

“Cool It”
Induced Hypothermia Therapy
Post Cardiac Arrest Learning Packet

At the completion of this packet the learner will:

1. Understand the roles/responsibilities outlined in the Abbott Northwestern policy directing the care of the induced hypothermia therapy patient
2. Be familiar with the hypothermia order sets (Phase I & II must be implemented) and understand how to access them
3. Verbalize the components of a baseline neurological assessment
4. Identify the safe use of paralytic agents (neuromuscular blocking agents (NMB) including the use of peripheral nerve stimulators for monitoring
5. Recognize skin assessment findings that will require reporting, treating, and documenting
6. Demonstrate the use of the Medivance Cooling device including equipment location, access, measuring for pads, all connections, operation of the device, and troubleshooting
7. Be able to chart induced hypothermia patient data in Excellian
8. Be able to locate induced hypothermia resource binder and unit resources including the “super users”

Review Policy #CC0021: Induced Hypothermia for Comatose Post Cardiac Arrest Patients. (located on the AKN)

Review Order Set #31189 Hypothermia Initiation Phase One

Review Order Set #31190 Hypothermia Initiation Phase Two-Admission

*Please note inclusion and exclusion criteria and the specific responsibilities for your role. All policies are subject to change with changes in practice recommendations.

Why induced hypothermia?

Randomized controlled trials in the use of induced hypothermia in post cardiac arrest have demonstrated improvement in neurological outcomes in patients who remain comatose post cardiac arrest. Additionally, the American Heart Association endorsed a Class 2A recommendation supporting the use of induced hypothermia post arrest for unresponsive patients.

A. Inclusion Criteria for Induced Hypothermia Therapy at ANW

- Non-traumatic cardiac arrest (this includes: Vfib/Vtach, PEA, Asystole arrests; Level One STEMI; and cardiogenic shock patients)
- Cardiac arrest lasting less than 60 minutes from collapse to return of spontaneous circulation (ROSC)
- Unresponsive post arrest (unable to follow a verbal command or state their name)

B. Exclusion Criteria for Induced Hypothermia Therapy at ANW

- SBP less than 90 for greater than 30 minutes after return of spontaneous circulation despite the use of vasopressors
- Active bleeding
- Comatose or vegetative state before arrest
- DNR/DNI

C. Potential Complications

Cooling and re-warming are the most unstable periods for patients undergoing hypothermia treatment. They may experience any or all of the following:

- Hypotension

- Bradycardia
- Tachycardia
- Arrhythmias, EKG changes, ischemia, prolonged QT intervals
- Fluid and electrolyte shifts (potassium and glucose)
- Coagulopathies
- Skin breakdown/frostbite
- Rebound hypothermia

D. Nursing Interventions

Our goal is to start cooling ASAP without delay ST segment elevated MI (Level One) patients will go to the CV lab where treatment will start in conjunction with angiography and opening the vessel. First responders may also apply ice packs en route to the hospital. All other cardiac arrest patients who meet the criteria per MD, will begin induced hypothermia therapy immediately post arrest (See below for process). Studies demonstrated that the *faster the cooling process begins the better the outcome for the patient*. We want to initiate FAST cooling, maintain a target temperature of 33 degrees Celsius for 24 hours, and then provide a SLOW re-warming. FAST COOL then SLOW RE-WARM.

1. Pre-hypothermia phase

- STEMI (Level One) cardiac arrest patients will go to the CV lab based on the Cardiologist's decision. The paging system for Level One and "Cool it" will be activated if this takes place. Once the cardiologist activates the "cool it" (therapeutic hypothermia paging system) several pages will go out to the appropriate departments at once. In some cases the ED physician can activate the Level One and Cool it paging systems in conjunction with the cardiology consult. The charge nurse of the receiving unit (typically H4200) is alerted to prepare for the patient. Pharmacy is paged and makes the necessary medications. The ICU charge RN notifies the Intensivist of the patient.
- Non-STEMI cardiac arrest patients go directly to the available ICU bed (H4200 preferred). In house MD/Resident running code contacts Intensivist and Cardiologist to determine inclusion/exclusion, and to manage care if hypothermia elected
- Out of hospital Non-STEMI cardiac arrest patients: Cardiologist calls Intensivist to determine inclusion/exclusion and to manage care. Cardiologist may begin hypothermia orders
- ED cardiac arrest. ANW ED MD consults the Intensivist and Cardiologist. Cooling may begin in the ED. The Cooling device, pads, and a bladder/esophageal core temperature probe will be placed prior to transport for continuous core temperature monitoring. The goal is to begin treatment ASAP. Ice packs are usually applied in the ambulance or ED.
- Once ICU receives "cool it" page:
 - ✓ Call RT to bring Ventilator
 - ✓ Obtain cooling equipment (Cooling device, pads, bladder/esophageal core temp probe, line placement cart, peripheral nerve stimulator, resource manual, op techs have a list of supplies that they use to stock the room
 - ✓ If indicated, some patients may proceed to CT to rule out intracranial bleeding prior to cooling or during the cooling process.

