

Ontario Association of Fire Chiefs
Ontario Professional Fire Fighters Association

Discussion Paper:

Saving a Life
in 6.0 Minutes or Less
By Utilizing the Efficiencies of the Ontario
Fire Service

November, 2008

***"The mission of Ontario's fire services is to protect and save lives and property.
There are no conflicting agendas!"***

Richard Boyes, President, Ontario Association of Fire Chiefs

***"Fire departments are strategically positioned to deliver time critical response
and effective patient care rapidly."***

Fred LeBlanc, President, Ontario Professional Fire Fighters Association

***"Remember, it's all about the people of Ontario receiving the quickest pre-
hospital medical care possible, in their time of need!"***

The men and women of Ontario's Fire Service

Saving a Life in 6.0 Minutes or Less By Utilizing the Efficiencies of the Ontario Fire Service

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Introduction

Response to life threatening emergency calls in the province of Ontario is at a crossroads. EMS Ambulance funding has increased significantly and demands for even more provincial and municipal funding grow louder, but service hasn't improved accordingly, as critical response time benchmarks continue to go unmet.

Rapid, efficient and effective delivery of emergency medical response for life threatening 9-1-1 calls is a critical element in patient survivability. Patient outcomes are dependent on the speed with which trained personnel can arrive at the scene.

With ambulance response times averaging 13.1 minutes¹ for life-threatening emergencies, standalone EMS providers seem to be having difficulty improving upon response times. This has and continues to be clearly documented.²

One approach that hasn't garnered the desired result has been "more paramedics and more ambulances". This is not to say paramedics are not delivering quality services, but the reality of increased strain on an already strained system cries for a different solution and a more effective use of all of our current emergency response resources.

Ontario's fire services have the ability to respond effectively and quickly to ALL HAZARDS; fires, motor vehicle accidents, Haz-Mat/Cemical, Biological, Radiological and Nuclear(CBRN) incidents, terrorists attacks and yes, with existing medical skills, life threatening medical calls such as cardiac arrest.

In many cases, patients only require immediate life saving treatment, but they may also require physical rescue, protection from the elements and protection in the way of scene safety.

The fire service is structured to address all of the above simultaneously and is perfectly positioned to complement and enhance a struggling EMS delivery system across Ontario, thus significantly improving patient outcomes.

The Ontario Professional Fire Fighters Association (OPFFA) and the Ontario Association of Fire Chiefs (O AFC) – union and management - are joining **together** on this issue because we believe it's time to seriously look at utilizing the existing resources of the fire service, including fire fighters trained in cardio-pulmonary resuscitation (CPR) and defibrillator use, as a key to efficiently and effectively improving emergency medical response times in Ontario.

¹ 2005 Annual Report of the Office of the Auditor General of Ontario

² Ibid.

Case and Point: Cardiac Arrest

For the purpose of demonstrating how utilizing the existing resources of Ontario's fire services will result in many more Ontarians lives being saved, let's look at the impact of emergency response times on Cardiac Arrest.

"Cardiac disease is the most common cause of death in Canada".³ Approximately 17,000 Ontarians die of sudden cardiac arrest each year.⁴ Sudden cardiac arrest is the most time sensitive of all emergency medical conditions. **Irreversible brain death may begin to occur within six minutes after circulation stops.** The sooner the patient receives CPR and/or defibrillation, the greater the probability of survival.

The speed with which first responders arrive on scene and administer early intervention, is critical to the victim's survival. The average response time for the **Fire Service** in Ontario is **6.0 minutes**⁵ and much less in some of the larger urban areas. This is less than half of the average response time for **EMS**, which is approximately **13.1 minutes**. The chance of successful resuscitation is reduced by 7% – 10% for each minute of delay in intervention.⁶ When it comes to the patient's survival, **every minute counts**.

Dispatching Fire and EMS simultaneously would ensure that Ontarians receive prompt and trained emergency medical response when they need it most.

(See Appendix 1: Heart and Stroke Foundation Chain of Survival)

Problem: Lack of Simultaneous Dispatch

The Ontario Fire Service can help to save more lives by being dispatched simultaneously with ambulance to life-threatening emergency calls, such as sudden cardiac arrest. Under the current system, many fire departments are either not being dispatched, or are being dispatched significantly later than the Emergency Medical Service (EMS) ambulance.

