

# No room at the inn: overcrowding in Ontario's emergency departments

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## Introduction

Emergency department overcrowding is a chronic, systemic and serious public health issue that affects all EDs in Ontario. It has numerous negative consequences, including the potential for increased morbidity and mortality and placing the general public at risk as a result of ambulance diversion. Despite the chronicity of the problem and an impressive international literature base, ED overcrowding remains poorly understood by government, regional health authorities, hospital administrations and the leaders of organized medicine.

On Dec. 14, 2000, the Canadian Association of Emergency Physicians (CAEP) and the National Emergency Nurses' Affiliation (NENA) released a Joint Position Statement on emergency department overcrowding.<sup>1</sup> On the same day, the Section on Emergency Medicine of the Ontario Medical Association released its own Position Paper.<sup>2</sup> The Section's paper, *No Room at the Inn*, was based on a literature review and attempted to provide a factual basis for focused reform and resolution of the problem. It is précised here.

**Definition:** Emergency department (ED) overcrowding is not clearly defined in the emergency medical literature. This lack of definition limits our ability to study the problem and develop effective solutions.

EDs were designed to evaluate and manage patients over a 2- to 3-hour period.<sup>3</sup> When the delay in transfer of admitted patients to a hospital bed is longer than 4 hours this could be classified as overcrowding. The ED can become gridlocked, with no available beds to bring in new acutely

ill or injured patients from either the waiting room or from arriving ambulances.<sup>4</sup> Admitted patients in the ED utilize a disproportionate share of resources. They require 2.5 times more service from emergency physicians and nurses compared to the average ED patient.<sup>5</sup>

A reasonably functional definition is that overcrowding exists when the volume of patients seeking care exceeds an ED's capacity to provide care within an ideal time frame.

## Scope of the problem

ED overcrowding is not unique to North America. It has been described in Australia, Great Britain, Spain and Taiwan.<sup>4,6,7</sup>

In the US, ED overcrowding emerged as an issue in the mid-1980s, reported initially from New York City.<sup>8,9</sup> It soon became recognized as a widespread problem in urban centres across the United States.<sup>10</sup> In 1989, the American College of Emergency Physicians (ACEP) conducted an informal poll of state chapter presidents to gauge the extent of the problem nationwide. Forty-one state chapters and the District of Columbia reported serious problems with ED overcrowding.<sup>11</sup> The following year, in a survey of US teaching hospitals, Andrulis and colleagues determined that 38% of 277 responding institutions reported that overcrowding sometimes forced them to hold admitted patients in the ED for 24 hours or longer.<sup>12</sup> In response to growing concern by its members, ACEP convened a national task force whose recommendations were published in 1990.<sup>13</sup>

In recent years, ED overcrowding has become a major

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focus of national media coverage and public concern in Canada. However, it is not a new problem. In Ontario, ED overcrowding was initially reported in the late 1980s<sup>14-19</sup> and continued throughout the 1990s.<sup>20</sup>

In the late 1990s, ED overcrowding had risen to such crisis proportions in Toronto that a task force was struck by the Ontario Hospital Association (OHA) to review the root causes and to develop a series of recommendations for its solution.<sup>21,22</sup>

Despite its characterization as an urban problem, it is clear that overcrowding also exists in nonurban environments.<sup>23</sup>

## Causes of ED overcrowding

The causes of ED overcrowding are complex and multifactorial.<sup>9,11,24-26</sup> These were summarized by Derlet and Richards,<sup>24</sup> and their article forms the basis for the following section.

### 1. Lack of beds for patients admitted to the hospital

In Ontario and throughout Canada, the lack of beds for patients admitted to the hospital appears to be a significant contributor to ED overcrowding. With insufficient hospital beds, patients in the ED who require hospitalization must wait in the ED until a bed becomes available. In Ontario, the hospital system is currently designed to operate on a bed occupancy rate of 95%. Many authorities suggest that a bed occupancy rate of 85% would provide the system with much needed flexibility.<sup>27</sup>

In Toronto, the OHA reported an overall decline in the number of staffed acute care beds of 19.2% between 1992 and 1996. This was noted to be extremely close to the decline in the overall hospital census of 19.6%, suggesting that overall hospital occupancy for the region had remained stable. However, the report points out that the mix of beds available has not been maintained in proportion to demand. For example, the volume of cases that required critical care increased 1.4% in the period 1992/93 to 1996/97, while the number of critical care beds declined by 6.6%.<sup>21</sup>

In the past 6 years there has been a reduction in acute care beds of 22%, occupancy rates are up by 7.4% and critical care beds have been reduced by 10.7%.<sup>22</sup>

