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REQUEST FOR RFP TO IMPROVE YORK REGION EMS RESPONSE TIMES

The Health and Emergency Medical Services Committee recommends that:

- 1. Recommendation No 2 of the report of the Commissioner of Health Services dated October 22, 2004 be adopted**
- 2. Recommendation Nos. 1 and 3 be deferred to the December, 2004 Health and Emergency Medical Services Committee meeting**
- 3. A further report be prepared to clarify the scope of the proposed RFP and costing**

1. RECOMMENDATIONS

It is recommended that:

1. Health and Emergency Medical Services Committee and Regional Council approve in principle a Request for Proposal (RFP) to identify a consultant to: conduct an internal review of York Region EMS and identify potential internal efficiencies; and report the conditions under which it would be reasonable to accept ambulance dispatch, subject to the 2005 budget approval process.
2. A letter be sent to the Minister of Health and Long-Term Care outlining the inefficiencies of the current provincial dispatch practice versus a Performance Based dispatch system.
3. A copy of this report be forwarded to the Deputy Minister of Health and Long-Term Care for information.

2. PURPOSE

On March 25, 2004 EMS staff presented to the Health and Emergency Medical Services Committee a report entitled “EMS Response Times” and a presentation entitled “EMS Overview” that outlined the factors that have impacted EMS response times in York Region. The presentation and committee report highlighted the ineffectiveness of the current provincial dispatch service and challenges of off-load hospital delays.

As a result of the presentation, the Health and Emergency Medical Services Committee directed Emergency Medical Services staff to provide a report on the potential response time savings if York Region EMS were to obtain responsibility for dispatch.

3. BACKGROUND

Land ambulance dispatch operations remains under the control of the Ministry of Health and Long-Term Care (MOHLTC). It was not part of the provincial down loading of land ambulance services to municipalities in 2000 and 2001. Since the assumption of land ambulance operations, York Region has submitted numerous proposals to the MOHLTC to operate the dispatch function highlighting the ineffectiveness of the current dispatch service.

Ambulance response times are measured and reported by York Region based on the *Ambulance Act* and the regulations thereto. York Region EMS provides a deployment plan to the provincial ambulance dispatch center to facilitate meeting the response time standard. The deployment plan outlines the procedures to ensure the quickest/closest, most appropriate ambulance resource is sent to all emergency calls. In addition, the plan outlines emergency coverage posting for all nine area municipalities. It is the responsibility of the MOHLTC dispatch center to follow the deployment plan.

4. ANALYSIS AND OPTIONS

In the presentation to Health and Emergency Medical Services Committee on March 25, 2004, EMS staff identified numerous factors that impact response times. Due to the external factors impacting York Region EMS response times such as hospital off-load delays and dispatch inefficiencies, York Region EMS has taken steps to optimize internal processes by collecting and analysing data on an ongoing basis and implementing a number of strategies to improve York Region EMS controlled outcomes. For example, during off-load delay periods, a supervisor is assigned to those hospital emergency departments to assist in the transfer of patients from paramedics to hospital staff, and restricting the number of ambulances leaving The Region during peak hours of ambulance call activity. However, York Region EMS would benefit from the expertise of an external third party consultant reviewing internal processes with the aim of suggesting further efficiencies that could be achieved in order to ensure York Region EMS is operating to capacity regardless of external factors.

The ineffectiveness of the provincial dispatch system to accurately determine the nature of emergency calls and to respond in the most time effective manner was highlighted. The following information regarding the current dispatch model further demonstrates the impact the dispatch system performance has on land ambulance and patient outcomes.

4.1 Utilization of York Region EMS Deployment Plan

During the course of continuous quality improvement (CQI) activities, EMS staff have identified issues related to the failure of CACC to follow York Region EMS' deployment plan and not select the most appropriate and closest ambulance to respond to emergency calls.

In medical emergency situations, seconds count and dispatch delays will impact response times and may increase patient discomfort and anxiety, delay the onset of pain relief and may impact patient outcomes.

