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Report Submitted to: Niagara Health System

HayGroup®

Niagara Health System (NHS) GNG Site Emergency Department

Final Report

Hay Group Health Care Consulting

Contents

1.0 Introduction

The Niagara Health System enlisted the assistance of Hay Group Health Care Consulting to evaluate the current status of the emergency department at the Niagara Health System (NHS) GNG site, one of the members of the Niagara Health System.

The specific concerns expressed included:

- the current staffing pattern
- leadership
- the quality of care provided
- the sustainability of the current physician staffing model

The Greater Niagara General emergency department sees in excess of 40,000 patients a year

The Greater Niagara General emergency department sees in excess of 40,000 patients a year, presenting with a wide range of clinical problems and acuity. The hospital serves as a regional stroke center, and provides specialized stroke care. In addition, it serves as the Niagara Region base hospital.

With the anticipated redesignation of some of the full-service emergency sites currently operated by the Niagara Health System, it is anticipated that both the volume and acuity of visits to the Niagara Health System (NHS) GNG site will increase. The system has also committed to serve as a training site for McMaster University undergraduate and postgraduate medical trainees, and it is believed that the emergency department of the Niagara Health System (NHS) GNG site will serve as a venue for undergraduate and postgraduate emergency medicine education.

2.0 Process

In the course of conducting this review, both quantitative and qualitative methodologies were utilized. Quantitative approaches included an analysis of visit volumes, analyzed by time of presentation and triage category, complaint rates, left without being seen rates, and an analysis of the "necessary" numbers of hours of physician service based on models in the literature. The data was compared to peer hospitals in Ontario, in order to provide objective evidence of the level of functioning of the department.

Qualitative methodologies included, but were not limited to, interviews with an array of personnel including senior management, medical and nursing staff, the program educator and discharge planner. In addition, the hospital's medical staff rules and regulations and bylaws were reviewed, as were a variety of medical directives and clinical protocols. The physical plant was also visited, in order to determine whether there are impediments to patient flow imposed by the geographic location and/or structure of the department.

The report which follows contains our observations, concerns and recommendations. We take this opportunity to thank those at the Niagara Health System who provided support to this process, and particularly to thank those who made themselves available for interviews, despite their very busy schedules.

3.0 Staffing Pattern

6 physicians provide 5.3 full-time equivalents (FTE's) of coverage

Currently there are 6 physicians in the department, providing 5.3 full-time equivalents (FTE's) of coverage. One member of the group will be leaving in the near future, and while the group acknowledges the need to recruit an additional member, there is no anticipation of any gaps in the physician schedule or difficulties providing ongoing coverage while the search is conducted. There is also no anticipation of any difficulty in recruiting an additional member.

The current physician staffing model results in physicians working two day shifts, each of 10 hours duration, followed by two night shifts, each 14 hours in duration, followed by six days off. This staffing model is seen by the group as a facilitating retention, owing to the provision of significant periods of time off after intensive work periods. It is also the opinion of group members that the opportunity to work intensively for short periods of time, allowing for sufficient income generation, followed by extended periods of free time, facilitates recruitment.

The group does acknowledge that at times it has been necessary to mentor new appointees for an extended period in order to ensure that their work capacity, including both the volume of patients to be seen and the extended work hours, matches that of other members of the group.

In reviewing the definition of a full-time equivalent emergency physician, various "standards" have been used. The province of British Columbia has assumed that 1360 hours per year of clinical service constitutes a full-time equivalent emergency physician. Others have used figures which range from 1100 to 1600 hrs per year, based on variables which include additional contributions such as administrative, teaching, or research time which is factored into the total number of hours devoted to emergency department care.

The current expectation of the Greater Niagara General translates to a clinical commitment of approximately 1750 hours per year, which exceeds the recommendation of any constituency in Canada

The current expectation of the Greater Niagara General, based on the provision of 48 hours of clinical service every 10 days, translates to a net clinical commitment of approximately 1750 hours per year, which exceeds the recommendation of any constituency in Canada. Of note, it also does not factor in any commitment of time for administrative or teaching functions.

All coverage is "single" in nature. According to the physicians interviewed, approximately 2 hours of overlap are provided at the

time of shift change, but the schedule calls for only one physician to be present at any time.

The tasks necessary for an emergency physician to perform during a shift are not confined to the conduct of histories, physicals and patient treatment. In an era of constrained resources, emergency department offload delays, and extended periods of emergency department occupancy by admitted patients, emergency physicians are often called upon to perform a number of other tasks. These include, for instance:

- arranging for the timely offload of ambulance patients
- negotiating with consultant physicians for the admission and/or assessment of referred patients
- communicating with non-physician providers, such as physiotherapists, occupational therapists and others regarding the need for patient assessment and evaluation
- completing forms for discharged patients, such as sick notes, insurance forms, etc.
- arranging for and providing immediate investigations and treatment necessary for patients with stroke presenting to a stroke center
- serving as a base hospital physician for the prehospital care system

In determining whether the current hours of provision of service are sufficient, a variety of workload models were reviewed

In determining whether the current hours of provision of service are sufficient, a variety of workload models were reviewed. None of these models are "perfect". While all have some ideal characteristics, no model, for instance, includes break times (for lunch, coffee, etc.). The literature is unequivocal in confirming that time for breaks and/or "reflection" is necessary to maintain emergency physician wellness, and minimize stress and burnout.

In all emergency departments, unplanned and unpredictable surges in activity occur. These may reflect weather events, natural disasters, or other phenomena. Some surges are predictable, such as those experienced during holidays when many family physicians are not in their offices. Other than the predictable repeated variation in volumes, surges cannot easily be accommodated in the presence of only one emergency physician, nor can they be accommodated by any of the workload models reviewed.

Importantly, no model links or matches workload or compensation with quality or outcome measures. The only exception is the

dynamic model for physician staffing recently introduced in British Columbia. This model is based entirely on ensuring that the interval from patient registration to first physician encounter is one hour or less, which can, in theory, be construed as a measure of quality.

3.1 CTAS/Murray Formula

This model is well entrenched in Canada. It serves as the basis of the calculation of the Ontario based alternative fee arrangements, and is, to some measure, the core of the dynamic model for physician staffing implemented in British Columbia. It allows for comparison between and amongst hospitals not only intraprovincially, but nationally. It has been designed to factor in the number of hours of coverage necessary to ensure overnight coverage in emergency departments, particularly as oftentimes overnight visit volumes are insufficient, in and of themselves, to necessitate the presence of an emergency physician in an uninterrupted manner.