Research conducted by the Ontario Association of Fire Chiefs (O AFC) has revealed that there are problems in many areas of the province where EMS and Fire are not being dispatched simultaneously. The OPFFA and the O AFC have received repeated reports where ambulances with full lights and sirens speed past a fire hall several minutes before the Fire Department received the call from the ambulance dispatch centre to respond to the same incident.

Failure to call the community fire department simultaneously, despite existing agreements to do so, compromises the public and severely hampers the fire service's ability to provide rapid and effective emergency response. While not only being a frustrating situation for both the public and for firefighters this could also have a significant impact on patient outcome.

³ Stiell, I. et al (1999). "Modifiable Factors Associated with Improved Cardiac Arrest Survival in a Multicenter Basic Life Support/Defibrillation System: OPALS Study Phase 1 Results. *Annals of Emergency Medicine*, 33:1, 44-50.

⁴ Estimation based on total number of cardiac arrest deaths for Canada, supplied by the Canadian Heart and Stroke Foundation, and Ontario's percent of the population

⁵ Office of the Fire Marshal

⁶ The American Heart Association's Textbook of Advanced Cardiac Life Support

The Current Approach: Not Working

Although municipal governments and the provincial government have poured millions of dollars into ambulance services over the past few years, this has not helped to significantly reduce ambulance response times. The 2005 Auditor General's Report stated that in Ontario, "two-thirds of land ambulance operators were not meeting their legislated response times, and the total cost of the program has increased by 94% over the last four years."⁷

And despite nearly doubling the cost from 2002-2005, even more funding was added between 2005 and 2007 - and ambulance performance times still have not improved. This clearly demonstrates the current model isn't effective, and that the current approach to fixing it isn't working either.

We must look at other alternatives within our existing resources. The best way to reduce response times is to better utilize the fire departments.

(See Appendix 2: The OPALS STUDY)

The Winnipeg Model

An excellent example of better utilizing community fire departments in emergency medical response has been demonstrated in Winnipeg, Manitoba, where the emergency response system has Fire and EMS working closely together.

Greater use of the fire department in Winnipeg has cut emergency medical response time in half to 4.5 minutes and is expected to save 10,000 ambulance calls in one year. It will free up ambulance resources for where they're really needed; and save the city \$8.5 million.

(See Appendix 3: The Winnipeg Model)

Imagine the impact of a similar system in a large Ontario municipality...

Summary: WHAT CAN BE DONE TO SAVE THE LIVES OF MORE ONTARIANS

The Fire Service is designed for rapid emergency response. By deploying firefighters as first responders, who are trained to administer CPR and defibrillation, the Ontario Fire Service can help their communities and the province of Ontario achieve higher survival rates.

All Ontarians deserve a rapid response however recognizing the unique challenges presented in the rural areas of our province we believe the following steps need to be first initiated in urban areas wherever we have full-time fire fighters.

The Ontario Association of Fire Chiefs and the Ontario Professional Fire Fighters Association are requesting the following three actions of the Government of Ontario:

⁷ 2005 Annual Report of the Office of the Auditor General of Ontario

1. Where requested mandate simultaneous dispatch of the community fire department and EMS for life threatening emergencies in communities served by full time professional fire fighters.
2. Recognize that trained firefighters can provide rapid medical assistance and “stop the clock”. This should be included in all documentation when it comes to capturing response times.
3. Create an all-stakeholder committee that will design a proposed integrated system of emergency response for life threatening emergency calls. Also include the fire service in any discussions of a “fully coordinated emergency response system” that the province may be currently having with its stakeholders.

Respectfully submitted,

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Richard Boyes
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Appendix 1:

The Heart and Stroke Foundation of Canada's Chain of Survival™



The Heart and Stroke Foundation of Canada's (HSFC) Chain of Survival is a sequence of related links that demonstrate how to improve the outcomes of victims of cardiac arrest. The Chain of Survival is only as strong as its weakest link.

