SUNNYBROOK - OSLER
CENTRE FOR PREHOSPITAL CARE

February 23, 2007

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Chief of Staff
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Dear Drs. and

Enclosed is the report generated from my visit to Niagara Region on January 31, 2007. It contains eight Recommendations with which are self explanatory.

It was a pleasure meeting with you and the staff of Niagara Health System and Niagara Emergency Medical Services. Please do not hesitate to contact me if you require any clarification or follow-up.

Sincerely,

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BS/ej

Enclosure

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Emergency Services in Niagara Region
Addressing the Emergency Medical Services/Emergency Department Interface

February, 2007

Introduction

In December 2006, I was asked by , Chief of Staff, Niagara Health System (NHS), in cooperation with Chief Medical Officer of Health, and , Chief, Niagara Emergency Medical Services (EMS), to meet with stakeholders in Niagara Region with respect to issues of emergency department overcrowding and ambulance offload delays. It was requested that my meetings and subsequent report address the following themes:

1. The nature of offload delay (consistent definitions, criteria and data acquisition and management);
2. The EMS/NHS interface around transfer of care (roles of EMS and NHS Providers);
3. Interpersonal issues at the frontline interface (perceptions and realities);
4. Movement of patients within a multi-site system with particular focus on the unique challenges presented by the Prompt Care Unit at the Ontario Street location in St. Catharines (perceptions, issues and concerns);
5. Ambulance "clustering" in a multi-site system (EMS and NHS realities);
6. Strategic directions as discussed (commentary on outputs of meeting of the Niagara Emergency Services Network (NESN) October 2006, and additional strategies going forward)

At the outset, I wish to acknowledge the exemplary professionalism and commitment of all stakeholders; in particular, the front-line workers who deal daily with the significant challenges of hospital overcrowding, manifest in the emergency departments and the interface of EMS and ED staff, while providing high quality patient care. Their continuing dedication to provide this care under difficult circumstances and their motivation to find constructive solutions was evident throughout my visit. In addition, the leadership of middle and senior management at NHS and NEMS in finding solutions and supporting their staff is acknowledged and appreciated.

Emergency Department (ED) overcrowding is an over-reaching and long standing health system issue, as outlined in two recent reports[1, 2] to the Ontario Ministry of Health and Long-Term Care (MOHLTC). Over the last five years, ambulance offload delay has become a symptom of hospital overcrowding and therefore will not be resolved significantly without systemic solutions. The root causes of hospital overcrowding in Niagara Region have commonalities with other areas within the province, but also have some unique elements. Lack of capacity for alternate level of care (ALC) patients, including nursing homes, complex continuing care and

1. Improving Access to Emergency Services: A System Commitment, 2005. Accessed at: www.health.gov.on.ca/english/public/pub/ministry_reports/emerg_dept_05/emerg_dept_05.pdf

2. Improving Access to Emergency Care: Addressing System Issues, 2006 Accessed at: www.oma.org/Health/EmergencyCare/EmergencyCareReport.pdf

rehabilitation services is a growing problem in Niagara Region. Processes to improve patient flow both within emergency departments and from emergency departments to in-patient units are challenging and have been addressed by others. Implementation of their recommendations will go a long way in addressing system and ED issues, which will in turn result in an improvement in ambulance offload delay.

Background

Over several years, hospital overcrowding as manifest by patients who have been admitted to the hospital being housed in emergency departments ("admit-no beds") has been addressed with varying degrees of success. This problem is not unique to Niagara Region but has grown steadily over the last decade or more. What is particular to the Niagara Region is the sudden exacerbation of hospital and emergency department overcrowding coincident with restructuring, in particular, the closure of the St. Catharines Hotel Dieu Hospital Emergency Department site in October 2005. In-patient resources were transferred to St. Catharines General and the emergency department at Hotel Dieu was replaced by a Prompt Care Unit. As a result, patients arriving by ambulance were redistributed to the remaining EDs, but were clustered towards the St. Catharines General site due not only to demographics, but also the increasing regionalization of in-patient resources for secondary and tertiary care. Among others, oncology, some surgical and critical care services were designated for the St. Catharines General site, an aging facility which is scheduled to be replaced over the next several years.