This model has been confirmed in repeated studies as the single most powerful predictor of the actual time required for the doctor-patient interaction. A recently completed, but as yet unpublished study (POWER) has suggested that the time allotments for CTAS four and five patients are insufficient. Recently, the time allotment for such patients provided in the alternative fee arrangements for Ontario has been modified to reflect this observation.

While some papers attest to the inter-rater reliability of the assignment of triage scores by experienced triage nurses, concern has been expressed regarding the lack of inter-rater reliability, with evidence of both up and down triaging in a variety of constituencies. Specifically, with reference to the Niagara Health System, concern was expressed by providers at the NHS GNG site that historically there has been over-triaging (assigning CTAS scores which are inappropriately high, resulting in "overstatement" of acuity) at the St. Catherine's site, and under triaging at the Greater Niagara General site. We have not conducted a formal audit of triage scores, but this report reflects estimations of the hours of physician coverage necessary based on existing triage scores.

3.2 Dynamic Model for Physician Staffing

This model, as mentioned above, has recently been implemented in British Columbia. The model is based on ensuring medical attention within one hour for 90% of patients presenting to the emergency department. The model is based on modeling theory, using real data

from multiple hospitals in British Columbia. The model is designed to ensure that there are a sufficient number of doctors present in the department at any given time to keep patient waits from presentation to physician interview at one hour or less. It is designed primarily to facilitate throughput. It can be adjusted on a year-to-year basis based on the previous year's experience. It is, however, not a workload model, but rather a model designed to achieve a target time from presentation to physician encounter. The model requires exhaustive data collection and analysis in order to develop the workload model for individual organizations. It requires information technology support not currently available on the Niagara Health System, and would require a considerable investment in the acquisition of new technology before the model could be used. In addition, the model is copyrighted, and there would be a cost of acquisition.

3.3 St. Paul's Hospital

St. Paul's hospital's emergency department conducted and published a study in which actual times physicians spent with patients were measured. The data published annotated the average number of minutes physicians spent with patients by triage category, and the amount of time spent on specific tasks. The study could, in theory, be used to determine the number of minutes of physician time necessary to staff a given department based on the CTAS profile. It was, however, conducted in a tertiary care inner-city hospital, and reflects the specific patient profile and needs of that environment. The study did not include teaching as one of its measures of time requirements, but did estimate that an additional 20% of physician time was used for this activity. Thus, as the Niagara Health System (NHS) GNG site considers its increasing involvement in emergency medicine teaching, it will be prudent for the organization to add an incremental 20% to the number of physician hours provided once the teaching program is fully established.

3.4 POWER Study

This study was also conducted in Canada, but importantly, in multiple hospitals in array of locations (urban, semi-urban and rural). The methodology involved real-time measurements done by research assistants who evaluated physician time seven days a week, 24 hours a day.

Unfortunately, the study has not yet been published, due to concerns expressed by editors regarding statistical methodology. Thus, the study is not available for peer review, and has not yet been validated

by other studies. It does, however, indicate that the time taken by physicians with patients of similar CTAS categories varies between academic and rural sites.

3.5 Fixed Ratio

The "fixed ratio" model of emergency physician workload is used by the American Academy of Emergency Medicine and the American College of Emergency Physicians. The number of hours cited by these organizations as "ideal" range from 1.8-5 patients per physician hour. The variables include whether or not teaching is conducted, whether or not the department has a fast-track area, and whether the hospital is publicly or privately operated and funded.

While there is no consensus as to the "ideal" workload in the American literature, in a hospital with a fast-track, and limited requirements for bedside teaching, estimates are, on average, a physician should see 4.3 patients per hour.

In 1993 Graff and his colleagues published a paper in the Annals of Emergency Medicine indicating that the average time taken to treat patients in his emergency department was:

- laceration patients 25 minutes
- walk-in patients 9.8 minutes
- observation patients 55.6 minutes
- critical care patients 32 minutes

The study identified only emergency physician time, and both observation and critical care patients were often evaluated by physicians representing other services, thus not accounting for the time typically taken in Canadian emergency departments for high acuity patients.

3.6 Suggested Shift Model

A summary of the number of minutes per patient suggested in the above models by triage category is contained in the table below:

CTAS	Murray	St. Paul's	POWER
1	75.6	40.2	73.6
2	41.4	25.3	38.9
3	25.2	21.8	26.3
4	12.6	15.6	15
5	7.8	15.2	10.9

A review of the data for the last full year available (April 2007 to March 2008), reveals that the total number of patients seen in the GNGH ED was approximately 45100. Of these, 315 were triage level 1, 5637 triage level 2, 20,640 triage level 3, 14,304 triage level 4, and 4198 triage level 5. Applying the number of minutes necessary to treat patients presenting by each of the CTAS categories according to the table above indicates the following number of hours of physician service per day would be necessary.

	CTAS	Murray	St. Paul's	POWER
(Minutes/day)	1	59.0	31.4	57.5
	2	644.4	393.8	605.5
	3	1479.9	1280.2	1544.5
	4	504.5	624.6	600.6
	5	86.9	169.3	121.4
Total (mins.)		2774.7	2499.3	2929.5
Hours/dy		46.2	41.7	48.8

It would appear that a minimum of 41.7 hours per day of physician coverage would be required to appropriately staff the Greater Niagara General site

Thus, it would appear, based on the available literature, that a minimum of 41.7 and up to 48.8 hours per day of physician coverage would be required to appropriately staff the Greater Niagara General site. If, in fact, the planned integration of educational programs proceeds, a further 20% increment in the number of hours provided may be necessary to accommodate educational activity, based on the experience of St. Paul's Hospital.

Assuming that approximately 20% of all patient arrivals occur on the night shift (a figure higher than that in peer hospitals), would mean that approximately 36,000 patients arrive between the hours of 7 a.m. and 11 p.m. This translates to approximately 6.2 patients per hour. Given that the tables above indicate that the minimum time requirement documented in the literature as necessary for any patient encounter is approximately eight minutes (specifically, 7.8 minutes for a CTAS 5 patient according to the Murray formula) infers that even if a physician saw only CTAS 5 patients, his or her time would be fully occupied managing such patients. Given that the vast majority of patients presenting to Greater Niagara General (in excess of 90%) require more minutes of service it would be impossible for the physician to deliver appropriate care given the time constraints.

