



# INFORMATION REPORT

<b>TO:</b>	Chair and Members Emergency & Community Services Committee
<b>COMMITTEE DATE:</b>	December 7, 2017
<b>SUBJECT/REPORT NO:</b>	Cardiac Safe City and CPR Training (CES17044) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Russell Crocker 905-546-2424 ext. 7739
<b>SUBMITTED BY:</b>	Mike Sanderson Chief, Hamilton Paramedic Service Community and Emergency Services Department
<b>SIGNATURE:</b>	

## Council Direction:

Community and Emergency Services Committee at its meeting on January 18, 2012 approved the following:

“Staff be directed to include in the Hamilton Emergency Services, Emergency Medical Services 2012, 2013, 2014 business plans, activities that promote an increase in the number of persons in the community trained to perform cardiopulmonary resuscitation (CPR) techniques”; “That staff be directed to report to the Emergency and Community Services Committee no less than once annually with respect to training members of the community to perform cardiopulmonary resuscitation techniques as well as the frequency of bystander cardiopulmonary resuscitation (CPR) in the setting of witnessed sudden cardiac arrest in the community.

Further to this, the Board of Health at its meeting on April 22, 2014 (14-003) approved the following:

“That the item on the Board of Health Outstanding Business List respecting ‘Cardiac Safe City’ (Item 6) be transferred to the Emergency and Community Services Committee”.

## Information:

### Purpose

The purpose of this report is to provide an update on the status of the Cardiac Safe City in relation to ongoing Cardiopulmonary Resuscitation (CPR) training and the placement of Automated External Defibrillators (AED's) within the City of Hamilton boundaries.

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## Background

Approximately 40,000 Canadians die from a Sudden Cardiac Arrest (SCA) each year, with 8/10 occurring in a public place or at home, of which only 1 in 10 survive (Heart and Stroke Canada, 2017). Hamilton Paramedic Service responded to 1,184 requests for service relating to out of hospital sudden cardiac arrests in 2016 and 975 in 2017 to date.

Cardiopulmonary Resuscitation (CPR) is a first aid procedure for use in sudden cardiac arrest. The procedure includes compressing the victim's chest, often in combination with artificial respiration, to artificially re-establish blood flow to the brain, heart and other vital organs to a person that has suffered a SCA. CPR can be initiated by any bystander if they are trained in the procedure. It can also be performed under telephone guidance by the Ambulance Communications Officers (dispatchers) who follow a carefully scripted medical guideline to assist the callers.

Performance of CPR effectively "buys time" for the victim until the arrival of an Automated External Defibrillator (AED) or emergency services. St. John Ambulance, the Canadian Red Cross and other private organization in Hamilton train thousands of people annually in the performance of CPR in the City.

AEDs are a safe, easy to use electrical device that provides a "shock" to the patient's heart, in an attempt to restore the heart to its "natural" rhythm. The overall survival rate of all types of out of hospital sudden cardiac arrest victims in highly functioning emergency cardiac care response and treatment systems is unfortunately low. For some types of sudden cardiac arrest, such as those due to an electrical malfunction in the heart (ventricular fibrillation or ventricular tachycardia), where there are good circumstances including the combination of effective CPR, the use of an AED before emergency services arrival, a rapid ambulance response time, a high level of advanced care by the responding paramedics, and transportation to an appropriate receiving hospital, the survival rate can increase to as much as 62% (Sudden Cardiac Arrest Foundation, 2014). Survival of these patients declines about 7 to 10 percent for each passing minute without bystander CPR and early defibrillation,

## Financial

Initial funding for AED devices and related client training has been provided by federal and provincial authorities and various non-profit agencies. Direct costs for the City associated with the AEDs for 2017 has been \$76,238 which has been allotted in capital reserves since the program's inception in 2007. Details of these purchases are noted as the following:

1. Replacement of 20 AED's that have completed their 10 year life cycle at a cost of approximately \$32,000. This replacement cycle was initiated in 2017 as a result of the initial deployment of AED's in 2007.

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2. Replacement of consumables including batteries, adult and paediatric defibrillator pads for AED's currently in service at a cost of approximately \$43,000.

In moving forward with the AED program, 10 year replacement cycles of AED's and consumables will continue annually as part of capital reserves.

## Report

During the past 10 years, a combination of federal, provincial and local Heart and Stroke initiatives totalling approximately \$550,000, have been instituted to train Hamilton residents in CPR and place AEDs in high risk buildings. These initiatives have led to over 3,000 people trained in CPR by paramedics and the placement of 423 AED's in city operated golf courses, recreation centres, arenas, libraries, administrative buildings and other private institutions.

To assist with the management of these assets, HPS utilizes a free database known as "TrackMyAED" which allows for access to vital information including location and status of "readiness" of AED's. A sample is attached as Appendix A to Report CES17044.

This database has been recently updated to also allow tracking of Epinephrine Auto Injectors (EAI) that are co-located with the AED. As individual areas implement such co-location the Paramedic Service will now be able to assist in ensuring currency of those devices as well.

The database information is shared with the MOHLTC Central Ambulance Communications Centre (CACC). The dispatcher is aware when an AED is in the immediate vicinity of a suspected cardiac arrest which allows them to guide the caller to it in the event of a Sudden Cardiac Arrest.

As a further engagement opportunity, a Superintendent in our Performance and Development Section, in cooperation with City of Hamilton (COH) Communications, has developed an on-line "AED Registration Form" on the COH website that allows for any person or business to register their AED location (attached as Appendix B to Report CES17044). This information is then placed in the "TrackMyAED" database and subsequently the MOHLTC leading to an increase in AED access during these events. The online registration form can be found at:

<https://www.hamilton.ca/emergency-services/paramedics/automated-external-defibrillator-aed-registration>

## Conclusion

Research has shown that the combination of early recognition of an emergency, early access to 911, early bystander CPR, early defibrillation using an AED, rapid ambulance

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response, and a high level of qualified paramedic care increases the positive outcomes from sudden cardiac arrest dramatically.

Moving into 2018, Hamilton Paramedic Service continues to pursue strategies with the following objectives:

1. Maintain the current state of “status ready” AED’s available to the city
2. Look to expand available AED’s in the community by leveraging the “TrackMyAED Database” to capture AED’s not assumed by the COH
3. Pursue to research and partner with the private sector in utilizing new technologies such as drone delivery for remote or parkland areas to increase access of AED’s

### **APPENDICES AND SCHEDULES ATTACHED**

Appendix A to Report CES17044: “TrackMyAED” Database

Appendix B to Report CES17044: City of Hamilton On-line AED Registration Page View

### **Works Cited**

Canada, H. a. (2017). *What is Cardiac Arrest?* Retrieved 10 18, 2017, from <https://www.heartandstroke.ca/heart/conditions/cardiac-arrest>

Sudden Cardiac Arrest Foundation. (2014, 05 19). Retrieved 10 18, 2017, from Sudden Cardiac Arrest Foundation: <http://www.sca-aware.org/sca-news/king-county-wa-has-worlds-highest-survival-rate-for-cardiac-arrest>

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