This means that if there is a missing, or weak link, then the remaining links will be limited in their effectiveness. The Chain of Survival is comprised of the following seven links, **four of which are time sensitive and depend on rapid emergency response**. Increasing the fire services role in emergency medical responses will significantly improve success rates in these four critical areas:

- Healthy Choices
- Early Recognition
- **Early Access** (911 & Fire/EMS dispatch)
- **Early CPR** (Fire)
- **Early Defibrillation** (Fire)
- **Early Advanced Care** (EMS assisted by Fire)
- Early Rehabilitation

Survival rates are proven to be higher in those communities **where CPR and/or defibrillation are administered in less than 6 minutes** from the start of a sudden cardiac arrest. Again, the average response time for the fire service in the province of Ontario is 6.0 minutes and for Ambulance it is 13.1 minutes.

Appendix 2:

The OPALS Study⁸

The Ontario Pre-hospital Advanced Life Support (OPALS) Study was a landmark study in pre-hospital care, and it used data from right here in Ontario. OPALS revealed that rapid response by fire departments can make a significant difference in survival rates. Funded by the province, the OPALS study was conducted in three phases between 1994 and 2000. The objective was to determine the benefits of the time-sensitive links in the chain of survival in Ontario communities. The evaluation was based on the data collected from more than 30,000 survivors of cardiac arrest, major trauma, respiratory distress and chest pain.

When the OPALS study was published, it represented the largest pre-hospital study conducted worldwide at the time. Led by Dr. Ian Stiell, the study revealed that the overall survival rate in Ontario communities is 2.5%, which was among the lowest reported in Western countries. In conversation, Dr. Stiell pointed out that communities such as Calgary and Seattle have survival rates 4 to 6 times higher than that of Ontario's, (10% and 15% respectively).

Results from Phase I of the OPALS Study demonstrated the beneficial effect of having firefighters administer CPR to someone in cardiac arrest before ambulance arrival.

Phase II results demonstrated that all aspects of survival were improved when the participating communities used better dispatch procedures, firefighter first responder defibrillation programs and more efficient use of Basic Life Support–Defibrillation (BLS-D) ambulances. The benefits of these improvements were an increase in the number of lives saved.

The OPALS Study research findings showed that the survival rate for out-of-hospital cardiac arrest victims approximately doubles with firefighter first responder CPR.

⁸ Stiell, I. et al (1999). "Modifiable Factors Associated with Improved Cardiac Arrest Survival in a Multicenter Basic Life Support/Defibrillation System: OPALS Study Phase 1 Results. *Annals of Emergency Medicine*, 33:1, 44-50.

Stiell, I. et al (1999) "Improved Out-of-Hospital Cardiac Arrest Survival Through the Inexpensive Optimization of an Existing Defibrillation Program: OPALS Study Phase 11." *The Journal of the American Medical Association*, Vol 281, NO. 13, 1175-1181.

Appendix: 3

The Winnipeg Model

Under a system implemented in 2007, a licensed Primary Care Paramedic now rides on city fire trucks. According to Fire and Paramedic Chief Jim Brennan, the Winnipeg Fire Department (WFD) has a combined Fire EMS dispatch centre, a common radio channel for Fire and EMS and the ability to move information from a fire vehicle to an ambulance electronically due to their combined system. Each fire crew has a dual trained, licensed firefighter/paramedic on board.

Fire crews are used as “field triage”; they are sent as first responders who, when they arrive on scene, will cancel the ambulance, treat the patient themselves, or say they need an ambulance right away.

With the Winnipeg Fire Department model there is the ability to decide what resource is best dispatched. Fire paramedics on fire apparatus attend many EMS calls where an ambulance is not needed. This model allows for ambulances to be freed up and thus allowing Paramedics to utilize their skills at emergencies where they are required.

Chief Brennan goes on to say that, “in its second year of adapting to a new method of operation, of modifying the response profile, the Winnipeg Fire Department will probably save the ambulance 10,000 calls annually, and that’s being conservative”. If they hadn’t modified the response profile they would have “needed an additional 10 ambulances 24-7. Each ambulance costs about \$850,000 to operate on an annual basis, so the total cost avoided is about eight and a half million”.