Interviewees were unanimously of the opinion that the current data for Greater Niagara General does not reflect the current acuity, which is felt to be higher than that recorded

Furthermore, interviewees were unanimously of the opinion that the current data for Greater Niagara General does not reflect the current acuity, which is felt to be higher than that recorded, indicative of a need for even more hours of physician service per day.

As the visit volume falls during the night shift, it is suggested that the night shift (11 p.m. to 7 am) remain with single coverage, with the remaining hours of coverage devoted to the time interval from 7 a.m. or 8 a.m. to 11 p.m. This would result, essentially, in full double coverage of the hours from seven or 8 a.m. to 11 p.m., but could be staggered to allow some single coverage in the early hours of the morning, when visit volumes are lower, in order to facilitate triple coverage on particularly busy intervals, particularly the early evening or on weekends.

Physician interviewees were of the opinion that adjusting the hours of coverage might prove to be both unnecessary and fruitless because of the following concerns:

- the ability of GNGH physicians to see and process patients at a rate faster than their peers
- the lack of appropriate throughput, which inhibits patients entering the department at a sufficient rate of speed to keep physicians "busy"
- nurse staffing which, at shift change, inhibits the flow-through of patients from the waiting room to the assessment areas of the emergency department
- the physical constraints imposed by the physical plant

In responding to these concerns, we believe that the mathematical modeling outlined above would indicate that, in fact, notwithstanding the skills and experience of the emergency physicians, it would be impossible for them to deliver appropriately comprehensive care to patients presenting given the volume and acuity.

At a minimum, the model should be changed to ensure that a minimum of 42 and a maximum of 50 hours of coverage per day are provided in the Greater Niagara General emergency department, with eight hours of coverage to be provided between the hours of 11 or 12 p.m. and seven or 8 a.m., and the remainder distributed between the hours of seven or 8 a.m. and 11 p.m. or midnight.

Recommendation:

It is recommended that:

(1) The hours of coverage of the greater Niagara General emergency department should be increased to between 40 and 48 hours per day.

The night shift should be single covered.

The remainder of coverage should be distributed amongst the day and evening shifts, with double and triple coverage offered at-times of high visit volumes.

3.7 Emergency Department Flow

In order to ensure maximum utilization of increased physician hours, it behoves the hospital to ensure that models are in place to maximize patient flow

In order to ensure maximum utilization of increased physician hours, it behoves the hospital to ensure that models are in place to maximize patient flow. Opportunities to do so include:

- nursing initiated protocols (medical directives) at triage
- empowerment of nursing and other professional staff
- full scope of practice of professional staff
- the use of care maps
- consultant response time policies
- development of a clinical decision unit
- formalization of a fast-track

3.7.1 Triage

The triage process used is inefficient

The triage process used is inefficient. There are two nurses assigned to triage, one of whom triages most patients, and the second is responsible for triaging ambulances, compiling the charts at triage completed by his or her triage colleague, taking patients to a room and reassessing patients in the waiting room. There is no physical space in either triage room for a stretcher, so patients requiring an ECG are taken to a separate room across the hall where the ECG is completed. Generally ECGs are completed by an ECG technician except between the hours of 2000-0800 hrs. A lab technician is called to perform blood tests and is available 24/7.

It would be a much more efficient use of nursing and space to have patients undergo an assessment in the triage room, with, not only electrocardiograms, but blood tests completed at the time of triage by the triage nurse.

Recommendation:

It is recommended that:

(2) A committee of triage nurses should investigate opportunities to revise the triage process.

3.7.2 Medical Directives

It is entirely within the scope of experienced, appropriately educated Emergency Department triage nurses to determine which patients can, and should, benefit from investigations initiated either at triage or shortly after presentation

It is entirely within the scope of experienced, appropriately educated Emergency Department triage nurses to determine which patients can, and should, benefit from investigations initiated either at triage or shortly after presentation by the primary care nurse.

The College of Nurses of Ontario practice guideline for directives (Pub. No. 41019) identifies "a directive may be implemented for a number of clients when specific conditions are met and when specific circumstances exist. A directive is always written and refers to an order from either a Nurse Practitioner or Physician".[1]

The development of directives, based on a literature review and current best practice, should enable the nurse, at his or her discretion, to initiate blood tests, start an intravenous, perform echocardiograms, or administer therapy for commonly presenting conditions. Doing so may eliminate the delays currently encountered. Such directives have been shown, in other constituencies, to shorten Emergency Department length of stay by as much as two hours.

The College of Nurses of Ontario practice guideline for directives (Pub. No. 41019) states that "directives, correctly used, can be an excellent means to provide timely, effective and efficient client care, using the expertise of the NP or physician who orders the directive, and the health care practitioner who uses discretion and judgment when implementing it. The directive, regardless of how generic its contents, is an order for which the NP or physician has ultimate responsibility."[2]

The development of medical directives is currently underway across the Niagara Health System. The directives, both those completed and those in process, have been reviewed. They are found, appropriately, to focus on common presenting conditions in the

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[1] College of Nurses of Ontario (2008) Practice Guidelines – Directives (Pub. No. 41019).

[2] Ibid.

emergency department. The format in which they have been produced, including a preamble, indications, contraindications, etc. is also appropriate.

The format meets the requirements of both the College of Physicians and Surgeons of Ontario and the College of Nurses of Ontario. It is suggested that the College of Nurses of Ontario practice guideline for directives (Pub. No. 41019) be included in the reference standard for medical directive #1.