Both the increase in admit-no beds patients and the increasing volume of ambulance patients delivered to the St. Catharines General site (with higher acuity, as compared to the Prompt Care site) have resulted in a significant increase in Emergency Department Length of Stay (ED-LOS) and the time to transfer a patient from the ambulance stretcher under the care of paramedics to the emergency department stretcher under the care of the emergency department staff (Ambulance Offload Time – AOT). This phenomenon, known as Ambulance Offload Delay is not unique to Niagara Region and is increasing throughout Ontario and many areas of North America. It results both in delays of care for patients presenting to EDs and a reduction in the number of ambulances available to serve patients in the community.

In 2006, two reports were released by the Ontario MOHLTC. The first, entitled *Improving Access to Emergency Services: A System Commitment* was submitted by the Hospital Emergency Department and Ambulance Effectiveness Working Group, commissioned by Health Minister in 2005. The second, entitled *Improving Access to Emergency Care: Addressing System Issues* was a report of the Physician Hospital Care Committee, a tripartite committee of the Ontario Hospital Association, Ontario Medical Association and the MOHLTC. Both reports address Emergency Department Overcrowding in a systems context and have a remarkable similarity in their recommendations. These involve improving patient flow through emergency departments to in-patient units, increasing efficiencies of care within those units, and increasing the capacity of community and long-term care facilities for ALC patients, thereby increasing the capacity of acute care facilities to manage acutely ill patients. The primary goal of

both reports is improving the health and well-being of patients and residents by placing them in areas most appropriate for their care.

The first report also addresses issues with respect to ambulance offload delay and recommends a benchmark key performance indicator for AOT, defined as the time from patient/ambulance arrival to patient placed on ED stretcher of 30 minutes (90th percentile). That is, 90% of patients arriving by ambulance should be transferred to the care of ED staff, with the stretcher "cleared", within 30 minutes of arrival. To achieve this benchmark, it is anticipated that hospitals must improve their patient flow through emergency departments.

The NHS/Niagara EMS (NEMS) situation compared to others in Ontario is unique in that the issue of the ambulance offload delay became consequential over a very short period of time. Almost overnight, in October 2005, the ED overcrowding situation, for which the NHS team had successfully worked to improve effectiveness and efficiency of care for patients (as measured by gradual decreases in ALC patients in acute care facilities, relatively short emergency department lengths of stay, and few if any issues with respect to AOT), suddenly deteriorated. Consequently, front-line providers (paramedics, ED nurses and physicians) have been frustrated and more importantly, the principle of each patient receiving optimal care in the right environment has been threatened. This principle is articulated as follows: patients in the "field" are treated best by rapid access to paramedics, patients in the ED are best treated by emergency staff, and patients who require an in-patient resource are optimally cared for by the appropriate staff on in-patient units, in addition to ALC patients treated in long-term care facilities and the community. It is a testament to the skills and compassion of front line health care professionals that they are able and willing to care for patients outside their normal scope of practice. Moreover, the patients themselves are subject to prolonged waits in EMS hallways and ED corridors, lack of privacy, few bathroom facilities and the potential for compromised infection control, in spite of the sometimes heroic care that is provided on a daily basis by these paramedics, ED nurses and physicians.

It is outside the scope of this report to address the system issues that have contributed to the admit-no bed crisis in Niagara Region EDs. However, over the short term, while these system issues are being addressed, trust and confidence must be rebuilt among emergency department front-line workers and paramedic staff. This initiative begins with the rebuilding of trust and confidence among the leadership of both organizations. In order to accomplish this, it is recommended that:

1. Consistent and transparent definitions and benchmarks be utilized by Niagara EMS (NEMS) and the Niagara Health System (NHS) facilities;
2. Key performance indicators such as ambulance offload time (AOT) and emergency department length of stay (ED-LOS) be measured objectively and tracked;
3. A shared care model of patient care be instituted in EMS hallways until an ambulance patient is formally transferred from the ambulance stretcher to the ED stretcher;
4. All stable Canadian Triage and Acuity Scale (CTAS) 4 and 5 patients who are ambulatory be transferred upon triage into the ED waiting room;
5. The issue of inter-facility transfers of patients by Niagara EMS in the current environment be addressed immediately;