2. Cooling Phase

- Once patient arrives on the unit (assume the patient is intubated):
 - ✓ Obtain consents if able from family (bedside procedure time-out)
 - ✓ Place core temp probe (bladder or esophageal-end of probe should be at heart level) If foley in place without thermistors place esophageal probe for temperature monitoring instead and confirm placement by chest xray
 - ✓ Document this initial temperature
 - ✓ Place defib pads under cooling pads and attach cooling pads to pump along with temperature probe (see guide for appropriate sizing)
 - ✓ 40% of the patient's body should be covered by the pads, do not cover breasts
 - ✓ Use the extra paper covering provided in the cooling pad package to work around chest tubes, G-tubes, colostomies, incisions, etc.

- ✓ Large patients will need an additional universal pad
- ✓ Begin cooling-always use automatic mode (see below for device operation)
- ✓ Patients receiving paralytics can feel pain and anxiety. Sedation and analgesia should be administered prior to paralyzing patient
- ✓ Give sedation, paralytics and analgesia (per orders)
Maintain paralysis/sedation/analgesia as ordered. Assess time of paralytic bolus and consider need to re-bolus as sedation and analgesia are titrated. Consider second bolus dose prior to increasing paralytic drip rate.
- ✓ Obtain and document baseline vital signs, TOF, and neuro assessment (prior to paralytics if possible)
- ✓ Prepare for line placement (if pt. goes to CV lab they should come up with central access)
- ✓ Cardiologist will place central line/PA catheter if patient goes to the CV lab
- ✓ Call Intensivist to manage any issues or to insert lines if the patient does not come from the CV lab
- ✓ Insert oral gastric tube and check with abdominal chest xray

3. Maintenance Phase

- ****Goal is to reach the target temperature of 32-33 degrees Celsius as quickly as possible**** Once target temperature is reached we will maintain the patient at 33 degrees Celcius for 24 hours before beginning re-warming
 - ✓ Maintain core temp of 32-33 degrees Celcius with cooling device(tape esophageal temperature probe in place if necessary to avoid dislodgement and interruption of cooling) Document time on Flowsheet and in progress notes when goal temperature achieved
 - ✓ Maintain paralysis/sedation/analgesia as ordered. Assess time of paralytic bolus and consider need to re-bolus as sedation and analgesia are titrated. Consider second bolus dose prior to increasing paralytic drip rate.
 - ✓ Pharmacy will manage Heparin protocol until patient is re-warmed
 - ✓ Monitor and report abnormal vital signs, rhythm, cardiac output, etc.
 - ✓ Cardiac output to be obtained using thermodilution method. Fick method is not accurate in these patients because it assumes the patient's SVO2 is normal and due to paralytics and hypothermia it is not. Cardiac outputs will decrease and SVR increases with cooling.
 - ✓ Monitor labs, weight, I/O, QT interval, additional meds
 - ✓ Initiate VAP bundle
 - ✓ Frequently assess skin for frostbite/breakdown (minimum of every 2 hours). The device pads can be pulled back for assessment then put back in place. The pads *cannot be cut*. Consult wound/ostomy RN if needed. If patient has an IABP do not place cooling pads over the catheter. Fold the pad back against itself and leave the IABP catheter and tubing exposed
 - ✓ Pads should not be in contact with thermistors foley catheter. Wrap a towel around the catheter and avoid contact with the pads. Any wounds or open areas should not have pads adhered to patient. Fold pad inward
 - ✓ If the patient needs acute dialysis alert dialysis nurse to turn off warming system on machine
 - ✓ Follow purging procedure to purge Cooling device pads prior to transport. Bring the Cooling device with to any test/procedure lasting more than 30 minutes and re-attach to maintain cooling.