It is assumed that nursing staff were involved in the compilation of these directives, although this is not explicitly stated. The College of Nurses of Ontario recommends that health care professionals affected by the directive be involved in the development of the directive through a collaborative process. A key component of the development of the directive is for the "health care team to determine whether a procedure can safely be ordered by means of a directive, or whether direct assessment of the client by the NP or physician is required before a procedure is implemented. Procedures that require direct assessment of the client by the NP or physician require direct orders."[3]

Concerns with regard to the directives are fourfold. While the clinical condition which leads to the implementation of the directive is explicitly stated, opportunities to maximize on the nursing scope of practice, as pertains to making judgments regarding which patients should have the directive invoked and which should not, could be enhanced. Furthermore, although not a requirement, the supporting literature for the directives is not explicitly listed on many of them. Listing the literature provides readers with an opportunity to explore the rationale for the directive, as well as providing a template upon which to regularly revisit directives, as the directives should be reviewed every three to five years. Listing the previous literature will provide an opportunity to compare it with new literature, thus creating a format for regular evidence and critical appraisal based decision-making regarding the content of the directives. The number of tests to be performed on patients appears to be too inclusive, and could, perhaps, be reduced with a critical review of the literature as it pertains to the investigation of various medical conditions. There is inconsistency of the requirements for nursing documentation across the medical directives. It is suggested that the documentation section of the medical directives be reviewed

[3] College of Nurses of Ontario (2008) Practice Guidelines – Directives (Pub. No. 41019).

to include consistent components of documentation such as initiation of the specific medical directive, assessment, interventions, date and time of implementation and signature.

It subserves the quality goals of the Niagara Health System to ensure that medical directives are consistently applied in all sites operated by the system

In our opinion, it subserves the quality goals of the Niagara Health System to ensure that the medical directives are consistently applied in all sites operated by the system. Constancy of medical directives will allow, should it evolve, physicians to work in the various sites which the system operates confident that consistent approaches to patient management will be undertaken. It will also facilitate, should, in the future, nurses migrate from one site to the other, consistency in nursing practice across all sites.

It has, however, been reported that there is a reluctance on the part of the current cadre of emergency physicians at the GNGH to implement the system-wide directives. Further, the process which they have used to develop their "in house" directives does not comply with the necessary methodology for developing and implementing medical directives in the emergency department. The College of Physicians and Surgeons of Ontario (policy 4-03 on the delegation of control) lays out the specifics of how such directives are to be developed, disseminated, and enacted. It is beyond the purview of any physician, or group of physicians, to suggest that nursing staff should not expect to be supported by this standard the development of medical directives.

The College of Nurses of Ontario practice guideline further outlines the information required in a directive, the corresponding policy and procedures to support the directive, and the responsibilities for the health care professional who implements the directive. It is suggested that supporting policies be developed for the medical directives as outlined in the College of Nurses of Ontario practice guideline for directives. It is also suggested that these policies be completed prior to the education and implementation of the medical directives.

Recommendations:

It is recommended that:

(3) The emergency medicine program committee should continue the development of medical directives.

(4) Medical directives should be consistent across all sites operated by the Niagara Health System.

(5) The physicians working at the Niagara General site should participate in the Niagara Health System process of the medical directives development, and ensure timely approval.

(6) The Niagara Health System (NHS) GNG site emergency department should implement the medical directives that are approved by the Niagara Health System Emergency Departments.

3.7.3 Empowerment of Nursing and Other Professional Staff

Staff that work in the emergency department should be encouraged and facilitated to work at their full scope of practice

In addition to medical directives, staff that work in the emergency department should be encouraged and facilitated to work at their full scope of practice. This would allow the nursing staff, or other professionals attached to the emergency department (such as social workers, CCAC , or others) to identify those patients that will require their services prior to their physician assessment in the emergency department, and commence the documentation necessary in order to arrange services in an optimal manner. It will also, should the patient be admitted to hospital, provide early initiation of the completion of any forms or paperwork necessary before discharge, thus contributing to shortened length of stay.

Recommendation:

It is recommended that:

(7) The Medical Advisory Committee should ensure that non-physician staff are empowered to do independent case finding in the emergency department.

3.7.4 Emergency Department Care Maps

Care maps, designed specifically for the management of patients presenting to the emergency department, will shorten length of stay and facilitate throughput

The existence of care maps, designed specifically for the management of patients presenting to the emergency department, will also shorten length of stay and facilitate throughput. Care maps for commonly encountered emergency department conditions (such as asthma, gastroenteritis, chest pain, etc.) will enable nursing and other staff to perform regular interventions at pre-designated intervals without waiting for physician review of patients and/or order writing. The use of such directives will facilitate throughput, and address the concerns expressed by physicians that having additional physician staff on site would be “redundant”.

Recommendation:

It is recommended that:

(8) A committee of emergency department care providers should compile care maps for the 15 to 20 commonest encountered conditions in the emergency department.

When developed, these care maps should be shared with all sites operated by the Niagara Health System, and be common amongst all sites.

3.7.5 Internal Transfers

Concern was expressed by members of the Niagara Health System regarding compliance with previously written internal transfer policies. Specifically, protocols have been developed to facilitate the transfer of patients seen by an emergency physician at one site in the Niagara Health System to a consultant at another site. It is reported that patients seen by an emergency physician at one site, and transferred to Niagara Falls for consultation, have been seen by emergency physicians at GNGH and discharged home without being reviewed by the consultant to whom the patient was referred. This has arisen, apparently, because consultants insist that the patient be seen by the emergency physician at GNGH. The consultants refuse, allegedly, to be the physician responsible for transferred patients. While it is entirely appropriate for an emergency physician to see the patient upon arrival in order to ensure their clinical stability, and to determine the need for urgent or emergent consultant intervention, it is inappropriate for an emergency physician to be made responsible for discharging a patient transferred with the expectation that they will be seen by a consultant.

If, in fact, the consulting staff at GNGH have interposed the emergency physicians between themselves and the referring physicians at other sites operated by the NHS, the practice should cease immediately and consultants should be expected to review transferred patients when they arrive in the GNGH ED.

Recommendation:

It is recommended that:

(9) Policies for the internal transfer of patients for consultation should be reviewed, and compliance with them assured.

3.7.6 Consultant Response Time Policies

The hospital should develop and implement consultant response time policies

In order to maximize throughput, and minimize the length of time for which stretchers are occupied, the hospital should develop and implement consultant response time policies, and ensure compliance with them. Details of this recommendation are contained elsewhere in this report.

3.7.7 Clinical Decision Unit

The use of clinical decision units has been associated with decreasing the rate of admission

As detailed elsewhere in this report, use of clinical decision units has been associated with decreasing the rate of admission to hospital, as well as optimizing the quality of care received for certain cohorts of patients. As one of the concerns expressed regarding the need for additional physician staffing relates to the lack of availability of stretchers in the main body of the emergency department, this unit can, and should, be created in the geographic space adjacent to, but not within the confines of the current emergency department. The creation of such a unit will decrease admissions to hospital (thus, facilitating throughput from the emergency department), and be under the administrative aegis of the physicians. Further details are contained elsewhere in this report.