In Ontario, the problem is not only due to an absolute reduction of beds but also due to a lack of flexibility in service-specific bed allocation. This leads to problems with the mix of beds available at times of high demand. Most authorities would agree that there is a requirement for "flex beds" to allow for variations in bed demand.<sup>28</sup>

There is also a problem with "alternate level of care" (ALC) patients who would be best served by transfer to a long-term care facility, but because of a shortage of long-

term beds, occupy acute care hospital beds. The utilization of acute care beds by ALC patients — "bed blockers" — contributes to the problem of ED overcrowding by preventing the admission of emergency patients to hospital beds. A recent OHA survey of hospitals in Toronto<sup>21</sup> revealed that ALC patients occupied an average of 10% of total staffed bed capacity. Some individual hospitals reported the percentage to be much higher, at 20% to 25%.

The report also revealed that "bed blockers" affect not only the ED but also critical care areas. The critical care capacity of the surveyed hospitals was reduced by 10% by patients awaiting transfer to other beds in the hospital.

### 2. Shortage of nursing staff

In 1999, Ontario had the lowest number of registered nurses employed in nursing per 10 000 population by province/territory in Canada; 67.6 nurses/10 000 population compared to the Canadian average of 74.6.<sup>22</sup>

There is a perception that there is a shortage of adequately trained emergency nurses in Ontario. This needs to be quantified. Experienced nursing staff are vitally important to the provision of high quality care in the ED.

One factor is the move of some hospitals to staff the ED with part-time nurses to lower costs. This creates shortages within the department as experienced personnel move into full-time jobs outside of the ED. A corollary to this problem is the high staff turnover in some EDs, leading to a higher percentage of new, inexperienced emergency nurses, who may not be as efficient in the delivery of care.

### 3. Increased complexity and acuity of patients in the ED

The population is aging and has more chronic disease that often exacerbates and requires ED care. AIDS, drug abuse, homelessness, domestic violence and the de-institutionalization of the mentally ill have also had an impact on the complexity of cases encountered in the ED. The increasing frequency of day surgery has led to increased visits to the ED for post-operative complications such as nausea and vomiting, poor post-operative pain management and wound infections.

The evaluation and maintenance of surgical critical care patients in the ED is no longer a rare occurrence.<sup>29,30</sup> Their collective requirement for procedures and laboratory investigations contribute to their ED length of stay (LOS). The use of computed tomography (CT) and special procedures are the strongest independent predictors of prolonged LOS.<sup>31</sup>

### 4. Increase in patient volumes

The ED is a major access point to the health care system

for Ontario's citizens. In 1990 there were an estimated 3.4 million annual visits to the province's EDs.<sup>16</sup> In 1993 there were over 4 million ED patient visits, and in 1999 that number had increased to 5.1 million.<sup>22</sup>

Between 42% to 55% of all ED visits involve nonurgent problems.<sup>32</sup> Most experts in the field of ED administration discount the effect of the "inappropriate" emergency patient, the patient who seeks primary medical care from the ED, as contributing significantly to overcrowding.

First, there is no agreement within the specialty of emergency medicine as to what constitutes an inappropriate visit.<sup>33,34</sup> There is also an increasing appreciation that the ED can provide acceptable primary care to a portion of the population, with no additional cost to the system. As such, the ED fills an important gap in the health care social safety net.<sup>9,35-40</sup> Finally, it is becoming increasingly apparent that declaring nonurgent use of the ED as the "fashionable scapegoat for the ills of the health care system" is not only misguided but can lead to inappropriate attempts to either restrict or divert access to the ED.<sup>41,42</sup>

### **5. Intensive therapy in the ED**

Advances in the scope of practice in emergency medicine have led to increasing LOSs for patients in the ED. Thrombolysis for acute myocardial infarction, sedation for painful emergency procedures and a new understanding of the need for more aggressive and prolonged therapy of asthma and migraine have led to more prolonged visits to the ED. Many conditions that used to require admission are now evaluated and managed in the ED, including thromboembolic disease, chest pain evaluation, nephrolithiasis and infectious diseases such as pneumonia and pyelonephritis. This requires additional human resources and ED beds.

### **6. Delays in service provided by radiology, laboratory and ancillary services**

As a result of advancing technology and changing standards of care, more patients in the ED need CT scans, ultrasounds and other diagnostic testing, all of which lead to longer ED stays.

In many hospitals, there has been the development of an institutionalized culture that does not actively support the smooth functioning of the ED. Delays in responding to requests for x-rays and laboratory tests inevitably lead to delays in treatment and prolonged ED stays.

### **7. Shortage of on-call specialty consultants, delay in response or lack of availability**

Specialist consultation is an integral component of emergency care. A consultant may be called to the ED to di-

rectly participate in the patient's care or may be contacted to provide a consult once the patient is admitted. Some patients, because of the complexity of their illness or injuries, may require more than one consultant.