When EMS staff identifies an issue related to the failure to follow York Region EMS' deployment plan, a request for information is sent to the CACC management staff for action. Unfortunately based on results provided to date by CACC management staff, responses are often slow, incomplete and assume little to no accountability for the dispatch performance in relation to the patient outcome.

4.1.1 Reporting of Response Times

The measurement criteria for land ambulance response time reporting is identified within the *Ambulance Act*. Ambulance response times for emergency code 4 calls are measured when the ambulance crew receives the call from dispatch, until the time the ambulance crew arrives at the scene of the emergency. This timeframe does not include the time required for the ambulance call taker and the dispatcher to process the call and identify the closest, most appropriate ambulance resource to respond to the emergency. In 2003, the York Region ambulance dispatch processing interval was 2 minutes 52 seconds ninety percent of the time. The 90th percentile ambulance response time for York Region ambulance resources was 12 minutes 18 seconds. When combined, the total time taken to respond to an emergency was 15 minutes 10 seconds, ninety percent of the time.

Performance based EMS systems achieve optimal results through utilizing best practises. Performance based EMS systems report ambulance dispatch time in combination with ambulance response time. This time frame provides a true measurement of the actual time required to respond to a medical emergency. This time frame is referenced in medical literature as the "*chain of survival*" and is crucial in predicting patient survival. Performance based EMS systems target EMS first response to be achieved in 8 minutes 59 seconds, ninety percent of the time, including dispatch processing time. In the future, York Region EMS will provide Regional Council call processing times in addition to mandatory 90th percentile ambulance response times in order that the entire medical emergency response can be measured.

4.2 Performance Based EMS Systems

4.2.1 Best Practice Dispatch Call Processing

Current dispatch call processing technology, policies and procedures, and human resources have not been upgraded to meet the service demand of Regional EMS operators. The key functions of ambulance dispatch are to receive and process telephone calls, provide instructions to callers and information to responders, dispatch and coordinate EMS resources, and request assistance under Tiered Response Activation Criteria with other Public Safety Agencies.

However, in today's environment, best practice EMS dispatch centres have further expanded roles for EMS dispatchers commonly referred to as Emergency Medical Dispatchers (EMD). These roles now include more detailed call screening, telephone

interrogation, and pre-arrival instructions to callers such as cardiopulmonary resuscitation (CPR). Today's dispatchers need training (initial and ongoing), tools (protocols and appropriate technology/equipment) and feedback (a sound quality improvement process). Outside of the City of Toronto, the current provincial system has very little or none of these key components. This has been well documented in the *External Review of Hamilton CACC Report* completed by the IBI Group in October 2001 on behalf of the MOHLTC. However, the MOHLTC has not implemented Ministry-wide dispatch system improvements to date.

Table 1 compares EMS dispatch operations which utilize best practices, and those that do not. Information for The Regional Municipalities of Peel and Durham were not available.

Table 1
Call Processing Time
2003

	Call Processing Standard for Emergency Calls*	Actual Time (90th Percentile)
Performance Based Dispatch Model		
Nova Scotia (operated by the Province of Nova Scotia)**	1 minute	1 minute 15 seconds
Toronto CACC (operated by Toronto EMS)	2 minutes	1 minute 50 seconds
Level of Effort Dispatch Model		
Ottawa CACC (operated by Ottawa Paramedic Service)***	2 minutes	1 minute 45 seconds
Mississauga CACC (MOHLTC)	2 minutes	2 minutes, 41 seconds
Georgian CACC (MOHLTC)	2 minutes	2 minutes 54 seconds

* Time of Call to First Unit Assigned

** Nova Scotia achieves Canada's best reported call processing standard for emergency calls

*** Prior to the City of Ottawa operating the CACC, call processing time for 90th Percentile was 2 minutes, 49 seconds.

With the Performance Based model, performance is measured against standards set for such things as response time, level of life support service provided, outcomes from medical treatment, etc. The standards under a high performance model relate more to the quality of patient care.

With a Level of Effort model the emphasis is on defining staffing levels, equipment requirements, and expenditure levels. With this approach the concern is focused on managing resources and controlling costs.