VERY IMPORTANT: 16 hours after target temperature is reached begin fluid loading as ordered to avoid marked hypotension and further brain injury upon re-warming which is caused by warming associated vasodilation

4. Re-warming Phase

- ✓ Verify fluid loading(if ordered) is complete-Goal CVP 8-12, PAWP 16-18 per orders

- ✓ Stop potassium (K) supplement 8 hours prior to re-warming, notifying physician of potassium level less than 3.5 because rewarming will cause K to move from intracellular to extra cellular spaces
- ✓ Verify patient has been at target temperature for 24 hours
- ✓ SLOWLY re-warm per orders using the Cooling device
- ✓ Program Cooling device to re-warm at a rate of 0.5 degrees Celcius which will take approximately 8 hours (note: the device will counteract by cooling if the patient's own body tries to re-warm faster than the set rate)
- ✓ Maintain sedation/ analgesia
- ✓ Consult Intensivist with issues
- ✓ Echo and EP consult as ordered

5. Post Treatment Phase

- Once re-warming to target temperature is reached, paralytics may be discontinued. Monitor temperature and maintain at 37 degrees Celcius with the Cooling device system.
 - ✓ Leave pads on and attached to Cooling device with water flowing for up to 8 hours to prevent rebound hypothermia
 - ✓ Once 8 hours is up and patient temperature remains stable press PURGE key
 - ✓ Always PURGE pads prior to disconnecting them from the Cooling device (this takes approx. 45 seconds)
 - ✓ Closely monitor the patient for reflex hyperthermia
 - ✓ Obtain orders for reduction of sedation/paralytics when appropriate
 - ✓ Neurology will see patient on day 2
 - ✓ Cooling device pads are one-time use and may be discarded when treatment complete
 - ✓ Continue to monitor for hemodynamic instability and neurological changes

E. Neurological Assessment

- A baseline neurological assessment should be performed by a physician prior to initiating cooling. This neurological assessment will direct inclusion/exclusion of the patient for induced hypothermia per protocol. Nurses should be sure to include the following in their assessment:
- Level of Consciousness
 1. Arousal-what does it take to wake the patient up?
 - ✓ No stimulation
 - ✓ Verbal stimulation
 - ✓ Light touch
 - ✓ Single painful stimulus
 - ✓ Repetitive painful stimulus
 - ✓ No response to stimulus
 2. Alertness/Orientation-what is the patient able to do once awake?
 - ✓ Open eyes or make eye contact
 - ✓ Able to follow a verbal command such as holding up 2 fingers
 - ✓ Oriented x 4
 - ✓ Carries on a conversation
 - ✓ Disoriented but able to carry on a coherent conversation
 - ✓ Disoriented and confused but has a normal speech pattern
 - ✓ Speaks in only 1-2 word sentences
 - ✓ Able to nod but not verbalize
 - ✓ Mumbles or grunts in an incomprehensible way
 - ✓ No evidence of wakefulness
 3. Ongoing alertness-what does the patient do when no longer stimulated by speech or touch?
 - ✓ Maintains alertness without stimulation
 - ✓ Initiates conversation

- ✓ Drifts off to sleep after a few minutes
- ✓ Becomes quickly unresponsive without verbal or tactile stimulation

4. Decreasing level of consciousness is the most sensitive sign of neurological deterioration and may be subtle at first:

- ✓ Restlessness
- ✓ Irritability
- ✓ Agitation
- ✓ Confusion
- ✓ Lethargy
- ✓ Unresponsiveness

○ The Glasgow Coma Scale (GCS)

This tool is used to help determine level of consciousness. Assessing a patient using the GCS can help to measure change over time as well, and can be subjective nurse to nurse. (This score is documented in Excellian).

F. How do you assess motor function in a patient who is comatose?

- Place the upper extremities in a neutral position and apply central stimuli (rub the chest area). Observe the patient for localization, withdrawal, or posturing. If the patient does not respond to central stimuli then apply peripheral stimuli to the nail beds and observe for withdrawal.

G. How do you differentiate between altered level of consciousness and sedation?

- ✓ Complete neuro exam prior to sedation for baseline assessment is recommended
- ✓ If patient is unable to verbalize pain, but appears restless/agitated, assume pain is present and treat with conservative dose of IV opiate first. Use APP with sedated and paralyzed patients during cooling and then transition to non-verbal pain scale when paralytics are discontinued
- ✓ Remember that repeated doses of narcotics and sedatives often have a cumulative sedating effect
- ✓ If the patient is on a continuous infusion of narcotic or sedative, consider reducing/stopping the dose to determine whether LOC improves as the drug clears the system (post-hypothermia treatment)
- ✓ Assess for other signs of over-sedation: hypotension, respiratory suppression (not breathing above set rate on vent)
- ✓ Consider administering a reversal agent (post hypothermia treatment) Follow sedation vacation protocol
- ✓ Sedation rarely causes restlessness or irritability and usually *suppresses* agitation. Decreasing LOC on the other hand, usually progresses from restlessness to agitation to confusion and lethargy
- ✓ Assess GCS to determine if a change has occurred