Recommendation:

It is recommended that:

(10) The Niagara Health System (NHS) GNG site should create a clinical decision unit.

3.7.8 Fast Track

A fast-track area would provide a facility in which those presenting with a minor injuries and illness could be assessed and evaluated in an accelerated manner. Many of the patients presenting to this area could, in practice be managed under the care of a nurse practitioner working autonomously, or a physician assistant, working under physician direction. Both models have been described in the literature as having excellent outcomes. The area could, of course, also be served by a physician.

Some modifications will be necessary to the current area in which "fast-track" type patients are treated in order to make the unit maximally efficient.

Recommendation:

It is recommended that:

(11) The Niagara Health System (NHS) GNG site should create a properly designed and equipped fast-track area.

The area may be staffed either by a nurse practitioner, physician assistant, or emergency physician.

3.7.9 Chart Flow

Department flow could be improved by enhancing the model for chart flow

Department flow could be improved by enhancing the model for chart flow. The charge nurses do not take any responsibility for patient flow. Rather, charts are placed on a rack, and physicians choose to see patients in the order in which suits them. While an effort is made to triage charts by nursing staff, there is no regular process of reviewing the charts of patients waiting to be seen and ensuring that those in most urgent need are seen first. Additionally, physicians will oftentimes "batch" patients, take a number of charts with them, see a significant number of patients, particularly in the lower acuity or fast-track area, and subsequently pass the charts to the nurse for any orders which need to be completed.

A more organized system, in which the charge nurse, or a designate, ensures that all charts are triaged and patients are seen in the order in which the charts are arranged, and charts returned to a single designated nurse to ensure orders are implemented etc. would improve flow. That individual should also take responsibility for collating chart with returning Lab and/or x-ray results, and ensure that the chart passes to the physician in a timely way to facilitate admit, discharge or referral decisions.

Recommendation:

It is recommended that:

(12) A committee of Emergency Department care providers should develop a "chart flow" model.

3.7.10 Monitoring

The department has a large number of monitored beds, with the central monitoring unit. There is, however, no nurse assigned to monitor the central monitor. One nurse should, as part of his or her assignment, have this explicit responsibility.

Recommendation:

It is recommended that:

(13) A nurse should be assigned to monitor the central monitor.

3.7.11 Assignment of Nursing Staff Breaks

Currently the nursing staff do not have specific times for breaks. This impacts patient flow as nurses are constantly coming and going for breaks at different times and are covering for staff throughout the shift rather than a set period of time during meal times. There is also inconsistency of the length of time breaks are taken. This makes it difficult for coordinating patient care, transfers, and procedures to enhance patient flow. The department should consider developing scheduled times for breaks and assignment of these breaks on a shift to shift basis.

Recommendation:

It is recommended that:

(14) The manager should ensure nursing staff breaks are scheduled at specific times and assigned by the charge nurse each shift.

3.7.12 Medication availability

Medications are dispensed utilizing unit dose through the Automatic Unit Dose Dispensing system. Nursing staff spend a significant amount of time each morning dispensing medications for admitted patients. This results from nursing staff having to select single stock medications and medications grouped for that patient that are non stock to obtain the necessary medications. This is an inefficient use of nursing time and delays medication times for patients. The department should work collaboratively with the Pharmacy Department to develop a strategy to address the lengthy process for medication dispensing for admitted patients.

Recommendation:

It is recommended that:

(15) The director should facilitate the development of a team of emergency department and pharmacy staff to review the process of medication dispensing for admitted patients and recommend streamlined processes to enhance efficiencies and timely medication administration.

3.7.13 Charge Nurse Role

The charge nurse role should be re-examined and should transition from a task based role to a comprehensive leadership role

There are two permanent charge nurses that rotate and work 12 hr days Monday-Sunday. During the 12 hr night shift, the charge nurse role is assigned to a nurse working that shift. Charge nurse tasks include, but are not limited to, order entry, staffing, ambulance calls, calling units for beds, and coordination with the triage nurse. The charge nurse role does not include a formal patient flow component. The permanent charge nurse on the day shift does not provide patient care while the charge nurse on the night shift does have a small patient assignment. The charge nurse role should be a leadership role within the department. The charge nurse role should be re-examined and should transition from a task based role to a comprehensive leadership role which includes coordination of department clinical activities and patient flow.

Recommendation:

It is recommended that:

(16) The manager should convene a working group comprised of charge nurses and staff to reexamine the role of the charge nurse.

3.7.14 Patient Flow

Opportunities exist to make patient flow more efficient

A number of opportunities exist to make patient flow more efficient. For instance, nurses porter patients to some tests, as there are no program designated porters in the hospital, except for those assigned to diagnostic imaging. There is an Aid scheduled during the day shift to assist with portering, however this is not sufficient to meet the portering requirements. The emergency department should consider opportunities to review the role of the Aid and enhance the portering function.

Recommendation:

It is recommended that:

(17) The GNGH should consider enhancing the Aid role in the emergency department.

In addition, there are delays reported in transferring patients to available inpatient beds. The hospital should establish a system in which vacated beds are reported promptly, with an expectation that the bed will be cleaned within a half-hour of being vacated, and refilled within a further 30 minutes. A process should be

established, and compliance with the standards measured and reported regularly.

Recommendation:

It is recommended that:

(18) GNGH should establish patient flow policies to ensure that patients are admitted from the emergency department in a timely way when beds are emptied.

In addition, it has been reported that there are regularly Saturday morning "clinics" conducted, in which surgeons evaluate patients and arrange for their prompt admission for elective or semiurgent problems. This model is seen as a circumventing the hospital's existing booking structure, as well as being an inappropriate use of the emergency department.

The use of emergency department facilities for the semi-elective management of patients is a practice which should be ended.

Recommendation:

It is recommended that:

(19) The Medical Advisory Committee and senior management team should develop and implement policies which prohibit the use of the emergency department for semi-elective admissions.

