

LUCAS™ CHEST COMPRESSION SYSTEM

CASE STUDY

Hampton Bays Team Saved a Life with LIFEPAK® Defibrillators and LUCAS Chest Compression System

Hampton Bays Volunteer Ambulance, an emergency medical services (EMS) provider on the east end of Long Island, New York, has long been a leader in implementing new emergency medical technologies and treatments for the benefit of area residents and visitors. With paramedics on staff and a corps of volunteer emergency medical technicians (EMTs) and drivers, they work closely with lifeguards and hospital personnel in serving the community. The service is the eastern part of the island's only EMS service to include all of the following in their treatment protocols: 12-lead ECG transmissions, continuous positive airway pressure (CPAP), controlled substances given according to prescribed protocols, and external chest compressions with the LUCAS Chest Compression System.

In the summer of 2009, Hampton Bays had its first save using the LUCAS Chest Compression System. An active woman in her 50s, with no prior history of heart disease, suddenly collapsed on the beach in cardiac arrest. Local lifeguards first received the call, and had the foresight to grab the LIFEPAK 500 automated external defibrillator (AED) before rushing to her side about one-fourth mile away. They initiated CPR and provided a defibrillation shock before EMS arrived.

Paramedics Chris Tremblay and Ralph Oswald, who was off duty but happened to be in the office, received the dispatch call at the local EMS. "We were over three miles away," Ralph said. "We had to take Dune Road to an isolated area, and it took about five minutes for us to get to the scene. It was hot and humid, 90 to 100 degrees, with bright sun and a narrow boardwalk path to reach her. It only took a few seconds to put the LUCAS device on."

When the paramedics applied the LIFEPAK 12 defibrillator/monitor the patient was in pulseless electrical activity (PEA). Once applied and turned on, the LUCAS Chest Compression System provided external chest compressions for about five minutes before return of spontaneous circulation (ROSC). On the way to the hospital, the paramedics provided ventilation and treatment for metabolic acidosis and seizures.

ECG strips from the LIFEPAK 500 AED showed the patient had experienced ventricular fibrillation before receiving the shock with the LIFEPAK 500 AED, then going into PEA. Clinicians later determined the patient's cardiac arrest was brought on by hypoxia caused by a pulmonary embolus. The patient was treated in the hospital's intensive care unit and discharged neurologically intact, with only short-term memory loss of the day the event occurred.

Tremblay said, "LUCAS does much better compressions than a human being. It is much easier to run a code by myself if needed, and I can sit, wearing a seatbelt, at the same time. The perfusion is so good with LUCAS you can often get a radial pulse when it is on." Tremblay believes the LUCAS device re-established circulation that was prevented by the pulmonary embolus, thus contributing to saving the patient's life, because the patient's color dramatically improved the minute LUCAS was applied and turned on.

"Had we needed to do manual chest compressions in that environment, in the sand dunes, at those extreme temperatures, it would not have been pretty..." Oswald said. "In this situation, everyone pulled together for a neighbor, friend and one of the family, for a great outcome."



Christopher Tremblay (left) and Ralph Oswald, paramedics, pose together on Ponquogue Beach near the Town of Southampton, a popular vacation destination where this save story took place.

Southampton is one of ten towns located about 80 miles from New York City, in East Suffolk County. The area encompasses 140.2 square miles, and nearly 55,210 people in and around seven incorporated villages. Due to part-time residents and tourists, the summer population can swell to two or more times that number, making summers more than busy for Hampton Bays Volunteer Ambulance.

LUCAS is manufactured by JOLIFE AB in Sweden and distributed worldwide by Physio-Control, Inc.

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