The process of consultation can be complicated. One study<sup>43</sup> reviewed the response of consultants to a community ED. Although in many instances consultants responded to their initial page, multiple attempts were often required. After telephone contact, a significant interval (on average, 40 minutes) elapsed before the consultant actually came to the ED. Delays in consultant response contribute to prolonged ED patient stays and thus to overcrowding.

In the situation of smaller community hospitals, certain specialties may not be available, and emergency patients may need to be transferred to a larger hospital with even greater delays.

### **8. Shortage of physical plant space within the ED**

As the average LOS increases for patients presenting to the ED, a larger department becomes necessary just to facilitate the same number of patients. This problem becomes compounded when the ED experiences an increase in patient volumes.

Coupled to this is the change in practice patterns. Patients who were once admitted are now investigated, treated, observed and then discharged from the ED. This further increases the need for physical space.

### **9. Difficulty in arranging follow-up care**

Many patients in the ED require the involvement of home care or social services. Others require the arrangement of appropriate medical or surgical follow-up care. Such administrative requirements require considerable time and delay patient discharges from the ED.

### **10. Difficulty in the transfer process**

Inter-facility transport in the province has always been complex. The historic problem of finding an available bed for a given type of clinical problem has been greatly assisted in Ontario by dedicated, centralized Critical Care Access hotlines. Similarly, the requirement to find professional staff to accompany the patient while in transfer has been ameliorated in rural hospitals by the welcome development of dedicated Advanced Life Support (ALS) air ambulance personnel. The current problem, however, commonly involves the lack of availability of ground ambulance transport for patient transfers. In smaller community and rural hospitals, this leads to significant delays in the patient transfer process and can lead to ED overcrowding.

## Effects of overcrowding

Overcrowding in the ED has a number of sequelae that negatively impact on patient care.

### 1. Public safety at risk

Overcrowded EDs can be associated with poor patient outcomes. As physicians are seeing more complex, acutely ill patients, they often have inadequate time for proper patient assessments. This can lead to medical error, poor outcomes and increased medicolegal risk.

In 1 study of the influence of overcrowding on health care quality provided in a university teaching hospital, there was an observed, significant, positive correlation between mortality rates and the weekly number of patient visits.<sup>44</sup>

### 2. Prolonged pain and suffering

During times of overcrowding, emergency patients may experience prolonged pain and suffering unnecessarily because the ED staff is too busy to attend to them.

### 3. Long waits and patient dissatisfaction

An overcrowded ED will, by definition, lead to prolonged waits for treatment and increased patient dissatisfaction. This dissatisfaction is reflected in an increasing number of patients who leave without being seen. In Ontario in 1999, there was an increase of 2% in the number of patients who left the ED without having been assessed by a physician (Marion Lyver, EHS Consultant, Ministry of Health and Long Term Care, Province of Ontario: personal communication, 2001).

The consequence of this is the potential for seemingly minor medical problems to become more serious from delay in care. The myth that patients who "leave without being seen" usually have minor, insignificant illness has recently been dispelled.<sup>45</sup>

### 4. Increased costs

The overcrowding of EDs with inpatients results in an increased average inpatient LOS. This leads to increased costs per patient.<sup>46</sup>

### 5. Ambulance diversions

The incidence of ambulance diversion has increased, especially in urban areas. The consequences of these diversions are significantly increased transport times, limitations on system-wide response times, increased emergency health service system costs, risk of traffic accidents and potential for poor clinical outcome. Patients suffer the inconvenience of discontinuity of care from their usual medical provider and separation from their medical record. Pa-

tients' families often have to travel extra distances to visit. Paramedics may be tempted to misrepresent their evaluation of the patient in order to avoid a "redirect."<sup>47</sup> Of greater concern, when hospitals declare "redirect status," the system relies on the field assessment by a paramedic that the patient's condition permits the longer transport to another facility.<sup>18</sup>

### 6. Violence

Violence in the ED is of increasing concern. A recent survey of health care workers in the ED revealed that 84% of respondents reported witnessing verbal abuse at least once per shift in the year before the survey. More than 20% recalled physical threats over 20 times in the year and over 50% had been physically assaulted.<sup>48,49</sup> ED overcrowding, long patient waits, high-stress illness and the noisy environment of the ED are felt to be factors that contribute to violence.

### 7. Decreased physician productivity

The many causes of ED overcrowding have had a contributory, cumulative and negative effect on physician productivity.<sup>21,50-52</sup>

## Proposed solutions

ED overcrowding is a multifactorial problem, and potential solutions will of necessity be complex, expensive and undoubtedly debated.