H. How do you assess other aspects of neurological function as it relates to the induced hypothermia patient?

- The MD will perform a basic neurological assessment prior to treatment, if possible, that may include the assessment of papillary reaction, corneal reflex, Doll's eye reflex, motor response to noxious stimuli and other reflexes. This may happen prior to the patient's arrival at ANW.
- How are these assessed?

1. Pupillary reaction tests CNII (optic) and CNIII (oculomotor). CNII testing is conducted by observing the reaction of the pupil to direct light and describing constriction as brisk, sluggish, or non-reactive. Consensual reaction to light can also be tested by shining a light in the opposite eye of the patient. The pupil should constrict when the opposite pupil is exposed to direct light. The normal reaction should be brisk.

2. CNIII testing includes reactivity to light as well, but looking at the pupil size, shape and equality. Pupil size should be 2-5mm in diameter, shape should be round unless post cataract surgery, and pupils should be equal.

3. Corneal reflex tests CNV and is considered a superficial reflex. It is conducted by gently and rapidly touching the patient's cornea with cotton tipped swab and watching for a reflex or blinking. It is recorded as present (normal) or absent (abnormal).

4. Doll's eyes reflex tests CNIII and is used in patients who cannot cooperate with extraocular movement testing (actively following movement through 6 cardinal fields). It is conducted by briskly rotating the head from one side to the other and observing the eyes. The eyes should move in the direction *opposite* the head movement then slowly return to midline. Absent doll's eyes (abnormal) reflex is indicated by the eyes staying fixed in the socket, or moving in a disconjugate fashion.

5. Response to noxious stimuli tests *sensory* function in those patients who are unable to verbalize their response to sensory stimuli. It is conducted by squeezing the gastrocnemius (calf muscle) or Achilles tendon and observing for withdrawal, grimacing, or other evidence that the patient is aware of painful stimuli (normal).

6. The MD may also conduct additional neurological testing to include testing of other reflexes.

I. Paralytic Agents/Neuromuscular Blockage:

- Patients being treated with induced hypothermia will be intubated and sedated prior to paralytic agents being used. Shivering, which is a normal compensatory mechanism as the body is cooled, is also a symptom that can be harmful to a patient post cardiac arrest. Shivering causes a large demand for oxygen as the skeletal muscles contract in an attempt to re-warm the body. This increased oxygen demand comes at a time when the heart cannot afford to compete for oxygen. Consequently, we will be utilizing paralytic agents (neuromuscular blocking agents) to eliminate shivering. As with other patients, when NMB agents are used we must sedate and plan for pain control as well. NMB agents work similarly.
 - ✓ Mechanism of Action: These agents compete with acetylcholine (ACH) at the cholinergic receptor sites of the skeletal muscle membrane, thereby blocking ACH transmitter action and preventing muscle membranes from depolarizing
 - ✓ Pharmacokinetics: Absorbed parenterally, distributed rapidly throughout the body but don't cross the blood-brain barrier, therefore DO NOT ALTER CONSCIOUSNESS OR PAIN PERCEPTION (hence the need for sedation and pain control). Metabolized in the liver and excreted in the urine.
 - ✓ Drug Examples: Atracurium besylate (Tacrium) and Cisatracurium besylate (Nimbex), Vecuronium
 - ✓ Contraindications: Contraindicated in patients hypersensitive to the drugs. Use cautiously in pregnant and breast-feeding women
 - ✓ Adverse reactions: Apnea, hypotension, skin reactions, bronchospasms, excessive bronchial or salivary excretions
 - ✓ Interactions: Most drugs, such as antibiotics and anesthetics that interact will have an ADDITIVE effect. Anticholinergics (neostigmine, pyridostigmine) are ANTAGONISTIC and are used as antidotes to NMBs
 - ✓ Nursing responsibilities:
 - Monitor for adverse reactions
 - Suction as needed (suppresses cough reflex and causes increased secretions)
 - Keep meds refrigerated to maintain potency
 - Monitor for level of desired effect (see below for use of peripheral nerve stimulators)
 - *Reduction of neuromuscular blockade* is evidenced by increased muscle strength, hand grip, head lift, and ability to cough

