

KDMC First in Region to Offer ThermoSuit to Assist Cardiac Arrest Patients

King's Daughters Medical Center has a groundbreaking new medical device to increase the survival rate of cardiac arrest patients. The ThermoSuit® System rapidly cools the body temperature to limit damage to the brain and tissues after a cardiac arrest. Studies have shown that rapidly cooling a patient prior to angioplasty and stenting, and sustaining the cool temperature for 12 to 24 hours can significantly improve cardiac and brain recovery. King's Daughters is the first and only hospital in the region to offer this technology.

ThermoSuit is the first medical system cleared by the Food and Drug Administration to rapidly and non-invasively change body temperature. The suit looks like a plastic raft that inflates tightly around a patient, with ice water pumped from a mobile computerized control unit. Water pours onto and under the body, in direct contact with the skin, and is recycled back into the unit for re-chilling. The control unit also monitors the patient's temperature through the use of a temperature probe. Core body temperature falls to the desired range of 90 degrees Fahrenheit or 33 degrees Celsius in 10 to 30 minutes.



"The quicker you get the patient to the target temperature, the quicker you stop brain damage," says Intensive Care physician and pulmonologist **Bjorn Thorarinsson, M.D.** He said other external cooling methods, such as ice packs and cooling blankets and pads, take hours to drop the body temperature. "In the course of three to five hours that it takes these other methods to cool the body, thousands of brain cells and neurons are lost, making a significant recovery to a normal life unlikely." He said invasive cooling methods, such as cold saline or endovascular cooling catheters, have more potential for complications.

"The ThermoSuit system is portable, non-invasive, and can be used throughout the medical center – on cardiac arrest patients who come to the Emergency Department, as well as patients who may go into arrest during surgery or while in the ICU or another nursing unit," said cardiologist **Chris Epling, D.O.** He said key clinical staff at King's Daughters have been trained and drilled in using the ThermoSuit, and it will be utilized on appropriate patients who would likely benefit from emergency hypothermia therapy.

King's Daughters is an early adopter to what is likely to become standard of care for cardiac arrest patients as a result of recommendations by the Kentucky Heart Institute (KHI). Cardiologist **Robert Touchon, M.D.**, KHI medical director, is a friend of Dr. Robert Freedman, the cardiologist who invented the ThermoSuit. Dr. Touchon had monitored progress on the system with great interest, and made arrangements for Dr. Freedman to give a presentation last fall at the King's Daughters Heart and Vascular Conference, and met with King's Daughters administrators and physicians to advocate for getting the ThermoSuit.

According to the suit's maker, Life-Recovery Systems HD, LLC, of Waldwick, N.J., only about 20 percent of all hospitals currently use cooling methods for their cardiac arrest patients. Life-Recovery Systems confirmed that King's Daughters will be the first to use their system in Kentucky. Prior to using the ThermoSuit, a hospital must have hypothermia guidelines and training already in place.

Cardiac arrest is a condition where the heartbeat abruptly stops, and is totally different from a heart attack, which is caused by blocked blood flow inside the coronary arteries. Sudden cardiac arrest typically is caused by an abnormal heart rhythm resulting from irregular electrical signals in the heart. According to the American Heart Association, brain death and permanent death start to occur in just four to six minutes after someone experiences cardiac arrest. About 95 percent of people do not survive a cardiac arrest, and most die within minutes. Patients who do survive usually sustain serious injury to the brain; about 60 percent of cardiac arrest survivors regain consciousness, but one-third will have irreversible cognitive disabilities.