The single greatest impediment to flow is the congestion of the ED which is a consequence of the presence of admitted patients in the ED. Analysis of the magnitude of this issue and generating solutions are beyond the scope of this review. This would require detailed analysis of the frequency of admissions, lengths of stay and other factors such as staffing models. However, notwithstanding the fact that a detailed analysis of the issue has not been conducted, the issue will be improved if many of the recommendations in this report are adopted, such as those pertaining to consultant response times and shifting to a more interdisciplinary model of care in which non physician providers are practicing at their maximum scope of practice.

3.8 Nurse Staffing

The nursing staffing at Greater Niagara General is stable at this time

The nursing staffing at Greater Niagara General is stable at this time. There are no vacancies and there is minimal use of agency staff. It is reported that fulltime staff are working an increasing number of

overtime hours. This is partly due to the small number of part time (4) and casual staff (15) on the roster The small number of part time and casual staff, does not provide sufficient flexibility in mobilizing part time and casual staff to cover the posted schedule or provide sufficient availability of part time staff to pick up additional shifts. Job share staff are also generally working full time hours to manage the unscheduled and additional shifts. There are three relief positions that have been created to cover sick and maternity leaves of absence. The three positions are fully utilized and are within the budgeted staffing patterns. It is suggested the department review their ratio of FT to PT/casual nursing staff and consider increasing the number of PT and casual staff. More part time staff to cover the same number of budgeted shifts and/or required additional shifts for acuity or admitted patients will provide greater flexibility of scheduling shifts and decrease the number of overtime shifts.

There is a good mix of novice to experienced nurses. Novice nurses account for approximately 20% of the nurses assigned on any given shift. The higher ratio of experienced nurse to novice nurse enables greater flexibility for patient assignments and increased mentoring and education of the novice nurse. The Niagara Health System participates in the new graduate initiative through the MOHLTC Nursing Secretariat and this has been an effective means of recruitment.

There are two educators for the Niagara Health System emergency departments. Currently the education needs exceed the capacity. The educators regularly meet with the directors and managers to review education priorities. The staff have had minimal input into identifying the education priorities. Two priority areas for education that have been identified by the staff include eye examinations and CBRN training. It is suggested that an education team including staff from the emergency department and the educators be struck to develop collaborative processes to determine the priority education needs of the staff.

There is a comprehensive orientation program for new nursing staff

There is a comprehensive orientation program for new staff. CTAS education is completed for 95% of the nursing staff. The Trauma Nursing Core Course (TNCC) is not mandatory but recommended for nursing staff. PALS and ACLS are mandatory and the hospital reimburses the cost of recertification.

Only a few nurses are emergency nurse certified through the Canadian Nurses Association. These courses are not paid by the hospital and therefore poorly attended. Nurses, as part of their

professional development, are encouraged to receive this designation.

4.0 Leadership

4.1 Physician Leadership

The leadership model for emergency medicine has been the subject of a previous review prepared for the hospital by Hay Group. In that document, it was suggested that each of the emergency departments should have a site specific chief, with protected time set aside for administrative activity. The hospital is currently considering the recommendations made in the report, and, apparently, is planning to revisit its administrative model in the near future.

In the interim, there is a site chief who works full-time clinical hours, and is reported as not participating fully in either the Niagara Health System's, or the Greater Niagara General site specific administrative activities. Concerns include a lack of attendance at meetings, a lack of availability outside of clinical hours (i.e. he does not make himself available by cell phone or pager), and a lack of participation and attendance and emergency program administrative and department meetings.

It is imperative that the individual vested with responsibility for ensuring the quality and safety of care in an emergency department set aside sufficient time for the administrative tasks which ensure this responsibility is addressed

It is imperative that the individual vested with responsibility for ensuring the quality and safety of care in an emergency department set aside sufficient time for the administrative tasks which ensure this responsibility is addressed. This requires not only regular office hours devoted, amongst other tasks, to physician performance management, recruitment, audits, and communication with other services, but also that he or she is available to respond to ad hoc contingencies as they arise.

Conversely, it is also recognized that asking individuals to take leadership responsibilities requires adequate support, including not only the provision of compensation, but appropriate office space and infrastructure, such as secretarial, computer, and information technology support.

During our interview process, it also became clear that those working at the Niagara Health System (NHS) GNG site emergency department interpret their performance in the context of other hospitals in the Niagara Health System, and the attitude is one of "competition" as opposed to collaboration, cooperation and consensus building across the system.

The hospital should strive to ensure that performance in all emergency departments is compared not with internal peers, but with external standards

On a go forward bases, it will be essential for the Niagara Health System to ensure that a culture of a single institution, with common policies, procedures, clinical objectives and standards unfolds. The hospital should strive to ensure that performance in all emergency departments is compared not with internal peers, but with external standards. It should also ensure that each site strives not to meet, but rather to exceed, the objective measures demonstrated in other centers.

This will require devoted physician leadership, and a firm commitment to invest the time and energy necessary to provide this leadership.

Until such time as the Niagara Health System has completed its review of its leadership and management model, it should commit itself to providing the supports necessary to the physician leader of the Greater Niagara General emergency department. However, in exchange for the support, it should insist upon a quality of leadership which ensures that the deliverables outlined are met. Thus, the chief must be available to respond to ad hoc concerns, attend program meetings, participate in strategic and other planning exercises, and most importantly, he or she should be expected to provide true leadership in forging a new and collaborative relationship with the Niagara Health System.

Recommendation:

It is recommended that:

(20) The CEO of the NHS should ensure that the compensation provided to the chief of the Niagara Health System (NHS) GNG site adequately compensates for the time necessary for the role.

The Chief of Staff should negotiate a performance agreement with the chief of emergency medicine in the Greater General Hospital

Should the incumbent not wish to carry on in the role, the hospital should strike a search committee, and invite both internal and external applications

4.2 Nursing Leadership

In considering the leadership model, consideration must also be given to nursing leadership. Both the Director and the manager have been in their roles for a short period of time, one year and one month respectively. A “nursing” leader has been appointed to the manager

position, although he, in fact, comes from a background in respiratory therapy. Although the newly appointed leader is a novice leader, he has a sound understanding of professional practice and a significant commitment to ensuring success of the emergency department. However it is novel and unique to appoint a non-nurse as the nursing leader of the emergency department.

It will be essential, if this individual is to succeed, to ensure that he has all the appropriate supports in-place to facilitate success. This will require, amongst other issues, mentorship and guidance, as well as specific support as it pertains to professional issues within the nursing domain.