J. Peripheral Nerve Stimulator (PNS)-Adult Use

- ****See ANW Critical Care Policy #CC0096 on the AKN****

- Peripheral nerve stimulators are used to help monitor the degree of neuromuscular blockade by stimulating a nerve and measuring a response in the patient. Most peripheral nerve stimulators have 2 modes: TOF (train of four) and Tetanus. WE USE TOF FOR INDUCED HYPOTHERMIA PATIENTS. See order set for specific details. The goal will be to maintain 2 to 4 twitches using TOF to suppress shivering. Although there are no studies to support using TOF monitoring on induced hypothermia patients it is the best method we have to measure level of paralysis in these patients

<u>Train of Four</u>	<u>Percentage of NMB</u>
4 of 4 twitches	0-75%
3 of 4 twitches	75%
2 of 4 twitches	80%
1 of 4 twitches	90%
0 of 4 twitches	100%

Procedure:

- ✓ Gather equipment: peripheral nerve stimulator and 2 electrodes
- ✓ Explain procedure to patient and family
- ✓ Select a proper site (see diagrams in policy)
- ✓ Clean skin and wipe dry
- ✓ Apply patches (pediatric-do not trim regular electrodes as this can decrease conductivity) and change every 24 hours
- ✓ Set energy level to zero
- ✓ Place negative electrode (black) on motor point, distally along the nerve
- ✓ Slowly increase energy level and press and release the train of four button
- ✓ Look for the twitch of thumb toward the hand (ulnar site) OR hold patient's hand and feel for movement
- ✓ If no twitches observed, slowly increase energy level and repeat
- ✓ If still no response, decrease NMB dose and recheck in one hour
- ✓ Repeat this process decreasing the dose as needed and rechecking one hour later until patient demonstrates at least one twitch (goal with induced hypothermia is 2 to 4 twitches).
- ✓ Consult physician if TOF is less than 2 out of 4 twitches
- ✓ Once a stable energy level is found, reassess using PNS every 8 hours

Troubleshooting PNS

- Make sure skin is clean and dry
- Do not use edematous areas—will cause decreased response
- Assure battery function of device before adjusting NMB dose with a 0 of 4 twitch response
- Make sure gel is moist in patches
- Avoid alligator clips touching each other
- Assure negative (black) electrode is distal

J. Skin Assessment

- Induced hypothermia can put the patient at risk for skin breakdown. Cooling causes vasoconstriction, hypothermia treatment can reduce the patient's immune response, and the use of cooling pads directly against the skin has the potential to cause frostbite. Assess skin by peeling back the cooling device pads every 1-2 hours (The adhesion of the pads should last for 72 hours, despite assessment activities). Frostbite can have long term effects including paresthesias, sensory deficits, loss of nails, cold sensitivity, and intrinsic muscle atrophy and can lead to necrosis and sepsis.

Frostbite signs and symptoms:

- ✓ Coldness/firmness
- ✓ Stinging, burning, numbness
- ✓ Clumsiness

- ✓ Pain, throbbing, burning, or electric current-like sensations on rewarming

Degree of Injury:

- ✓ As in thermal burns, frostbite injuries may be classified by degree
- ✓ 1st degree: erythema, edema, waxy appearance, hard white plaques
- ✓ 2nd degree: erythema, edema, blister formation—blisters filled with clear liquid (form w/in 24 hours of injury)
- ✓ 3rd degree: blood-filled blisters which progress to black eschar within weeks following injury
- ✓ 4th degree: full-thickness damage affecting muscles, tendons, and bones
- *Alert MD and wound ostomy nurses if frostbite suspected*

K. Documenting in Excellian

- A. Neurological Data:
 - ✓ ICU flowsheet
 - ✓ Add peripheral nerve stimulator group to the assessment flowsheet by the keyword *train or nerve*
- B. Skin:
 - ✓ Most skin assessments can be documented on the ICU flowsheet
- C. Device:
 - ✓ Add “Induced Hypothermia Group” (#107785) on VS Flowsheet
 - ✓ Add Row for temperature device monitoring and label temperature probe type (esophageal vs bladder)
 - ✓ Document cooling device water temperature every hour
 - ✓ This group includes device, status, patient temperature, second temperature source, shivering preventative measures, and water temp
- D. Other:
 - ✓ A nursing note should be written at the onset of treatment including starting time, core temperature, baseline neurological data, nursing plan and when goal temperature is achieved
 - ✓ A nursing note should also be written when beginning the re-warming procedure (include fluid loading prior to re-warming) and at completion of treatment as well, in addition to usual charting practices