6. Patient flow issues, both within EDs and in transfer of patients from EDs to in-patient units be addressed;
7. A patient distribution model be developed by NEMS in consultation with NHS leadership and implemented on a trial basis;
8. The Niagara Services Emergency Network, under the co-chairs of the NEMS Chief and NHS Vice President of Patient Services or her designate be empowered to consider, implement and monitor the impact of these recommendations, explore cooperative solutions to these issues, and be accountable to the Medical Officer of Health and the Chief Executive Officer of NHS.

Recommendation #1

Consistent and transparent definitions in benchmarks be utilized by Niagara EMS (NEMS) and the Niagara Health System (NHS) facilities.

Terminologies used by EMS and hospital facilities are different. For example, it is challenging for hospital staff to understand dispatch priorities ALPHA, BRAVO, CHARLIE, DELTA and ECHO ambulance codes. Similarly, EMS staff may not appreciate the rationale for different types of bed utilization within the emergency department (monitored vs. non-monitored bed, ED staffing ratios). Since 2000, to improve the communication between paramedics and emergency department nurses, the Canadian Triage and Acuity Scale (CTAS) assessment was introduced to EMS. However, over time, the applications of this assessment tool have evolved differently. This may be due to both the limited assessment modalities that paramedics have in the field and the evolution of patient status from paramedic contact to presentation at ED triage.

This issue is compounded by the varying definitions of AOT. For example, EMS may log their time of arrival as the time the ambulance stops in the ambulance bay; ED nurses may log the arrival time as the time of nurse triage. Similarly, the status of transfer of care from paramedics to ED staff has not been fully-defined.

It is recommended that AOT be defined as the *interval from the moment the patient on an ambulance stretcher enters the emergency department to the time the patient is removed from the ambulance stretcher*. While this does not take into account the time of nurse triage (which usually occurs before the patient is moved but may be performed, in the case of some CTAS 4 and 5 ambulatory patients, after the patient is offloaded), the impact of AOT for NEMS results from stretcher availability, not time of triage. Further, AOT does *not* include the time that EMS is cleaning and preparing the stretcher and vehicle for the next call. This is an internal NEMS issue, separate from offloading of the patient.

The benchmark for AOT suggested by the report *Improving Access to Emergency Service: A System Commitment*, is 30 minutes for the 90th percentile (90% of ambulance patients are offloaded within 30 minutes). However, in systems challenged to achieving this benchmark, the report recommends that these hospitals improve their AOT by 10% per month from baseline until the benchmark is reached. Ultimately, it is expected that the NESN will make a final

decision on and prioritize these recommendations, and other agreements appropriate to the Niagara Region situation. (See Recommendation #8).

CTAS assessment by paramedics and nurses should be compared, and consistent definitions be utilized. The CTAS definitions, originally developed for ED staff may be accessed in both reports. As provincially delivered paramedic education on CTAS was accomplished some time ago, it is recommended that NEMS work with NHS staff to reiterate these definitions to ensure optimal consistency, given the differences in assessment parameters in the field and in the ED.

Similarly ED-LOS should be defined consistently, as outlined in Recommendation #2.

Recommendation #2

Key performance indicators such as ambulance offload time (AOT) and Emergency Department Length of Stay (ED-LOS) be measured objectively and tracked.

A methodology of consistently recording ambulance time of arrival and time of offloading of stretcher should be implemented across all NHS sites. This may be an electronic or paper tool but must be agreed upon by both the NEMS and NHS with input from EMS and ED staff. The time of nurse triage should also be recorded for quality improvement purposes. In the interest of patient care, the benchmarks or standards defined as appropriate by the NESN should be developed, based on best practices and those outlined in the CTAS tool as appropriate.

