

**DEACONESS HOSPITAL, INC.**  
**Evansville, Indiana**

**Policy & Procedure No.**

**DRAFT October 23, 2008**

**INTRAVASCULAR TEMPERATURE MANAGEMENT (Alsius)**

- I. PURPOSE:** To define the responsibilities and procedures of intravascular temperature management with the use of the Alsius Thermoregulation System/Catheter system.
- II. POLICY:** It is the policy of this Hospital that:
- A. The Alsius Thermoregulations System be used to continually monitor and control core body temperature either via cooling or warming in response to the critically ill or surgical patient's temperature.
  - B. Use of the Intravascular Temperature Management (Alsius) requires a physician order.
  - C. The Cool Line catheter is inserted via the subclavian or jugular vein and resides in the superior vena cava. It can be used up to seven (7) days. Key benefits include a triple lumen to deliver medication, blood draw, measure CVP, reduce and control fever.
  - D. The ICY catheter is inserted via the femoral vein and resides in the inferior vena cava. It can be used up to four (4) days. Key benefits include the ability to induce hypothermia rapidly, to maintain a tight temperature maintenance and control, to slow and control rewarmth after cooling, core rewarming/maintenance for unwanted hypothermia.
  - E. The catheters are MRI compatible and latex free.
- III. RESPONSIBILITY:**
- A. Physicians: Physicians trained in the Seldinger Technique for insertion of a central venous catheter will insert the Alsius Cool Line/Icy catheters and provide orders regarding thermoregulation.
  - B. Nursing: Nurses from the ED, OR, and ICU who have been successfully completed the Alsius CoolGard 3000/ThermoGard Competency training will set up, manage, and discontinue the Alsius CoolGard 3000 machine support per physician order.
  - C. Sterile Supply Processing: The Kit Catheter Quattro, Kit Catheter Icy 9.3FR 38CM, Kit Catheter Cool Line, and Kit Alsius Start-Up can be ordered from SSP via the search function in Invision. These items are in the SSP Cardiac well.
  - D. Trauma ICU: The Alsius CoolGard 3000 machine will be stored in the Trauma ICU.
  - E. Bio-Medical Engineering Department: To replace the propylene glycol annually
- IV. PROCEDURE:**
- A. EQUIPMENT NEEDED
    - 1. Alsius CoolGard 3000/ThermoGard machine
    - 2. Alsius Cool Line Catheter (subclavian/jugular) or Icy catheter (femoral) insertion tray
    - 3. 500 mL Normal Saline solution
    - 4. CoolGard 3000/ThermoGard System Start-Up tubing set
    - 5. Temperature monitoring probe and cable
    - 6. Distilled water as needed
    - 7. Non-sterile gloves

- B. The Alsius CoolGard 3000® Thermal Regulation System Set-Up:
1. Check the coolant level each time the machine is initially started. Add distilled water to reach the "max level" if necessary
  2. Plug in the power cord and turn the power switch on.
  3. Self test appears: takes a few minutes)
  4. System Set Up Screen: Select Pre-Cool or Select Pre-Warm
  5. Operate at current setting: Select YES or NO
  6. Select new patient: Select NO
  7. Select Target Temperature:
    - a. If **Pre-Warm** selected, turn the menu control knob to select the desired temperature to 37.5 degrees Celsius or temperature ordered by the physician for warming and press the menu control knob once
    - b. If **Pre-Cool** selected, set temperature at 33 degrees Celsius or temperature ordered by the physician for cooling and press the menu control knob once.
  8. Select treatment mode: Select MAX power
  9. Self test occurs.
  10. Air trap warning appears and the system is pre-warming or pre-cooling according to the target temperature selection. Proceed to tubing set up.
- C. Installation and priming of the Alsius CoolGard 3000® Thermal Regulation System Start-Up tubing:
1. Open the start-up kit.
  2. Remove the coolant well lid, insert the metal heat exchange coil into the coolant well and replace the coolant well lid
  3. Insert the air trap into the air trap holder
  4. Open lid of the roller pump and lift the metal rotation lever up
  5. Ensure that the white tips of the roller pump are facing north and south direction for easy tube insertion
  6. Slide the flange of the tubing into the slot on the right side of the housing pump
  7. Slide the tubing into the roller pump and manually rotate the roller pump counter clock wise to facilitate loading of the tubing (see quick reference guide attached to the machine)
  8. Firmly close the top cover of the roller pump until it clicks
  9. Hang 500 mL of sterile normal saline on the metal hook at back of system
  10. Using aseptic technique, connect the tubing to the 500 mL of normal saline using the spike connector
  11. Priming: Lift the air trap from its holder and turn it upside down. Press and HOLD the PRIME switch button until the air trap and tubing are completely full of saline (approx. 2minutes) and the tubing is primed
  12. Tap the air trap gently to dislodge bubbles
  13. Turn the filled air trap right side up and place it back in the holder
  14. Route the tubing out of the machine through notches in the front of the console and through the channel at the rear of the console and ensure tubing is not kinked
  15. Close the top cover
  16. Stand by appears
  17. System set up: place T1 probe and connect to patient
  18. System set up: Press RUN
  19. Warning T2 not connected appears: Default to YES and RUN
  20. Set Hi and Lo alarms
- D. After physician has inserted the Cool Line or Icy catheter, connect to the patient:
1. Position the Coolgard 3000 thermal Regulation System near the patient's bed and lock the casters
  2. Place the primary patient temperature probes in the patient (bladder or esophageal or rectal)
  3. Plug the cable from the primary temperature probe in T1 located on the front of the system
  4. Connect the male tubing connectors to the female connectors on the patient's cool Line or Icy central catheter (teal ports)

5. Position the tubing so that it is not kinked, obstructed, or cannot be dislodged by the patient' movement
6. **Select RUN on the screen by using the menu control knob to initiate patient treatment**
7. The orange pin wheel located on the start up tubing will continually turn if the pump is running and patient treatment is in progress
8. DO NOT use teal ports to infuse prescribed IV fluid or medications as these ports are for circulating warm fluid only
9. Press the STANDBY/RUN button to place the Alsius CoolGard 3000 Thermal Regulation System in standby mode

**V. REFERENCES:**

- A. The Alsius Intravascular Temperature Management Education Binder and operating protocols.
- B. Networking and communications from Baylor University Medical Center and Barnes-Jewish Hospital.
- C. Evidenced Based Supportive Data
  1. Diringer, M.N., Reaven, N. L., Funk, S. E., Uman, G. C. (2004). Elevated body temperature independently contributes to increased length of stay in neurologic intensive care unit patients. Crit Care Med, 32(7), 1489-1495.
  2. Diringer, M.N. (2004) Treatment of fever in the neurologic intensive care unit with a catheter-based heat exchange system. Crit Care Med, 32(2), 1-6.
  3. Hinz, J., Rosmus, M., Popov, A., Moerer, M., Frerichs, I., Quintel, M. (2007). Effectiveness of an Intravascular Cooling Method Compared With a Conventional Cooling Technique in Neurologic Patients. Neurosurg Anesthesiol, 19(2), 130-135.
  4. Marion, D.W. (2004). Controlled normothermia in neurologic intensive care. 32(2), S43-S45.

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