Based on the call processing results identified under Performance Based Dispatch Model in Table 1, it is estimated that a reduction of over one minute on the call screening process can be achieved in York Region.

It should be noted that as of July 2004, the Mississauga CACC (MOHLTC) no longer provided dispatch services in York Region. Since this change has taken place, Georgian CACC's (MOHLTC) actual call processing time (90th Percentile) has increased to 3 minutes, 15 seconds.

4.2.2 Ambulance Response to Emergency/Priority Calls

In York Region, the large geographic coverage area and the road network used to access emergency calls impacts response time and resource availability. With this in mind, EMS staff have developed and implemented a deployment model for the dispatch center to follow. Further exploration of internal efficiencies should be made in order to ensure current resources are being utilized to their optimal capacity.

In 2003, York Region EMS was dispatched by Mississauga and Georgian CACCs on an emergency basis over eighty percent of the time. Only 10% of these incidents resulted in a corresponding emergency mode transport to hospital. Table 2 summarizes the total emergency call volumes and the number of calls prioritized as requiring advanced care paramedics (ACPs) for four EMS operators in relation to York Region.

Table 2
Emergency Call Prioritization
2003

	Total Emergency Calls	Prioritized as Requiring ACPs
Performance Based Dispatch Systems		
British Columbia Ambulance Service (Lower Mainland)	233, 983*	77, 365 (33%)
Calgary EMS	67, 587	28, 796 (43%)
Toronto EMS	242, 647**	120, 029 (49%)
Level of Effort Based Dispatch Systems		
Ottawa EMS	70,852	49,283 (70%)
York Region EMS	50, 257	41, 007 (82%)

* British Columbia Ambulance Service Data is based only on calls processed using newly implemented Advanced Medical Priority Dispatch system

** Based on Units that actually went "en-route" to emergency calls

The information in Table 2 demonstrates that performance based dispatch centers have much more success in identifying calls that require an ACP.

The economic efficiencies realized with a best practise dispatch system cannot be understated. Moreover, due to an improved call interrogation sequence, ambulances would not be responding to as many life threatening emergency calls. Therefore, the

availability of York Region ambulances to respond to life threatening emergency calls would be greatly enhanced. When multiple vehicles are dispatched to non-critical situations, valuable EMS resources are depleted. As a result, patients who suffer life threatening problems in the same vicinity will have to wait longer for time sensitive treatment such as defibrillation or advance airway procedures.

Based on the statistics provided in Table 2, it is estimated that using a performance-based model, York Region EMS would realize a reduction of approximately 40% in the number of EMS responses that would require the application of lights and sirens by paramedics.

4.2.2.1 Risk Assessment

The management of risk to the corporation and health and safety of paramedics is greatly improved by reducing the number of lights and siren responses. Many medical EMS experts believe the number of situations requiring this type of response is less than 5% of the overall emergency call volume. Since best practise EMS dispatch systems can identify these situations with the use of medically approved protocols, it makes sense not to respond with lights and sirens to non-life threatening calls.

In North America, the National Academy of Emergency Medical Dispatch (NAEMD) has stated that thousands of motor vehicle accidents occur as a result from the inappropriate response and transport practises leading to many injuries and deaths. NAEMD has identified an incident called “Wake-Effect Collision.” Wake-effect collisions occur as a result of the emergency vehicle, but do not directly involve the emergency vehicle. These collisions happen when drivers are distracted by or react inappropriately to an emergency vehicle responding with lights and sirens.

4.3 Other Regional Experiences Acquiring Dispatch

4.3.1 City of Ottawa

The City of Ottawa obtained the control of the dispatch function in late 2002 from the province. Under the contract with the MOHLTC, all equipment, call screening/interrogation processes and operating procedures would remain the same as the previous dispatch operator. Subsequently, Ottawa Paramedic Service has only been able to impact and influence issues related to staff compliance to operating policies and procedures and CQI initiatives. Ottawa ambulances continue to respond to large numbers of emergency calls as identified by the provincial call screening / interrogation process that have resulted in little impact to overall response times.