ED-LOS is the key performance indicator that impacts most directly on AOT. If patients are discharged expeditiously from EDs, either to in-patient units, other facilities or the community, this improves capacity of the emergency department to accept incoming ambulatory and ambulance patients. However the causes of increased ED-LOS are multi-factorial. While this report addresses some of these issues in Recommendation #6, others are outlined in previous consultant reports and both cited reports to the Ministry of Health and Long-Term Care. Of note, the report *Improving Access to Emergency Care: Addressing System Issues* suggests a "tool kit"[3] of interventions to assist healthcare providers and alleviate ED overcrowding. It is recommended that *ED-LOS* be measured *as the interval from the moment the patient enters the ED* (via ambulance or other mode of arrival) *to the time the patient leaves the emergency department*. The former time is identical to that which begins AOT. This interval must be objectively measured and tracked, with benchmarks and expectations established by the Niagara Services and Emergency Network. Sub-intervals such as time from entrance to nurse triage and physician assessment, time from physician assessment to disposition decision, and time of disposition decision to patient exit from the ED must be measured, evaluated and addressed to improve total ED-LOS, but for external reporting purposes, these times are not critical. The important aspect for ED flow is the individual residing within the ED. Recommendations are continued in the two reports cited above.

3. Improving Access to Emergency Care: Addressing System Issues, 2006 Pages 43-59

Recommendation #3

A shared care model of patient care be instituted in EMS hallways until an ambulance patient is formally transferred from the ambulance stretcher to the ED stretcher.

It is acknowledged that attempts have been made to outline a transfer of care process. The goals of such a process are:

- To transfer responsibility for the patient from paramedics to hospital emergency department staff in a safe, responsible and expedient manner;
- To enable paramedics to be available for other emergency calls as soon as possible after their arrival in the emergency department.

In order to ensure the best possible patient care, paramedics should be authorized to perform their medical directives while in the ED prior to transfer of care. They should also have access to Base Hospital physicians for further orders if absolutely necessary; however, it must be appreciated that EMS medical directives are intended for use in the field and are time limited, because there has traditionally been an end point of patient transfer (usually within 30 minutes) to hospital staff. EMS Medical Directives are not intended for continuing care, and paramedics are not trained to provide ongoing care.

Hospital staff has a wider array of investigations and treatments available in the ED. Patients should not be denied these interventions just because they are resting on ambulance stretchers. Therefore, the shared care model is in the best interest of patient care

A transfer of care process should include authorization for ED staff to initiative minor treatment or investigations as per existing ED Directives or physician's order while the patient is on the ambulance stretcher. This may include obtaining a 12-lead ECG in order to stratify the seriousness of the patient complaint, drawing of blood and obtaining other specimens (subject to patient privacy constraints). It also may include minor treatment such as the administration of anti-pyretic or analgesic agents. Patient monitoring should be performed by both paramedics and emergency department staff, with paramedics reporting any changes in the patient's vital signs or level of consciousness to emergency department staff at the earliest possible opportunity.

Most importantly these activities must be performed with the intention of *expediting* patient progression to full emergency department care and *not delaying transfer* to the ED stretcher. While this is difficult to measure, it must be an over-riding principle of the care process, and there should be a mechanism to monitor the process and investigate concerns regarding deviations. I would be happy to work with ED and EMS leaders and staff in the further development of an ED Transfer of Care Process document.

Recommendation #4

All stable Canadian Triage and Acuity Scale (CTAS) 4 and 5 patients who are ambulatory be transferred upon triage into the ED waiting room.

Implementation of this recommendation will assist in offloading a subset of ambulance patients quickly. It is understood that not all CTAS 4 and 5 patients are ambulatory. The designation will be made by the nurse according to hospital guidelines and be subject to review if concerns are expressed by EMS staff. However, in the first instance the CTAS decision of the nurse will be the operational one.

Triage must occur within a reasonable and agreed to period of time, and paramedics should be authorized to allow the ambulatory patient to be seated in the ED waiting area. It is assumed that in general, CTAS 4 and 5 patients arriving by ambulance are no sicker than ambulatory patients of the same CTAS designation.

Recommendation #5

The issue of inter-facility transfers of patient by Niagara EMS in the current environment be addressed immediately.

