

## Automated External Defibrillator and Revivant AutoPulse Programs



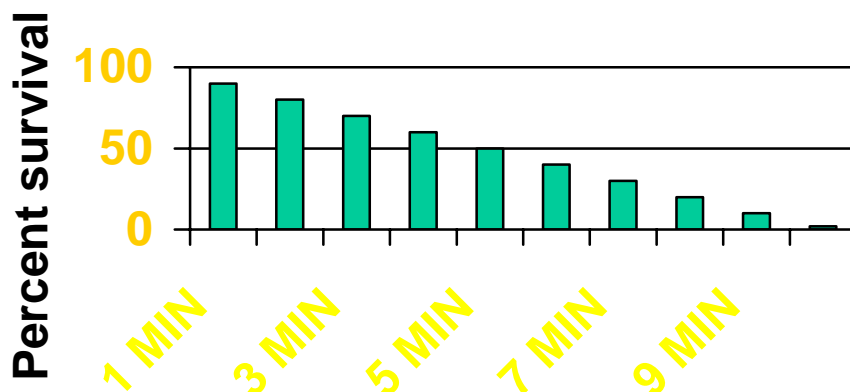
Each year more than 250,000 persons die from sudden cardiac arrest. Most die out of the hospital setting, usually at home, work or other settings such as fitness centers, stadiums and even church. Of these persons suffering sudden cardiac arrest only 5% will survive the event.

In a retrospective study conducted in Volusia County in 2002, there were 418 cardiac arrests with only 11 surviving. This is an alarming survival rate of less than 3%. In more than 90% of these patients the initial presenting rhythm was Ventricular Fibrillation or V-Fib. V-Fib is an uncoordinated contraction of the heart, resulting from a misfire of the heart's pacemaker, usually from a sudden blockage due to plaque and fatty deposits. Think of a quivering bowl of Gelatin or a plastic bag full of worms wiggling and you can imagine what V-Fib in the heart looks like. The most effective treatment for V-Fib is electrical defibrillation. Normally delivered by a paramedic in the pre-hospital setting, defibrillation is a true lifesaver in patients experiencing Ventricular Fibrillation.

Other cardiac arrest patients present in various rhythms where essentially there is no electrical activity present including Asystole, Electrical-Mechanical dissociation and severe bradycardic rhythms. These arrests usually result from drowning, poisoning, overdose, choking or patients that were initially in V-Fib but were not discovered immediately.

In order to increase the survival of patients suffering from sudden cardiac arrest, the Deltona Fire and Rescue Department has implemented two programs to increase survival from these deadly events. Both programs, combined with Advanced Life Support provided by the department increase the survival for patient suffering sudden cardiac arrest.

Since the most prevalent cardiac dysrhythmia is V-Fib early defibrillation is the key. The American Heart Association, through independent research has found that the chances of survival decreases with each minute that electrical defibrillation is delayed.



Since the normal Emergency Medical Services response is 4 – 6 minutes, at best, survival from a sudden cardiac arrest would be between 60 and 70 percent. In order to increase chances of survival, the Deltona Fire and Rescue Department and the Volusia County EMS Providers' group have teamed up to place Automated External Defibrillators (AED) out in the public. What is an AED you ask? An AED is a fully automatic device that interprets a person's cardiac rhythm and if appropriate, delivers a lifesaving jolt of electricity to an

otherwise dying heart. The device is simple to use and through voice prompts, and in some models pictures, instructs the user on how to use the device. In a study conducted in Seattle, WA, fire department paramedics were able to successfully instruct 6<sup>th</sup> graders on how to use an AED and deliver basic CPR in 20 minutes!

Through grants provided by the State of Florida, 7 AEDs have been placed throughout the city to decrease the time to defibrillation and increase the survival of sudden cardiac arrest. In late 2004 / early 2005 11 additional AEDs will be placed in other areas identified where either large groups congregate or special risk populations frequent.

Current locations of community-based AEDs include:

- Deltona City Hall 1<sup>st</sup> Floor Lobby
- Deltona Regional Library – Reference Desk
- Deltona YMCA – Lobby near the pool
- Deltona Community Center – Main Lobby
- Volusia County Sheriff's Substation – Prisoner area
- Deltona High School – Health Clinic
- Pine Ridge High School – Gymnasium

There are also additional AEDs at Pine Ridge High School, Daytona Beach Community College's Deltona campus and Deltona Fire Department station 61.

Newly identified locations include:

- Deltona City Hall – 2<sup>nd</sup> floor
- Wes Crile Gymnasium
- Deltona Skateboard Park
- Dewey O. Boster Sports Complex
- Harris B. Saxon Park Community Center (future development)
- Deltona Middle School
- Galaxy Middle School
- Heritage Middle School
- Deltona Public Works facility
- Pine Ridge High School (2<sup>nd</sup> unit due to the expanse of the campus)
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It is recommended those locations where large numbers of people frequent (i.e. churches, meeting halls, golf courses and clubs) or where high-risk populations gather (i.e. gymnasiums, fitness centers and community pools) have an AED and a staff trained in AED use and CPR available to decrease the chances of death resulting from sudden cardiac arrest.



Our second program implemented to increase the survival of sudden cardiac arrest is the Revivant Auto Pulse automatic CPR platform. The AutoPulse is a self-contained, battery operated automatic CPR device that has shown to deliver CPR up to 200 times more effectively than a human being and provides a Return of Spontaneous Circulation (ROSC) in patients that normally do not survive cardiac arrest.

The AutoPulse was obtained through a matching grant from the Florida Department of Health, Bureau of EMS. Each licensed Advanced Life Support unit in the City and select supervisory vehicles are equipped with an AutoPulse device. Designed for adult patients, the unit is deployed during any cardiac arrest not resulting from traumatic causes.

For more information on either of these programs, please contact the EMS Division at (386) 860-7177.