

Why Upgrade to CritiCool®?

- **CritiCool was designed for targeted temperature management**
 - CritiCool is a targeted temperature management system designed to maintain patient body temperature as determined by the physician. The system consists of a heat pump that supplies water through a closed-loop system to the flexible CureWrap™ disposable patient garment. CureWrap garments wrap around the patient, rather than lying flat under the patient or adhering directly to the patient. Core and surface sensors measure temperature every 133 milliseconds, and a built-in algorithm adjusts settings as needed to enable precise and automatic maintenance of body temperature.
- **CritiCool has been well documented for use with infants**
 - In a study comparing selective head cooling and whole body cooling using a mat and whole body cooling using a wrap, CritiCool was the only group where target rectal temperatures (Trec) did not fall below target temperature range.ⁱ The same study found that CritiCool minimizes overshoot during the initiation of cooling and reduces fluctuation in Trec during the maintenance period of cooling when compared with the two other treatment modalities.ⁱⁱ
 - The use of therapeutic hypothermia was considered successful in a study of 332 patients in the Netherlands and Flanders where CritiCool was used.ⁱⁱⁱ
 - CritiCool was used to cool infants safely within three hours of birth in a landmark study from 2013 that determined that cooling should be initiated as soon as possible after birth in eligible infants.^{iv}
- **CritiCool has been well documented for use with adults**
 - Cardiac arrest occurs in roughly 375,000 people in Europe each year, about 30,000 of whom would meet the inclusion criteria referenced in a study on therapeutic hypothermia.^v A study noted a 95% confidence level that an unfavorable neurological outcome could be prevented in 1,200-7,500 of these patients.^{vi}
 - The introduction of CritiCool was correlated with an improvement in cerebral performance category (CPC) as well as an improvement in the speed of cooling and target temperature maintenance when compared with ice packs and cooling pads.^{vii}
 - A study with CritiCool that evaluated surface versus more invasive endovascular cooling techniques after cardiac arrest found no difference in outcome between the two groups in ICU mortality, hospital mortality or neurological outcome^{viii}.
 - Surface systems such as CritiCool are known to offer such advantages as ease of application, rapid initiation of treatment and auto-feedback mechanisms.^{ix}

- **CritiCool takes the work out of rewarming**
 - Many cooling solutions require manual rewarming, where the caretaker must manually increase temperature to gradually rewarm. With CritiCool, the physician sets the desired rate of gradual rewarming, and the CritiCool automatically adjusts the targeted set temperature.
 - CritiCool monitors temperature constantly throughout rewarming as well, and therefore adjusts if the patient starts to rewarm too quickly or slowly.

- **CritiCool offers versatility**
 - CureWrap is a single use, one-piece flexible garment that works in conjunction with the CritiCool control unit. The CureWrap can be used on one patient for up to five days.
 - Eight CureWrap configurations accommodate the patient's anatomy, with two sizes for infants, eight for pediatric patients and one size for adults.

- **CritiCool simplifies maintaining temperature**
 - Targeted temperature management is as simple as four steps with CritiCool:
 - 1) Set the desired temperature set point (once a default has been set, this step will not be required)
 - 2) Apply the CureWrap garment to the patient
 - 3) Initiate fast cooling
 - 4) Begin controlled rewarming

- **CritiCool facilitates monitoring your patient**
 - CritiCool offers real-time monitoring and graphical display of temperature measurements, as both the target temperature and the patient's actual core and surface temperatures are displayed clearly on the screen.
 - When it is time to rewarm, controlling rewarming, once initiated, occurs in a step-wise fashion, at a rate pre-set by the clinician. There is no need to manually adjust water temperature as with other systems.
 - At any point during the treatment, the CureWrap garment can be opened to allow for access or to monitor the patient's skin, and then reattached for continuation of the treatment.
 - The control unit offers a large 5.7" color touch screen for easy viewing, as well as a way to mirror patient temperatures onto bedside monitors for simpler monitoring via the Temperature Splitter.

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- **CritiCool was developed with the patient in mind**
 - The CureWrap garment is made of soft material and is secured via pressure sensitive adhesive strips which adhere to the garment, and not the patient.
 - Channels within the CureWrap distribute sterile water in a closed-loop system. A built-in pressure-relieving algorithm lets the water drain from the wrap every 12 minutes before flowing back into the wrap, naturally repositioning the patient slightly each time.

- **CritiCool allows for subsequent analysis of procedure data**
 - When a CliniLogger™ is connected to CritiCool, time and patient temperatures are recorded and can be later externally viewed and analyzed by the clinician.

ⁱ Nicholas Hoque, Ela Chakkarapani, Xun Liu, and Marianne Thoresen. "A Comparison of Cooling Methods Used in Therapeutic Hypothermia for Perinatal Asphyxia." *Pediatrics*. 2010, 0031-4005.

ⁱⁱ Nicholas Hoque, Ela Chakkarapani, Xun Liu, and Marianne Thoresen. "A Comparison of Cooling Methods Used in Therapeutic Hypothermia for Perinatal Asphyxia." *Pediatrics*. 2010, 0031-4005.

ⁱⁱⁱ Floris Groenendaal et al. "Introduction of Hypothermia for Neonates with Perinatal Asphyxia in the Netherlands and Flanders" *Neonatology*. 2013;104: 15-21.

^{iv} Thoresen, Marianne et al. "Time Is Brain: Starting Therapeutic Hypothermia within Three Hours after Birth Improves Motor Outcome in Asphyxiated Newborns." *Neonatology*. 2013;104:228-233.

^v M. Holzer et al. "Mild Therapeutic Hypothermia to Improve The Neurologic Outcome After Cardiac Arrest." *The New England Journal of Medicine*. February 21, 2012. Vol. 346, Number 8: 549-556.

^{vi} M. Holzer et al. "Mild Therapeutic Hypothermia to Improve The Neurologic Outcome After Cardiac Arrest." *The New England Journal of Medicine*. February 21, 2012. Vol. 346, Number 8: 549-556.

^{vii} McGrath, J, K Williams, D Howell and J Down. "Introduction of an external noninvasive cooling device for effective implementation of Intensive Care Society standards post cardiac arrest." *Critical Care* 2009, 13 (Suppl 1): P74.

^{viii} Gillies M, Pratt R, Whiteley C, et al. Therapeutic hypothermia after cardiac arrest: a retrospective comparison of surface and endovascular cooling techniques. *Resuscitation*. 2010;81:1117-22.

^{ix} Charudatt Vaity, Nawaf Al-Subaie and Maurizio Cecconi. "Cooling techniques for targeted temperature management post-cardiac arrest." *Critical Care*. 2015. 19:103.