One of the results of ED and ambulance "gridlock" is the inability to move patients who need regionalized diagnostics or consultation from one facility to another. This is both the result and an exacerbating factor of gridlock. For example, if several ambulances are on offload delay and few are available in the community, there is no capacity to move a patient already in an ED to another facility. Further, EMS is reluctant to prioritize the transport of patients already in a facility over and above its responsibility to service 911 callers in the community. Therefore, there is often a significant delay in moving patients requiring consulting or diagnostic services to the appropriate level of care.

Attempts to reduce this burden have included the use of unlicensed medical transport services. While this may be appropriate in certain circumstances, often patients are too sick or require medical care beyond the scope of available providers, and consequently hospital staff or sometimes physicians must accompany the patient. This therefore, results in depletion of staff in the sending facility, further compromising care therein. Finally, once a patient arrives in the receiving facility, they are often subject to the same ambulance offload delays that the facility is experiencing for other patients, further exacerbating the lack of availability of ambulances in that community. This phenomenon has resulted in conflicts between EMS dispatchers, paramedics and hospital staff from sending facilities.

In an effort to break this cycle, it is recommended that the NHS contract with NEMS for the services of one Advanced Care Paramedic unit to be dedicated to inter-facility transfer. This will allow for expeditious transfer of patients between facilities, albeit from a limited resource. Advanced Care Paramedics have a wider scope of practice than Primary Care Paramedics and have a level of medical control and oversight beyond that of practitioners in medical transport

units and therefore, the need for accompanying hospital staff from a semi-facility will be significantly reduced.

This comes at a financial cost to the Niagara Health System; however, the reduction in AOT and the "relief valve" effect will more than make up for this short-term investment, while other recommendations are being implemented.

It is anticipated this unit will not be required on a 24/7 basis, but will likely be required 12 to 16 hours/day. It is expected the NHS will conduct a needs analysis of inter-facility patient transfers and work with an EMS Personnel to determine the optimal configuration and hours of activity of this unit Again, this may be a project under the auspices of the NESN or could be conducted independently.

It is anticipated that the implementation, by Ornge (formerly Ontario Air Ambulance), of a land-based Critical Care Transport service in the Hamilton Niagara Haldimand Brant Local Health and Integration Network (LHIN), as per the recent announcement by the MOHLTC, will also be a resource for transfer of critically ill patients in Niagara Region.

Recommendation #6

Patient flow issues both within the emergency departments and in transfer of patients from EDs to in-patient units be addressed.

Addressing patient flow issues within EDs and hospital in-patient units, as well as discharge of patients from acute care facilities to long-term in the community will address the root cause of increasing ED-LOS and ambulance offload delay. I cannot over emphasize the need to continue the good work that has already been done in improving patient flow. A number of initiatives have been undertaken, including an Emergency Medicine external review conducted in March 2006. Recommendations #15 - 28 of that report address patient flow issues that are fully supported by both hospital overcrowding reports cited above. In particular, the Emergency Department Overcapacity Protocol developed by sends a strong message to all hospital staff and physicians that emergency department overcrowding is a hospital-wide issue. This protocol involves sending one to two selected patients to appropriate medical and surgical units even if a room on the unit is not available. This "shares the load" of patient care for admit-no bed patients. In addition, availability of laboratory services, diagnostic imaging and consultants in emergency departments to make a disposition decision in an expedited fashion, and processes to reduce in-patient length of stay and clear a bed are essential in addressing the root cause of ED overcrowding. However, they are not addressed in this report; sufficient recommendations exist in other reviews, and they are outlined in detail in the MOHLTC reports noted.

Recommendation #7

A patient distribution model be developed by NEMS in consultation with NHS leadership and implemented on a trial basis.

The regionalization of patients toward St. Catharines General (SCG) in combination with the closure of the Ontario Street (formerly Hotel Dieu) site to ambulance traffic has created a double burden on the SCG ED site. This is evidenced in the increased volume of patients and acuity of illness as measured by CTAS at this site. The average number of CTAS 1 patients seen per month at SCG has increased from 17 to 30 from 2005-2006. In addition, the admission rate at SCG is 17% of all ED patients as compared to the combined admission rate of SCG and Hotel Dieu site in 2005 of just under 15%. This is with neither a concomitant increase in in-patient nor ED capacity, although some increase in staffing was undertaken.

