SAINT PAUL FIRE DEPARTMENT
Timothy M. Butler, Fire Chief

CITY OF SAINT PAUL
Christopher B. Coleman, Mayor

645 Randolph Avenue
Saint Paul, MN 55102

Telephone: 651-224-7811
Facsimile: 651-228-6255

June 4, 2012

MN Resuscitation Consortium
University of Minnesota
420 Delaware Street SE, NMC 508
Minneapolis, MN 55455

Grant Review Committee:

On behalf of the City of Saint Paul and the Saint Paul Fire Department, please accept our grant request for fiscal year 2012 for the purchase of LUCAS Devices. Saint Paul Fire has always prided itself in providing state of the art care of cardiac arrest patients. In 1992, it was the first agency in the United States to perform active compression/decompression CPR on human beings in the field. It was Site #1 in the recently published ResQ Trial which established the superiority of active compression/ decompression CPR (with the impedance threshold device) over standard CPR.

Saint Paul Fire is dedicated to participating in the CARES data collection system and to contribute to MRC committees and teams in order to support the Heart Rescue concept. If awarded, the money will be used as part of a matching grant which we have been offered by the United Hospital Foundation and will positively impact the citizens and visitors to the City of Saint Paul.

Thank you for taking the time to review our request and for considering our grant proposal.

Respectfully submitted

Timothy Butler

Fire Chief, City of Saint Paul
Saint Paul Fire Department

R.J. Frascone

City of Saint Paul
Medical Director

Minnesota Resuscitation Consortium
EMS Program Grant

Project Description:

Background:

The City of Saint Paul, Minnesota's State Capitol, is home to the Saint Paul Fire Department, which operates 15 stations and has a total staff of 424 firefighters all of whom are Emergency Medical Technicians or Paramedics. The Department provides fire, rescue, and emergency medical services to a resident population of approximately 285,000 people with a day time population of over 385,000. Critical infrastructure is protected including hospitals, government buildings, malls, schools, and major industry. Saint Paul has a significant number of residents over the age of 65 and the Saint Paul Fire Department responded to over 214 cardiac arrests in 2011.

Problem to be addressed:

The Saint Paul Fire Department provides a wide variety of emergency medical services that encompass many elements of public health and safety. These services include first response, dispatch, basic and advanced prehospital medicine and a full spectrum of fire suppression services. The Department has spent many years dedicating itself to increasing cardiac arrest survivability. Through training, education and equipment purchases we have constantly striven to improve our cardiac arrest survivability. Saint Paul has some of the highest cardiac arrest survival rates in the country, but we believe survivability will increase with LUCAS.

The LUCAS (Jolife, Lund Sweden) is a light, battery operated, computerized device which performs automated active compression/decompression CPR. It has been shown in multiple human and animal trials that this device, especially when combined with the impedance threshold device (ITD, ResQ Pod, ACSI, Roseville, MN), markedly improves both coronary and cerebral circulation while, at the same time, decreasing intracerebral pressure. This translates to increased overall survival rates with favorable neurologic outcomes.

There are many other advantages to LUCAS; I would like to enumerate some of them here:

1. It is impossible for EMS to safely transfer a patient in cardiac arrest undergoing standard CPR. If one attempts to do that, one risks injury to the provider or to the patient. It is not possible to stabilize the individual doing two handed compressions in the back of an ambulance. There have been several cases of serious injury to firefighters in Saint Paul which were the result of attempting to do standard CPR in the back of a moving ambulance. Unfortunately, one handed CPR has been shown to be ineffective. Performing this technique harms the patient. With LUCAS, the patient can now be transferred to the hospital in full arrest without endangering either the provider or the patient.

2. Recent literature confirms that CPR should occur with as few interruptions as possible. The data is now clear that interruptions in CPR should be avoided at nearly all costs. LUCAS CPR is continuous during all of the procedures that rescue personnel have to do for patients in full arrest including, airway management, IV/IO line placement, drug administration, loading, and transferring the patient; including the transfer of the patient down stairs and through hallways.

3. The patient can even be defibrillated while CPR is ongoing. During manual CPR, compressions are interrupted while the patient is undergoing defibrillation.

4. There is less chance of CPR related personnel injury because the use of manual CPR is very brief.

5. There is much improved access to the patient.

6. The devices are light, electric and computerized. The compression depth is accurate and the machines never get tired.

7. LUCAS will allow the Saint Paul Fire Department to participate in very important future research which may include projects such as transporting patients who are in cardiac arrest directly to the Cath lab, and the use of new and innovative drug regimens and CPR protocols which require the use of automated ACD CPR.

LUCAS has become the standard of care for pre-hospital cardiac arrest management. Even though Saint Paul Fire was the pioneer service in developing ACD CPR, it is the only major metro EMS provider without LUCAS. Allina, HealthEast, HCMC, and North Memorial have already made the transition. Saint Paul Fire has been unable to secure adequate funding via our general fund budget, federal firefighter grants, and regional grant efforts with smaller EMS agencies.

Budget:

In order to make sure that patients receive LUCAS as soon as possible, the Saint Paul Fire Department needs to place a LUCAS device on each its 13 ambulances.

The LUCAS device costs $15,000 apiece. The total cost of equipping all of the ambulances is $195,000 (13 X $15,000). To that end, Saint Paul Fire has successfully secured nearly half of that amount ($95,000) through a generous offer from the United Hospital Foundation. The grant is scheduled to be awarded in June. However, it is a matching grant only. We are trying to obtain the remaining amount ($95,000), as soon as possible, in order to obtain the entire matching grant amount from the Foundation and to completely equip the ambulances. We are formally requesting at least $25,000 from MRC.

Goals and Objectives:

The goal of the Saint Paul Fire Department is to improve out-of-hospital sudden cardiac arrest survival rates by at least 50 percent over the next five years. We will accomplish this goal by:

- Participating in the CARES registry and ensure that our pre-hospital cardiac arrest data is entered in a timely manner.
- Implementing LUCAS
- Continuing the use of the impedance threshold device
- Change all guidelines, as necessary, to keep up with the latest research in out of hospital cardiac arrest.
- Becoming an active member of Minnesota Resuscitation Consortium committees and work groups with the goal of contributing to increased cardiac arrest survival rates throughout the State of Minnesota.

Project Activities:

If awarded the Minnesota Resuscitation Grant, Maplewood EMS will meet its goals and objectives through the purchase of LUCAS devices

Key Staff:

All training, education and implementation will be conducted by the Medical Director, his staff and the manufacturer. If awarded, this grant will impact all employees of the Saint Paul Fire Department.

Conclusion:

The Saint Paul Fire Department is committed to increasing sudden cardiac arrest survival rates and we believe that this grant will allow us to realize that goal. The use of LUCAS will ensure that we will be performing uninterrupted, safe and high quality active compression/decompression CPR. This equipment will help facilitate state of the art, out of hospital cardiac arrest care for the citizens and visitors to the City of Saint Paul.