

CONTACT PERSON: Robin Jennings

Director, Communications

Excelsa Health

724-837-1781 TEL

724-515-4483 CELL

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ELECTRONIC PHOTO (rjennings@excelsahealth.org)

CONTINUUM OF CARE: Lifesaving heart care begins in the field with 12-lead EKG technology on board Mutual Aid Ambulance Service made possible by Excelsa Health, and hypothermia protocols that minimize brain damage. The care team includes Jeff Siegel, RN, Westmoreland Hospital Emergency Department nurse manager; Lori White, RN, BSN, CCRN, clinical education specialist, Westmoreland ICU/CCU; Heather Walker, MD, medical director of EMS services for Excelsa Health, holding hypothermia saline solution cooling bag; Jim Lenhart, regional director, Mutual Aid, holding EKG transmission system; Rob Vesco, paramedic and Mutual Aid supervisor, and Leslie Boltey, director, cardiovascular services, Excelsa Health.

COOLING TREATMENT SAVES LIVES IN THE FIELD AND THE HOSPITAL

GREENSBURG, PA, July 2, 2010 ... Thanks to the use of medically-induced hypothermia after cardiac arrest, the Askey family of Scottdale celebrated another happy Father's Day with their dad.

"The principle of hypothermia is simple: when the heart stops, oxygen is cut off from the brain, causing irreparable damage; but at a lower body temperature, the brain needs less oxygen," explained emergency medicine physician Heather Walker, MD, who is the EMS Medical Director for Excelsa Health.

Hypothermia, while most often employed in the hospital emergency department, also can begin in a cardiac catheterization lab, on a critical care or intensive care unit or even in the community by emergency medical services first responders. For John Askey, therapeutic hypothermia began in the cardiac cath lab at Westmoreland Hospital.

It was a typical day for the Askeys. John, 52, and wife Barb, were shopping at Walmart in Mount Pleasant for a Saint Patrick's Day flag, when John Askey grabbed

onto the cart and told his wife he needed to take a break. Then he decided he needed to sit down. Unbeknown to the couple, he was in the throes of a cardiac arrest.

“My husband has diabetes and some vascular issues in his legs. He wasn’t grasping at his chest or anything that would suggest a heart attack,” recalled Barb Askey. “But then he fell. A shopper called 9-1-1 and a call was placed overhead requesting help from anyone who knew CPR. Thankfully, an off-duty firefighter came to assist. It all happened so fast and I am eternally grateful to this man, whose name I never got. He was ‘our angel.’”

The firefighter and Barb Askey, who is also a nurse, performed CPR until paramedics arrived. John Askey required immediate defibrillation before being transported to nearby Frick Hospital where an emergency department physician confirmed a heart attack diagnosis. Emergency personnel transported John Askey to The Center for Cardiovascular Medicine at Westmoreland Hospital for an immediate catheterization to open a blocked artery in his heart.

During the procedure, interventional cardiologist George Bou Samra, MD, began the hypothermic process by inserting a catheter into the femoral vein in John Askey’s groin and used cooling saline solution to reduce his body temperature to about 90 degrees F.

“Significant research has been conducted by Johns Hopkins in the use of hypothermia after a cardiac arrest and has proven that regardless of the patient’s age, the treatment preserves brain function,” noted Dr. Bou Samra. “There is no doubt that the use of the hypothermia protocol conserved brain function for John Askey. His outcome was favorable and it definitely preserved his independence and quality of life.”

Statistics show that more than 90 percent of people who suffer cardiac arrest die before they reach the hospital. But for more than a decade, there has been evidence that cooling a patient’s body improves those odds.

According to Dr. Walker, standard protocol for use of hypothermia is when a cardiac arrest lasts less than 30 minutes and is secondary to ventricular fibrillation or quivering of the heart just as in John Askey’s case. The patient must be in an unresponsive state or induced into a coma, before receiving hypothermic treatment for 12 to 24 hours.

“Even a small change in temperature makes a big difference,” said Dr. Walker. “A decrease as small as 0.5 degrees Celsius can minimize injury and neurologic loss. Results of clinical trials show that induced hypothermia to a core temperature of 32 degrees C to 34 degree C for 12 to 24 hours may be beneficial in reducing neurological outcomes.”

Faster treatment means better outcomes. In an effort to maintain advanced cardiac care in the community, many EMS providers are trained and equipped to initiate hypothermia therapy in the field including Excelsa's EMS crews at Frick (Medic 930) and Jeannette (Medic 900). As well, Mutual Aid Ambulance Service, Jeannette, Penn Township, North Huntingdon, Rostraver/West Newton, Sewickley Township and Trafford EMS all carry saline cooling kits.

Paramedic Rob Vesco, Mutual Aid supervisor, commented, “We're happy to have this capability and are working with local health care facilities on protocol. This is just one more way we can work together in the best interest of the patient, getting the treatment where and when it's needed it to preserve brain function.”