While improving patient flow and capacity at the SCG site may ultimately improve its capacity to receive ambulances, over the short-term patients must be distributed more equitably to other hospital EDs to assess these patients This requires agreement from all sites to accept these patients and agreement from NEMS to distribute the patients accordingly, even if it involves taking an ambulance out of its normal catchment area. While this is not desirable for the long-term, it may help distribute the patients and improve ambulance availability over the short term. This is predicated on the premise that most of these patients will not require a secondary transfer back to their home facility for consultation or ongoing care; therefore patients must be selected accordingly.

The purpose of a patient distribution system is that it minimizes "clustering" of ambulances at one site by utilizing decision algorithms which "protect" EDs from receiving many patients over a short interval of time if other hospitals have not recently received similar volumes of ambulance patients This concept has been implemented in parts of the greater Toronto area with some degree of success in that EDs do not feel "put upon" as much by EMS. The perception is that it has evened the playing field somewhat.

It should be noted that this solution does nothing to change ambulatory patients arriving via means other than ambulance or patients arriving in transfer from areas outside Niagara.

Recommendation #8

The Niagara Emergency Services Network (NESN) under the co-chairs of the NEMS Chief and NHS Vice President of Patient Services or her designate be empowered to consider, implement and monitor the impact of these recommendations, explore other cooperative solutions to these issues and be accountable to the Medical Officer of Health and Chief Executive Officer of NHS. All other recommendations are contingent on the reconstitution and renewed activity of this important multi-stakeholder group, originally mandated by the Ministry of Health Region to find cooperative solutions to the issues of ED overcrowding and ambulance diversion. With the devolvement of the regions and the evolution of the Local Health and Integration Networks, there has been uncertainty as to the accountability mechanism for NESN.

However, a meeting was held in October 2006 and a new coordinator, has been retained. commitment to and understanding of the current situation and history is impressive and with proper support, it is anticipated that she will be effective in her new role. She should be seen as an impartial party to assist in resolving differences and negotiating agreements among the stakeholders.

It is recommended that NESN be chaired by the individuals with the highest level of responsibility and accountability for operations in both organizations. Therefore, it is my recommendation that the co-chairs of NESN be the NEMS Chief ( ) and the NHS Vice President of Patient Services (, or her designate). It is my opinion that authority be derived from and accountability directed to conjointly both organizations. While ultimately the Hamilton Niagara Haldimand Brant LHIN may wish to participate in this initiative, initially, there is enough commitment from the leadership of both organizations to ensure that solutions are developed, implemented and monitored. Therefore, it is recommended that the Chief Medical Officer of Health, and the NHS President and Chief Executive Officer, , be the sources of authority and accountability for this group.

Finally, all deliberations and conclusions of the NESN must be effectively communicated to all front-line stakeholders. along with the operational leads of both organizations will carry responsibility for ensuring that that this communication occurs regularly, and is bidirectional.

Conclusions

Hospital overcrowding and ambulance offload delay are significant issues involving the care of patients in many communities in Ontario, including Niagara Region. The problem in Niagara was heightened after the closure of the Hotel Dieu ED and regionalization of services in 2005. While the challenges are significant, they are not insurmountable, and initiatives have been undertaken to address the root issues, namely ALC patients in acute care beds and admin-no bed patients in EDs.

However, in the short term patient care issues at the interface of EMS and ED must be addressed, to ensure patients receive optimal care in the right environment, namely in-patient care on in-patient units rather than the ED, ED care on an ED stretcher by ED nurses and physicians, and rapid access to paramedics following a 911 call. While this is not always possible in the current environment, a shared care model of care is necessary. Further, concrete efforts and investment to break the gridlock in interfacility transfer of patients is strongly recommended.

The NESN is positioned to develop, implement and monitor these and other recommendations and should be given the appropriate authority and accountability framework to do so.

I would like to thank NHS and NEMS for affording me the opportunity to conduct this review, and to commend the dedicated and skilled EMS and NHS providers who daily work on the front lines to take care of the citizens of and visitors to Niagara who are sick and injured.

Respectfully Submitted,

Brian Schwartz, MD, CCFP(EM), FCFP