need extra help.
10. It is standard practice for patients with severe brain injury after cardiac arrest to have arterial lines (with Flo-Trak) for blood pressure monitoring, central venous catheters for medication administration and CVP monitoring. These devices are placed under strict sterile conditions in compliance with standard MMC central venous catheter insertion practices.
14. Record hourly vitals, BIS score, bedside shivering assessment score (BSAS, sedation, all NMB doses and any unusual circumstances or events on the nursing flow sheet.

15. During hypothermia and rewarming, monitor q4h electrolytes. Correct low K aggressively at the onset of therapy!

16. Any patient with pulmonary infiltrates on CXR, or with suspected aspiration should receive empiric antibiotic therapy with cefuroxime 1500mg q12h x 2 doses or ampicillin-sulbactam 1.5g IV q6h x 3 days (adjust dosing to renal function).

17. **Any patient receiving a paralytic drug must also be sedated.** Propofol is the preferred sedative with midazolam infusion as a second choice if severe hemodynamic instability is present. During rewarming, paralytics should not be used.

18. Shivering management should be performed using the shivering protocols for intubated or non-intubated patients. Paralytics must NEVER be administered to a non-intubated patient.

20. The daily lightening of sedation is suspended until the patient is no longer paralyzed and core temperature is > 36C.

21. Rapid rewarming is dangerous and should only be performed in extraordinary circumstances, such as active and life-threatening bleeding. Patients with severe sepsis, or severe bleeding should be withdrawn from the cooling protocol and slowly rewarmed to 35-37°C. Use caution in refractory shock because patients will vasodilate and may become more hypotensive during rewarming.

22. After 24 hours of active cooling, set the Arctic Sun patient goal temperature to reach 36.5°C over 12 hours. The rate of rewarming should be between 0.25 and 0.35°C per hour.

23. During rewarming, the natural tendency is for patients to rewarm too quickly. Often the machine will be cooling patients during the rewarming phase. Allow the device to do this – it reflects normal function of the Arctic Sun.

24. Leave the Arctic Sun pads in place and keep the machine set to 36.5°C or 37°C for a total of 72 hours after initiation of therapeutic hypothermia.

25. Formal neurologic assessment should be performed and documented when normothermia is achieved and sedating drugs have cleared from the circulation. **It is recommended to withhold neurological prognostication for at least 72 hours after the return of spontaneous circulation.**
26. All brain-injured patients should be considered potential organ donors, and the New England Organ Bank notified at the time of admission (800-446-6362).
27. Please allow the **neurologist and/or attending MD** to offer prognostic information to family members. Prognostication after brain injury is complex and difficult, with profound ethical and legal repercussions. “Informal” bedside prognostication is not professionally appropriate.

**Therapeutic hypothermia and the Arctic Sun device is fully compatible with cardiac catheterization. TH may be rapidly initiated in the ED or in the cath lab if necessary.**