

For Information Only

Community Public Access Defibrillator (PAD) Program – Update

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Committee

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Recommendation

For information only.

Background

In Canada, 35,000–40,000 people die of sudden cardiac arrest (SCA) each year. Most of these deaths occur out-of-hospital. While Cardiopulmonary Resuscitation (CPR) can maintain circulation for a very short period of time after a sudden cardiac arrest occurs, early defibrillation is what the patient requires. When a heart stops beating, for whatever reason, early intervention can often get it going again and save a life.

The “Chain of Survival”, consists of essential elements advocated by the Heart and Stroke Foundation, outlining the four key “links” that have to be connected in order for a victim of cardiac arrest to have the best chance for survival.

The key links in the chain include; Early Access (to Emergency Medical Services by calling 9-1-1), early CPR, (cardio pulmonary resuscitation), early Defibrillation (use of a defibrillator by Public Access Defibrillator, Paramedics, or Firefighters), and early Advanced Care (by medically trained Paramedics or hospital staff). CPR keeps blood circulating through vital body tissues keeping organs alive, but it takes defibrillation with an Automated External Defibrillator (AED) to fully resuscitate someone in cardiac arrest. Most sudden cardiac arrest victims are in ventricular fibrillation, an electrical malfunction of the heart that causes the heart to twitch irregularly instead of a normal steady beating action.

According to the Heart and Stroke Foundation, the odds of survival for an out-of-hospital cardiac arrest are approximately 5%. With each passing minute, the probability of survival declines by 7–10%. In Ontario alone, approximately 6,500 cardiac arrests occur annually

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outside of the hospital.

However, early defibrillation with an Automated External Defibrillator (AED) can improve cardiac arrest survival rates significantly. An AED is a portable electronic device that automatically diagnoses the potentially life threatening cardiac rhythms of ventricular fibrillation and ventricular tachycardia in a patient, and is able to treat them by application of electrical shock which can stop the life threatening rhythm, allowing the heart to re-establish an effective heartbeat. AEDs are designed to be simple to use for the layman, and are becoming widely available through the proliferation of Public Access Defibrillator Programs across Ontario.

In Ontario, the *Chase McEachern Act* protects individuals from liability for damages that may occur in relation to their use of an AED to save someone's life at the immediate scene of an emergency. It also protects the owners and occupiers of the buildings where AEDs are installed from liability that may occur in relation to the use of the AED provided that the owner or occupier of the building made the AED available for use in good faith.

PAD Funding

In 2007, the Heart and Stroke Foundation partnered with host communities through their local EMS providers to provide funding toward the purchase and installation of Public Access Defibrillators, the funding also included one-time training costs for a maximum of ten persons for each AED deployed. The Heart and Stroke Foundation has since offered an additional six rounds of funding. Sudbury has been successful in securing funding in each of these rounds.

Heart and Stroke Foundation funding only covers the initial purchase of the AED, wall cabinet and training for each site. However, there are ongoing costs required to maintain the program which include: ongoing CPR/AED training, replacement defibrillator pads, replacement batteries and airway equipment. The AED manufacturer does not specify a service life for their AED, but we must consider that they will be required to be replaced sometime in the future.

In order to address financial risk, legal agreements are being developed that will transfer all future ongoing costs, including training, and AED replacement to the host operating department or organization. The draft agreement template is currently with legal for review.

Total funding received by EMS (2007–2012) from the Heart and Stroke Foundation for the purchase of AED units, wall cabinets, and training costs to support the City's Public Access Defibrillator Program, will be approximately \$265,000.

Locations

Currently, EMS is deploying 40 more units, a result of funding from the last round. Once deployed, the number of PADs located across the City will total 109. This total includes 60 PAD units located in 57 City facilities, with another 49 PAD units located in non-city owned facilities.

Each PAD location consists of a wall mounted cabinet containing a single AED, spare defibrillator pads, bag-valve resuscitator, pocket mask, and inspections sheet and Emergency Response Plan, costing approximately \$3500 to bring each site on-line. PAD

locations include City pools, leisure centers, libraries, arenas, beaches, ski hills, Citizen Service Centers, office complexes, and the airport. While non-city locations include all Secondary Schools, Community Halls, Elementary Schools (in progress), Anderson Farm, and Science North.

Training and Maintenance

Training for the PAD Program is delivered by one of our Paramedics who is a certified Heart and Stroke Instructor. Training for each participant consists of five hours of classroom and practical training on CPR and AED operation. Since 2008, EMS has provided this CPR/AED training to over 600 persons, 400 of which are City facility staff. The EMS Training Section has also developed a short AED refresher video that will be posted on the City's eLinks web-page for review by operating departments; while outside organizations will be provided a free copy of the video.

City PAD units are inspected weekly by facility staff. Completed inspection reports are submitted to EMS on a monthly basis. Any identified issues are addressed by EMS Logistics staff.

Conclusion

Since implementation in 2008, no Public AEDs have been used in the City of Greater Sudbury. Heart and Stroke Foundation statistics indicate that in Ontario, Public Access Defibrillators have saved **37 lives** since 2006.

CPR performed by bystanders, in addition to early defibrillation, is essential if sudden cardiac arrest survival rates are to improve. Given the potential for the PAD Program to save lives, EMS will continue its support within the community.

The City of Greater Sudbury's PAD Program is working to strengthen the "Chain of Survival" in the community. Together with the EMS response system, trained citizens can improve cardiac arrest survival.