Stability of the nursing leaders will be key to developing and sustaining relationships with the staff and enhancing team cohesiveness

Stability of the nursing leaders will be key to developing and sustaining relationships with the staff and enhancing team cohesiveness.

There should be regular opportunities for communication with the nursing leaders. This may be in the form of staff meetings or Niagara Health System (NHS) GNG site may want to consider implementing shared governance. "Shared governance is a philosophy and structure that supports decentralized decision making, shared ownership and accountability and develops partnerships amongst key stakeholders. It is about having a voice, being informed, and heard."[4]

One component of the shared governance structure is a unit council. The purpose of the unit council is to provide a forum for the emergency nurses in which staff can make as many decisions as possible in relation to standards, quality patient care and their practice. The unit council will strengthen communication, increase staff accountability and build trust between the staff and leadership.

Other strategies to enhance communication may include weekly scheduled "open" time in the leaders' calendars where staff may access the leaders directly as needed.

[4] Moore, S. & Hutchison, S. (2007) *Developing Leaders at Every Level: Accountability and Empowerment Actualized Through Shared Governance* Journal of Nursing Administration. Vol.37 (12) pp 564-568.

5.0 Quality of Care

Quality of care should not be a subject of internal competition. It needs to be measured with respect to peer hospitals

There are few objective parameters which are widely accepted as measuring the quality of care received in emergency departments. The providers at GNGH have collated a number of indicators which, in their opinion, provide evidence that the quality of care offered at the site equals or exceeds that of the Niagara Health Systems other sites. As indicated elsewhere in this report, the quality of care should not be a subject of internal competition. It needs to be measured with respect to peer hospitals. It is disconcerting that rather than cooperating and collaborating in establishing common policies, procedures, protocols, care maps, etc. in an effort to ensure the quality of care received in any of the Niagara Health System's sites is appropriate and of the highest possible quality, one group has set itself up in competition with others within the system.

The analysis which follows compares the performance of the Greater Niagara General to external peers, while recognizing that there are or may be opportunities for the system as a whole to improve its performance.

5.1 Total In Department Time

With specific reference to the total time spent in the emergency department, the provincial target has been set at eight hours for the 90th percentile for patients of high acuity, and four hours for patients of low acuity. At the Greater Niagara General for the months of July August and September of 2008, the 90th percentile for high acuity patients is 14.3 hours, exceeding not only the provincial target, but also the provincial average of 12.7 hours. For low acuity patients, Greater Niagara General's performance is 4.6 hours, in excess of the target of four hours, but approximately equal to the current provincial average.

In November of 2008, the Greater Niagara General performance was 15.5 hours, considerably in excess not only of the provincial target, but also the current provincial average of 13.6 hours. The current Greater Niagara General performance for those presenting with minor conditions is an average of 4.8 hours,

5.2 Left without Being Seen

A further measure of quality is the percentage of emergency department patients leaving before the completion of treatment. At Greater Niagara an average of 5.8% of patients leave before completion of treatment, with a literature standard of 3%. Currently,

0.6% of CTAS 1, 2.3% of CTAS 2, 5.3% of CTAS 3, 7.4% of CTAS four and 8.1% of CTAS five patients leave before the completion of treatment. Provincial average performance for each of these categories for the last fiscal year was 0.6% of the CTAS one patients, 2.4% of CTAS 2, 4.9% of CTAS 3, 4 .9% of CTAS four, and 5% of CTAS five patients, with a provincial average of 4.6%. Thus, the Greater Niagara General performance not only does not match the target, but also does not match the average provincial performance.

A system to ensure follow up of those at high risk who leave the emergency department without seeing the physician should be in place

A system to ensure follow up of those at high risk who leave the emergency department without seeing the physician should be in place in all emergency departments. At the current time, there is no specific protocol for calling patients who leave without seeing a physician. While not all patients need to be re-evaluated or followed, those belonging to high risk groups, such as children under the age of two, patients presenting with fever, patients presenting with chest pain, and all patients over the age of 75 should receive a phone call within 24 hours to determine their current clinical state and, where appropriate, recommending that they return to hospital.

Recommendation:

It is recommended that:

(21) The GNGH should immediately institute a left without being seen follow up policy.

5.3 Chart Review

A chart review was also conducted, in which the last 30 charts of each of the physicians working in the emergency department were reviewed. This chart review revealed charting deficiencies by all physicians. The deficiencies included incomplete histories and physicals, lack of a clear differential diagnosis, lack of reassessments of patient response to treatments, and the frequent ordering of investigations including blood tests and x-rays which did not appear to be indicated based on the clinical circumstance. This may, in fact, reflect that physicians are too busy trying to see a large number of patients in a specified time period.

5.4 Triage to Physician Intervention

An attempt was also made to analyze the Greater Niagara General physician performance with regard to the interval of time between

patient triage and physician intervention. Unfortunately, of the approximately 14,500 charts compiled between October 2008 and January 31st 2009, only 8900 had physician times documented. Thus, any analysis may be inaccurate.

5.5 Impact of Extended Shifts

An issue which has been reported in departments with extended shift length is a tendency for physicians (and, of note, nursing staff) to decrease productivity towards the last two hours of shifts. In reviewing the data for the average length of time between patient presentation and physician intervention between the hours of 4 p.m. and 6 p.m. (the last two hours of the physician day shift) it is noteworthy that the average time for physician intervention reaches its peak of 18.9 minutes, the longest of all measured intervals for patients presenting with CTAS 1 problems. Similarly, patients with CTAS 2 wait approximately 79 minutes, CTAS 3, 23 minutes, CTAS 4 123 minutes, and CTAS five patients 111 minutes. The wait times recorded for each of the CTAS levels during the last 2 hours of a physician shift is longer than wait times recorded in the first 8 hours of a physician shift.

5.6 Door to Needle Time

Reviewing be "door to needle time" performance of the Greater Niagara General site for the interval April to December of 2008, 29.6% of the patients who received thrombolytic therapy received it after the target goal of 30 minutes. While this performance compares favourably with other sites operating in the Niagara Health System, it remains significantly outside the standard of care expected.