L. Use of Medivance Cooling Device:

- Obtaining equipment: ANW has 4 Cooling Devices: 2 in the H4200 clean utility room, 1 in the ED, and 1 in CV Lab Room 9. The devices have been set up to include the necessary sterile or distilled water and should not need any water unless purging did not take place prior to disconnect in the previous use. Please check to ensure water level is sufficient (see device manual on pump). Please see the measuring chart located on the device for the proper *size and number* of pads needed for your patient. Our goal is to make sure the pads cover 40% of the body surface area (BSA) to ensure best cooling obtained.
- Connecting pads: Once the pads are placed, put the connectors from the patient lines into the manifold block. Make sure that the white side is aligned to the white tape and the blue side to the blue tape. The connectors should fit easily and without effort. Avoid cutting or puncturing the pads. They can be folded back on themselves to avoid contact with non-intact skin or wounds.
- Temperature probe: Place bladder catheter with thermistor or esophageal probe in patient and connect to Cooling device temperature adapter probe. Then place the adapter probe into Patient temperature #1 port located on the back of the machine.
- Cooling Procedure: ****SEE ORDERS****
- Turn the device on (back of machine). During a self-check the message screen will display the water level. If low, refill per troubleshooting section in the device guide on the machine.
- Verify settings per orders. Press the DOWN arrow to Patient Target Temperature 33 degrees Celsius. If the Target Temperature is incorrect, follow directions on the screen to change the target. Press ENTER to confirm.
- Return to HOME SCREEN once individual parameters are set.

- Next press the AUTOMATIC key. The automatic mode controls the patient temperature by controlling the water temperature in response to actual patient temperature and a preset target temperature. *****DO NOT USE OVERRIDE***** The temperature probe must be attached to the Cooling device for the automatic mode to work.
- After one minute, flow will be shown in the lower right corner of the display screen.
- Verify that the water flow is at least 2.3 LPM (for 4 pads). If it is not, check the connections and lines and refer to the troubleshooting guide on the device.
- Troubleshooting Device:
- Rewarming:
 - ✓ Verify that 24 hours at target temperature are complete and any volume loading ordered has occurred.
 - Press STOP key
 - Press the DOWN arrow to Patient Target Temperature
 - Press ENTER to change
 - Once the number flashes, press the UP arrow to reach the desired temperature
 - Press ENTER to save
 - Press the DOWN arrow key to Warm Max Automatic Mode
 - Press ENTER to change
 - Press the DOWN arrow until rate of re-warming is achieved (see orders). Check that the corresponding hours to reach the Time of Target displayed on the screen is accurate
 - Press ENTER to save
 - Press HOME
 - Press AUTOMATIC mode
 - Check to ensure that the Patient Target Temperature displayed on the screen is correct
 - ****Once the system is turned off the settings will be lost****
- Discontinuing Hypothermia Treatment:
 - ✓ Discontinue paralytic when patient temperature reaches 37 degrees celcius per orders. Consult physician to wean drips off
 - ✓ Leave pads on and attached to Cooling device with water flowing for up to 8 hours to prevent rebound hypothermia/hyperthermia
 - ✓ Once 8 hours is up and patient temperature remains stable press PURGE key
 - ✓ Purge function will automatically stop when pads are emptied
 - ✓ To disconnect pads from the manifold, press side clips together while pushing the plastic connector into the manifold block. Pull and remove. Discard pads.
 - ✓ Turn power OFF then remove plug from electrical outlet

M. Resources:

- Device resources:
 - ✓ Each unit will have a resource manual for induced hypothermia treatment. See the charge nurse if unsure where to obtain the resource manual.
 - ✓ Each device will have permanently secured to the device a chart for measuring and selecting pads as well as a Quick Reference guide which contains troubleshooting tips and basic device functions
 - ✓ Medivance (Device manufacturer) can also be reached 24 hours per day 7 days per week. See the card printed on the device for phone numbers (or via internet: www.medivance.com)
 - ✓ Cardiologists, Intensivists, and ED are the three main managing physician groups
 - ✓ In-house nursing super user group exists including H4200 representatives. These representatives can bring questions/concerns back to the physician representatives.

Self-Learning Verification Form:
Induced Hypothermia Post Cardiac Arrest

****Signing below indicates that you have read this self-learning packet.****

Print Name: _____

Signature: _____

Department: _____

Employee Number: _____

Date Completed: _____

Once you have completed this packet please turn this verification form in to your unit educator.