**MAINE MEDICAL CENTER**
**May 2013**

# Therapeutic Hypothermia Pathway

**Therapeutic hypothermia is strongly recommended for ALL cardiac arrest without contraindications (below)**

**Hypokalemia**
**Administer K+ and initiate cooling. Do not delay cooling.**

**Exlusion Criteria**
-Follows commands
-Active, uncontrollable bleeding
-Life threatening sepsis
-Terminal illness with short anticipated life expectancy

**Considerations**
-Pregnancy probably OK
-Initial temperature < 32C: rewarm to 33 and then maintain x 24h as per protocol
-Severe hypoxemia probably OK
-Coagulopathy may be exacerbated by hypothermia
-Shock is not a contraindication
-Benefit to cooling may be less if initiated late (>6h)

**DELAY TO HYPOTHERMIA INITIATION IS ASSOCIATED WITH WORSE OUTCOMES – DO NOT DELAY!**

**Cardiac arrest with return of spontaneous circulation**

Anoxic brain injury likely?
*-Does not follow*

yes

n

Clinical decision to initiate therapeutic hypothermia – should involve cardiology and critical care

No

Yes

If aspiration or pneumonia is suspected, start

Neurologic al

Consider seizures and obtain continuous EEG –

Insert bladder temperature probe
Apply Arctic Sun device
Apply BIS Monitor
**If potassium <3.5 give K+ replacement and concurrently initiate cooling**
Initiate cooling to 33°C
Hourly temperature checks and examination – follow

**See TH sedation protocol (attached)**
-Suppress shivering with vecuronium during cooling period
-Minimize **paralytics** during rewarming.
-All patients receiving paralytics must be

-Use EPIC "therapeutic hypothermia" order set
-Cool patient to 33°C for 24 hours.
-Rewarm to 36.5°C over 12 hours (0.3°C/hr)
-glucose 100-180 recommended
-Assess for early extubation when T>36°C
-Do **NOT** tolerate T≥37.5C after

Repeat neurological examination.
Slowed drug metabolism may confound the neurological exam. If considering CMO status, 72 hours after

**At 72 hours post-arrest resume usual supportive care**

* see ACLS protocols in Circulation 2005; 112(24):IV84-IV88.
** Although many institutions routinely cool patients with lung injury, shock, and moderate coagulopathy, data is lacking. It is not known whether hypothermia has neuroprotective effects if therapy is delayed beyond 6 hours after ROSC.
*** TH is probably safe in combination with PTCA/PCI, intra-aortic balloon pump placement, and thrombolytics. See Crit Care Med 2006;34(6):1865-73 and Acta Anaesthesiol Scand 2007;51:137-42.
**** Sirvent JM et al. Protective Effect of Intravenously Administered Cefuroxime Against Nosocomial Pneumonia in Patients with Structural Coma. Am J Respir Crit Care Med 1997; 155; 1729-34.

Patient Sticker

# POST-CARDIAC ARREST CHECKLIST

**July 2016**

RN _____ Date_____

**INITIATE TH/COOLING**

- □ Baseline labs
- □ Replace K+< 4.0 and simultaneously initiate Targeted Temperature Management
- □ **Maintain target ranges**
  - **Mg++>2.0**
  - **Glucose 120-180 insulin infusion as needed**
  - **Titrate FIO2 within 15 min to SPO2 > 94-99% before ABG**
  - **ABG targets**
    - **FIO2 94-99%**
    - **PCO2 35-45**
    - **PO2>80**
- □ Insert temperature sensing foley per protocol
- □ Cooling initiated with cold fluids, cooling pads applied, and Arctic Sun device started per protocol. Replace 2 bags NS to front refrigerator.
- □ Note time and location TTM initiated with cooling pads in EPIC TH flowsheet
- □ Target temp 33 C and maintained for 24 hours.
  - Target temp. should be reached in 4 hrs, if not, notify/discuss w provider
- □ Analgesia/sedation with propofol 20mcg/kg/min and fentanyl drip 25mcg/hr – titrate as needed
- □ Apply BIS monitor and Bair Hugger- cover hands and feet with socks
- □ CVC, arterial line and notify hemo tech for FloTrac
- □ **Maintain MAP> 80 at all times**, using FloTrac data to titrate CO/CI per protocol
- □ **Provide family with "Information on Therapeutic Hypothermia" teaching brochure**
- □ Add the "Therapeutic Hypothermia" flowsheet in EPIC and document hourly.

- □ Notify NEOB; add "Post Mortem" flowsheet for documentation of NEOB
- □ Tube feeds at 10cc/hr, advance to goal when core temperature > 36°C
- □ Continuous EEG, initiated ASAP **during working hours**, or **STAT** if seizures suspected. Provider to notify Neuro @ pager #580-5248
  - □ cEEG tech support M-F 0800-1700 # 662-2389, after hours they can be reached through operator 662-0111.
  - □ Stat Net is a nurse applied option for cEEG monitoring. Equipment is available thru SCU Coord (662-0595).
- □ Shivering management per protocol, assess/document shivering and BIS hourly and before/after NMB using BSAS. **NMB 0.1mg/kg- this is weight based without a max dose**
- □ Seizure management per protocol
- □ Confirm orders for neuron specific enolase and adjust times based on Return of Spontaneous Circulation (ROSC)
- □ Check BMP, K+, Mg++ every 6 hours and Phos every 24 hrs during TTM protocol
- □ Check blood sugar hourly (preferred sample site A-line) and **start Insulin Infusion for glucose >180**

**REWARMING**

- □ Initiate rewarming after 24 hr. cooling time completed/Arctic Sun will give -alert
- □ Rewarm at rate of 0.3C per hour to target temp 36.5C (It should take 12 hrs.)
- □ NMB should not be administered once temperature ≥35C
- □ Continue analgesia/sedation

**MAINTENANCE**

- □ Once normothermic, discuss sedation lightening w Critical Care Team and wean sedation
- □ Keep Arctic Sun pads in place for additional 36 hrs
- □ Observe for temperature spikes and rigors and treat per order set with **Tylenol via OGT**
- □ Refer to resource page in TTM folder for additional details regarding protocol

**PLEASE** PAGE DAVE SEDER WITH QUESTIONS 741-7460!