It is apparent to emergency physicians that the long-term solution to the problem of ED overcrowding has the essential and fundamental requirement of a paradigm shift in the relationships of government, regional health boards and hospital administrations with the specialty. EDs need to be better understood and better supported. Emergency physicians must have a voice. Those who work in the ED have a clear perspective and a genuine desire to work toward the common goal of a high standard of care for our patients, a standard that is threatened by overcrowding. This is not a monetary issue for us; it is a matter of patient advocacy.

This having been stated, there are some clear initiatives that will help to relieve overcrowded EDs.

### 1. Increase the capacity to provide inpatient, critical care and long-term care beds

"ED overcrowding is primarily the result of a shortage of inpatient beds, not a lack of ED capacity. When a hospital has enough inpatient capacity to promptly meet the needs of seriously ill or injured patients, ED overcrowding does not occur."<sup>25</sup> The number of acute and long-term care beds available to the citizens of Ontario must be increased.



There also needs to be better bed management within individual hospitals. There are a number of well elucidated measures that can be taken to address the roadblocks to prompt transfer of admitted patients to the floors.<sup>4,28</sup>

## **2. Expand the supply of qualified emergency nurses**

There must be an expansion of full-time positions for emergency nurses across the province. Part-time and casual positions threaten skill retention, clinical judgement and the ability to function as an integral member of a resuscitative team. There is an absolute requirement for clinical nurse educators to ensure adequate assessment and resuscitative skills for maintenance of competence.

## **3. Develop recruitment and retention initiatives for emergency physicians**

There is a shortage of trained emergency physicians in the province, and the current cadre is in constant threat of reduction because of job stress and burnout.

As of January 1999 there were 119 Royal College certified emergency physicians in the Province of Ontario. The College of Family Physicians of Canada reported that there were 353 family physicians with the Certificate of Special Competence in Emergency Medicine (CCFP[EM]) in Ontario. Therefore, 472 certified emergency physicians staff 181 EDs in the service of 10 million citizens; clearly, more needs to be done.<sup>53</sup>

A coordinated human resources plan for emergency medicine is a necessity. There must also be a meaningful increase in the number of positions for postgraduate training in emergency medicine.

Alternative Payment Plans in Ontario have been a stabilizing influence on the human resources component of ED service. They must, however, be carefully developed with a view to competitive remuneration and a "wellness" package to assist in the retention of emergency physicians.<sup>54</sup>

## **4. Informatics**

It is clear that media reports are an insufficient basis for the development of public health policy. Quantitative data are needed to characterize the magnitude and the extent of the problem. Currently, these data either do not exist or are not retrievable. This deficiency must be addressed.

## **5. Encourage a review of the need, desirability and requirements of fast-track and observational units for all EDs**

Many urban EDs have initiated fast-track programs, and others have introduced observation units. These programs have demonstrated an ability to improve patient flow (with

significant reductions in ED patient LOS), reduce the percentage of patients who leave without being seen, and improve patient satisfaction, often at lower overall costs.<sup>5,55-59</sup>

Both of these concepts may achieve some efficiencies in ED care and in-hospital bed utilization. Further study is required as to the desirability and the requirements for the institution of such programs in Ontario's EDs.

## **6. Encourage a further review of ambulance service provision**

In rural hospitals in particular, inter-hospital facility transport poses a barrier to timely, quality care for the acutely ill and injured. This can lead to delays in service provision and ED overcrowding in smaller emergency units. The relative shortage of advanced radiological services, such as CT scanners, in rural areas means that patients must be transported to tertiary centres. Despite a decade of study, the issue of inter-hospital facility transport remains unsolved.

In urban areas, the terms "Redirect Consideration" and "Critical Care Bypass" have become part of the day-to-day lexicon of urban emergency care. There is evidence that the frequency of ambulance diversion has increased with the hospital restructuring of the past half decade. Ambulance diversion, at best, equates with patient discomfort and inconvenience and at worst leads to poor patient outcomes. This issue was recently highlighted, and an approach elucidated by ACEP.<sup>60</sup>

## **Conclusion**

Emergency department overcrowding in Ontario is not a new problem; neither is it limited to urban centres, a product of the flu season or secondary to inadequate access to primary care. It has numerous negative consequences on the quality of patient care. There is a national and international body of knowledge that defines the causes and outlines potential solutions.

The problem can be solved but this will only happen if emergency health care providers are given adequate opportunity to provide meaningful input to potential solutions.

The public views ED overcrowding as a symptom of a health care system in crisis, as the proverbial "canary in the mine." It is time for the restoration of the public's confidence in the emergency health care system. It is time for the government, hospitals and emergency health care providers to work cooperatively to relegate ED gridlock to that of an historical anomaly.

**Key words:** overcrowding, gridlock, emergency department administration

**Competing interests:** None declared.

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