5.7 Diagnostic Imaging

It is a standard of care that a system which ensures that x-rays interpreted by emergency physicians are reviewed by a radiologist, and any discrepancies reported to the emergency physician and acted upon, be in place

An attempt to review the quality of diagnostic imaging interpretation was inhibited by the fact that no x-ray recall system exists in the department. It is a standard of care that a system which ensures that x-rays interpreted by emergency physicians are reviewed by a radiologist, and any discrepancies reported to the emergency physician and acted upon, be in place. Of note, while medical staff assert that a system exists, according to nursing staff there is no such system. In their view, physicians express reluctance to take responsibility for contacting patients with discrepant readings. If there is no system to deal with X ray recalls, one should be implemented immediately and emergency physicians should be

expected to contact the patients and arrange appropriate re-evaluation.

Recommendation:

It is recommended that:

(22) The Niagara Health System (NHS) GNG site emergency department should immediately implement an x-ray recall system.

5.8 Throughput

5.8.1 Consultant Issues

The lack of timely throughput will adversely affect waiting times, and total patient times in the emergency department

A significant problem currently encountered in the emergency department is the lack of availability of inpatient beds, which, it is felt, significantly inhibits throughput in the emergency department. At least in part, a lack of availability of in patient beds is cited as a rationale for the physician staffing model, in that it is believed that the lack of inpatient beds results in occupancy of emergency department beds by admitted patients, thus interfering with throughput from the waiting room, and minimizing the need for additional emergency physician staffing.

The lack of timely throughput will adversely affect waiting times, and total patient times in the emergency department. However, it is also reported that the emergency physicians will regularly keep patients in the emergency department overnight awaiting consultant review the following day. Apparently, consultants are rarely called to the department after 8 p.m.

While it may be argued that the lack of inpatient beds diminishes the need for urgent or emergent consultant response, as there is no immediately available inpatient bed, this model is adversely affecting the quality of emergency department care. In particular, if consultation is warranted, patient care can only be improved by ensuring the consultation earlier in the course of care.

Should consultants be called, the needed to identify and or create an inpatient bed would become a greater imperative for consultants. This would result in a shortened inpatient length of stay, and better management of inpatient bed resources.

It would also, at least in some cases, result in patients being moved from the emergency department to the inpatient units, thus obviating

flow from the waiting room to the main body of the emergency department.

As an alternative, if consulting staff are willing to have emergency department physicians admit patients to their service, as apparently occurs on occasion, this alternative may be considered. If this is to occur, the following model is suggested:

The emergency physician should determine whether the patient needs only consultation, or urgent, or emergent admission.

If it is felt that the need for consultation is deferrable, patients should be discharged, and arrangements made for the patient to be evaluated by the consultant on call the following day, either in their office or in a hospital outpatient facility.

If the patient needs urgent, but not emergent admission (for issues such as mild to moderate congestive heart failure, diabetes, small bowel, obstruction, etc) the patient may be admitted directly to a specialty bed. The admitting consultant should take responsibility for the patient, and give the orders to the nurse over the phone prior to the patient's transfer to the inpatient unit.

If the patient is felt to be in need of emergent consultation (e.g. perforated viscous, myocardial infarction), an on-site response should be expected within one hour of the consultation being initiated

Recommendation:

It is recommended that:

(23) The Niagara Health System should develop, implement, and enforce policies which result in patients being admitted to hospital in a timely manner.

5.8.2 Clinical Decision Unit

A further opportunity to optimize the quality of care, while concomitantly managing the need for inpatient resources, would be to develop a clinical decision unit within the emergency department. This may be done either by creating a "real" or a "virtual" unit. This unit should be devoted to the care of patients specifically designated as appropriate according to the body of available literature. Responsibility for the management of these patients should rest with the emergency physician. It should be expected that all patients admitted to the unit will either be discharged within 23 hours, or

admitted within one hour of the period of extended emergency department observation and treatment being terminated.

Specific policies and care plans should be developed for each of the diagnostic groups of patients deemed appropriate for the Clinical Decision Unit

Specific policies and care plans should be developed for each of the diagnostic groups of patients deemed appropriate for this unit, and may be implemented by nursing directives. Staffing of the unit may be provided by a nurse practitioner, or registered nurse. The emergency physician on duty should, at all times, be the designated physician responsible for patients in the clinical decision unit

Recommendation:

It is recommended that:

(24) The Niagara Health System (NHS) GNG site should develop a clinical decision unit in the emergency department.

5.8.3 Elective Surgery

The use of the emergency department for "semi-elective 'surgery is entirely inappropriate

Multiple patients present to the site, particularly on weekends, for "elective" or "semi-elective" admission to hospital. These patients are primarily referred by surgeons, oftentimes for preparation for surgery which will be booked later in the day. This use of the emergency department is entirely inappropriate, and the practice should stop. It inappropriately uses nursing and bed resources in the department, and adversely affects flow.

Recommendation:

It is recommended that:

(25) The Medical Advisory Committee should establish policies ending the use of the emergency department as an admitting venue for semi-urgent surgical patients.

6.0 Sustainability of the Staffing Model

Emergency physician stress and burnout is accelerated by shifts in excess of eight hours duration, or excessive number of clinical hours provided in a calendar year

There is an abundant body of literature which attests to the fact that emergency physician stress and burnout is accelerated by shifts in excess of eight hours duration, or excessive number of clinical hours provided in a calendar year.

The implications of staffing models such as those at Greater Niagara General have been shown in the literature to both adversely affect physician wellness, and the quality of patient care. Implications for patient care which have been documented to occur as a consequence of physician stress and burnout include, amongst other phenomena:

- becoming argumentative and inpatient
- procrastination and neglect of patient care needs
- increasing hostility
- absenteeism from the workplace
- decreased tolerance.

In addition, attitudes such as blaming and helplessness and ambivalence and risk-taking have also been reported and may also adversely affect the quality of patient care.

In addition, as noted above, a variety of effects on physician health have been reported. These include:

- chronic fatigue
- sleep problems
- frequent physical symptomatology
- over/under eating
- increasing use of alcohol and drugs
- mood swings
- anxiety and irritability
- helplessness and hopelessness
- hypertension

Additionally, it has been well documented that productivity decreases in the last two hours of extended shifts, and the rate of errors in the final hours of extended shifts is increased.

Recommendation:

It is recommended that:

(26) Physician shifts in the emergency department should not exceed eight hours in duration.