4.3.2 The Regional Municipality of Niagara

The Region of Niagara has been awarded the contract to operate land ambulance dispatch in the Niagara region. Currently, staff from the MOHLTC are in discussion to agree upon the terms and conditions of the operations of the dispatch centre. It is anticipated that the Region of Niagara is pursuing a best practice dispatch system in their requirements to operate the dispatch centre.

4.4 Patient Outcomes

Since 2000, Regional Council has mandated a performance based EMS system. Clinical excellence is a vital component of such a system. York Region has enhanced the scope of practise of paramedics to the advanced care level in order to provide industry best practise service. The York Region Base Hospital Program operated by the Markham Stouffville Hospital provides medical direction and compliance measures for York Region paramedics. A significant measurement completed by the Base Hospital program is to report on patient save rates, defined as the patient's return of a pulse upon arrival at hospital.

Since the introduction of the ACP program, save rates have increased from 8% in 1999 to 12.5% in 2003. However, despite increases in training and education of all York Region paramedics, expanding the number of ACPs in the Region and requesting the CACC to dispatch ACP staffed emergency vehicles first to emergency calls; save rates have not continued to grow over the last two years. It is anticipated that assuming the operational control of dispatch and introducing best practise EMS dispatch call screening and decision support technology/equipment, save rates will improve further. In addition, improved call interrogation and resource allocation will assist staff in better determining the quantity of ACPs required to support clinical excellence in York Region.

4.5 Relationship to Vision 2026

York Region EMS supports the Vision 2026 goals of Responding to the Needs of Our Residents and Supporting a Safe and Healthy Community by continuing to provide and support high quality emergency services. The use of best practise dispatch systems provides EMS operational staff further ability to plan and manage EMS resources in achieving Vision 2026 goals.

5. FINANCIAL IMPLICATIONS

Since 2000, York Region has expanded and enhanced the level of EMS service in response to Regional Council's mandate to provide a performance based model. A significant challenge faced by staff is to provide service to a community that continues to grow by over 40,000 people annually. The EMS budget to provide such service has increased by over 60% (2000 – \$16.1 M gross versus 2003 – \$25.8 M gross) and the demand for EMS service has also increased significantly. However, it should be noted that while the costs have increased the provincial grant has dropped from approximately 45% in 2000 to approximately 32% in 2003. EMS response times have not been positively impacted in relation to the significant increase in the EMS operating budget since 2000. The MOHLTC dispatch call processing performance has decreased since 1999.

EMS staff anticipate cost savings with the implementation of a best practise dispatch call screening process that reduces the number of emergency life threatening responses by York Region paramedics. Savings will be realized in fuel consumption, fleet maintenance and repair costs as well as paramedic end of shift overtime.

One hundred thousand dollars will be included in the proposed 2005 budget for a RFP which will be subject to the 2005 budget review process. York Region EMS explored the possibility of conducting this review jointly with neighbouring regional municipalities, including Durham, Peel and Halton. The Regional Municipality of Peel recently completed an extensive operational review to support a direct delivery service model. The Regional Municipality of Halton is currently undergoing a long-range strategic review with an outside consultant, and The Regional Municipality of Durham is uncommitted at this time.

6. LOCAL MUNICIPAL IMPACT

Increased internal efficiencies of York Region EMS may result in improved response times as York Region EMS continues to operate within provincial dispatch inefficiencies and increased hospital off-load delays. Improved response times benefit all residents of York Region who require emergency medical services.

7. CONCLUSION

Effective ambulance dispatch combined with improved hospital off-load practices are essential to optimal EMS operations. However, in order to best respond to these external pressures, York Region EMS must first ensure internal operations are functioning as effectively as possible.

York Region EMS staff recommends that a RFP be completed to identify a consultant to: conduct an internal review of York Region EMS and identify potential internal efficiencies and report the conditions under which it would be reasonable to accept ambulance dispatch, subject to 2005 budget approval; that a letter be sent to the Minister of Health and Long-Term Care detailing the inefficiencies of the provincial dispatch model when compared to a Performance Based dispatch system; and that a copy of this report be forwarded to the Deputy Minister of Health and Long-Term Care.

The Senior Management Group has reviewed this report.