



Saving Bill Smith

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Unconventional treatment was behind a Williamsburg man's miraculous recovery after experiencing sudden cardiac arrest last September.

In extreme cases of hypothermia, exposure to cold air or water causes one's core body temperature to rapidly drop. In a struggle to produce enough heat, the body starts to shiver and will eventually reduce blood supply to extremities. As hypothermia progresses, the heart and lungs will eventually fail, leading to certain death. But for Williamsburg resident Bill Smith, it was hypothermia—a mild type, induced under medical supervision—that helped save his life.

It was late afternoon on Sept. 12, 2008, and Smith, age 64, had just finished his workout at the R. F. Wilkinson Family YMCA, where he'd been a regular patron—hitting the cardio and weight floors five days a week—for at least a year.

But that's all Smith would remember of that day, or of the two and a half weeks that followed. To some, Smith's story may seem like a random stroke of misfortune; but according to YMCA Branch Executive Clare Lorio, who was preparing to leave for the day when she heard Smith had collapsed outside, his "was a case when all the stars fell into place when they needed to."

As eyewitnesses later reported, Smith had almost reached his pickup truck in the parking lot when he hit the ground. Luckily, Smith hadn't left the YMCA alone; a former wellness associate at the Y, who had emergency response training, had followed Smith out of the building and quickly called 911 when he saw him go down. That former employee, along with a few passersby who had caught wind of the situation (including a doctor who'd just brought her son to the rehabilitation center next door), came to Smith's aid and immediately began administering CPR. Smith showed telltale signs of sudden cardiac arrest—unconscious, no breath, no pulse. Often called sudden cardiac death (due to low survival rates), it's a condition sparked by a chaotic heart rhythm called ventricular fibrillation. According to the American Heart Association, intense exercise can trigger its onset.

YMCA staff on duty rushed to Smith's aid with a life-saving AED (short for automatic external defibrillator) machine, which they used to shock his chest one time before the ambulance arrived. Fortunately it didn't have far to go; Sentara Williamsburg Regional Medical Center (SWRMC) is located within 1,000 feet of the YMCA. After taking one look at Smith, emergency physician Dr. David Cash quickly placed a call to Virginia Commonwealth University Medical Center in Richmond. He and experts there would have to agree on one question: Was Smith a candidate for "the program?"

That summer SWRMC had become a satellite center for the ARCTIC (Advanced Resuscitation Cooling Therapeutic and Intensive Care) program within VCU Medical Center's cardiology department. For the past six years, the ARCTIC program has treated victims of sudden cardiac arrest using controlled hypothermia to slow their body functions in hopes of preserving neurological function. While a large percentage of

cardiac arrest victims die before ever reaching a hospital, those who do survive risk severe neurological impairment or death when oxygen re-enters the body too quickly, a process called reperfusion. According to VCU Medical Center cardiologist Dr. Mimi Peberdy, director of the ARCTIC program, therapeutic hypothermia slows reperfusion and, therefore, minimizes damage to the patient's brain and heart.

When Smith's wife and son arrived at Williamsburg Regional, Cash recommended they allow Smith to be transferred to Richmond. After some initial hesitation, they consented. Cash and his team then began rapidly cooling Smith's body by delivering cold saline through a leg vein, applying ice packs to his head, and blowing fans on his body. Sentara's Nightingale Regional Air Ambulance, which just happened to be nearby, arrived within minutes. Smith was the first patient from Williamsburg to be treated through the ARCTIC partnership.

When the helicopter landed in Richmond, VCU medical staff tended to Smith's failing organs and 11 broken ribs (the result of the intense CPR). His body temperature was already close to the desired temperature of 32 to 34 degrees Celsius (89.6 to 93.2 degrees Fahrenheit), at which he needed to stay for 24 hours. To see benefit from hypothermia, says Peberdy, the patient must reach this target temperature within eight hours of cardiac arrest. After the cooling period is complete the patient is slowly warmed to a normal body temperature of 98.6 degrees Fahrenheit.

Smith says that when he finally regained consciousness—two and a half weeks later—he “didn't know where I was or why I was there.” Interventional cardiologists then performed tests to see how well his heart's blood vessels were working. A major artery was clogged with fatty deposits—evidence of coronary artery disease, of which, unfortunately, according to Cash, sudden cardiac death is “often the first presenting symptom.” In other words, patients who appear healthy on the outside, even those given a clean bill of health, can silently harbor heart disease. On Oct. 3, Smith had triple cardiac bypass surgery to restore proper blood flow to his heart.

The month of recovery that followed involved physical therapy to counter the loss of muscle Smith had experienced while in a hospital bed. But his therapists soon realized that his physical condition before the event had put him ahead of most patients they worked with. Expected to be on a respirator for at least 10 weeks, Smith says he was off in two.

In early November, Smith returned to the YMCA for the first time since collapsing in the parking lot. Today he is back to his previous exercise schedule and has returned to work as a neighborhood security guard. In his opinion, he's “100-percent.”

YMCA Branch Executive Clare Lorio admits the prospect of Smith's return to the Y “put a nervous jitter in my stomach.”

Smith was nervous, too. “The first day it was hard,” he says. “But it's like riding a bike. You fall off, and you get back on. After all, what could be worse than what I'd already been through? I was dead, and they brought me back.”