

## Emergency department overcrowding and access block

Andrew Affleck, MD\*; Paul Parks, MD<sup>†</sup>; Alan Drummond, MD<sup>‡</sup>; Brian H. Rowe, MD, MSc<sup>§</sup>; Howard J. Ovens, MD<sup>||</sup>

### EXECUTIVE SUMMARY

Emergency Department overcrowding (EDOC) is defined as a situation where the demand for emergency services exceeds the ability of an emergency department (ED) to provide quality care within appropriate time frames.<sup>1,2</sup> ED overcrowding has been a key issue in Emergency Medicine in Canada for more than 20 years. Despite increased political, administrative, and public awareness, EDOC situations continue to rise in frequency and severity.<sup>3</sup> Patient suffering, prolonged wait times, deteriorating levels of service, adverse patient outcomes and the ability to retain experienced staff in an ED are all ill effects of this ongoing problem.

Contrary to popular perceptions, ED overcrowding is not caused by inappropriate use of ED's, or by high numbers of lower acuity patients presenting to the ED; the inability of admitted patients to access in-patient beds from the ED is the most significant factor causing EDOC in Canadian hospitals.

Despite its importance, there currently are no national benchmarks in place to determine severity (and thus identify the factors causing poor performance). Through this position statement, CAEP will put forth recommended national benchmarks (targets) for ED performance to help address the issue. The suggested targets are as follows:

i. **Time to physician initial assessment (PIA):**

- Median of 1 hour, 90<sup>th</sup> percentile of 3 hours.

ii. **Time (to transfer) to in-patient bed:**

- Median of 2 hours, 90<sup>th</sup> percentile of 8 hours

iii. **ED LOS:**

- **CTAS IV/V discharged patients** – median of 2 hours, 90<sup>th</sup> percentile of 4 hours;
- **CTAS I-III discharged patients** – median of 4 hours, 90<sup>th</sup> percentile of 8 hours;
- **Admitted patients (all CTAS levels)** – median of 8 hours, 90<sup>th</sup> percentile of 12 hours.

It is CAEP's belief that adoption of national benchmarks (*see recommendations for further details*) will provide goals for each province or territory to strive to achieve, and a mechanism for comparing their progress to their peers. We understand that depending on their circumstances and current situation, individual hospitals may find these targets difficult to reach while others may be performing at or above these targets, but we believe all will benefit from a set of common metrics and benchmarks.

EDOC is a public health concern whose root causes extend beyond the walls of Canada's ED's. It reflects a need for solutions and interventions at multiple levels within the health care system. Solutions outlined within this position statement will reflect this need while not minimizing the most important factor causing EDOC – delays in securing beds for patients admitted through the ED.

### CAEP POSITION

1. The primary problem arising from EDOC is a block in the provision of health care required by patients presenting to the ED within an appropriate time and

From the \*Thunder Bay Regional Health Sciences Center, Northern Ontario School of Medicine, Thunder Bay, ON; CAEP Public Affairs Co-Chair; †Medicine Hat Regional Hospital, Medicine Hat, AB; ‡Perth and Smiths Falls District Hospital, Perth, ON; CAEP Public Affairs Co-Chair; §Department of Emergency Medicine and School of Public Health, University of Alberta, Edmonton, AB; and ||Schwartz/Reisman Emergency Centre, Mount Sinai Hospital, and Department of Family and Community Medicine, University of Toronto, Toronto, ON.

**Correspondence to:** Dr. Howard Ovens, Schwartz/Reisman Emergency Centre, Mount Sinai Hospital, Toronto, ON M5G 1X5; howard.ovens@utoronto.ca.

© Canadian Association of Emergency Physicians

CJEM ;15(6):359-370

DOI 10.2310/8000.CAEPPS

DECKER



CJEM • JCMU

2013;15(6) 359

in an appropriate place. This results in a diminished access to health care or “Access Block” (AB).<sup>\*</sup> Access Block often results from system capacity and efficiency issues that lie outside of the ED.

EDOC is associated with increased mortality and worse outcomes for patients assessed in a crowded ED whether admitted or discharged.<sup>4,5</sup> It has been studied extensively and can be conceptualized using the *input-throughput-output* model where a comprehensive, jurisdictional approach is required to address factors impacting flow outside the ED; in the community, in the rest of the acute care hospital, and in the post-acute continuing care sector. A summary of the evidence on interventions and strategies to reduce overcrowding has been published.<sup>6,7</sup> Comprehensive approaches to EDOC from a system perspective should include:

- a. Transparent and easy access to valid and reliable data to measure performance<sup>8</sup> using nationally standardized definitions as per the Canadian Triage and Acuity Scale (CTAS), Canadian Emergency Department Information System (EDIS) National Working Groups, and the National Ambulatory Care Records System (NACRS) database;
- b. Establishment of performance targets and benchmarks for key ED and in-patient intervals;
- c. Timely public reporting of performance targets along with success on achieving the benchmarks;
- d. Financial incentives (pay-for-performance initiatives) should be explored for hospitals and providers to improve performance;
- e. Coaching and education for hospitals on best practices to improve processes related to flow within the ED along with overall hospital flow, using evidence based repositories;
- f. Attention to community access to long-term care must become a local, provincial and national priority;
- g. Attention to:

- i. Acute care capacity (target maximum below 95% occupancy rates);
  - ii. Alternative Level of Care (ALC) levels in acute care settings (target maximum 5% occupancy rates);
  - iii. Adequate capacity in the Long-term Care (LTC) and post-acute care sector;
  - iv. Community and home care supports for vulnerable groups such as the frail elderly.
2. Use of standard intervals for performance monitoring and public reporting is important to allow cross-jurisdictional comparisons of performance. With the starting time being the time of registration or triage, intervals or performance metrics should include:
    - a. “**Waiting Times**” – Intervals that are strictly waiting:
      - i. Time to physician initial assessment (PIA) – is the total time from initial registration/triage to first being seen by an MD;
      - ii. Time for transfer of care for Emergency Medical Services (EMS) arrivals: “ambulance offload time” – time from arrival until care accepted by ED;
      - iii. Time to consultation: ideally, time elapsed between the consult request to arrival of consulting physician;
      - iv. Time to transfer to in-patient bed for admitted patients: time from admit decision to actual transfer/departure to the ward.
    - b. “**Care Times**” – Intervals that include care and waiting combined:
      - i. Total Length of Stay in the ED (ED Length of Stay, or ED LOS);
      - ii. Time from arrival to consult request (for patients receiving consults this includes the emergency physician’s process time and often the time for diagnostic imaging to be performed (and reported) and lab turnaround times);
      - iii. Consult request to disposition decision (for patients receiving consultation this is the consultant’s process time).
  3. The format for public reporting is crucial. Key principles include:
    - a. **Segregate populations:** Differentiate between patients requiring admission to hospital and

<sup>\*</sup>For consistency, the term EDOC is utilized within this paper to specifically refer to the ED manifestations of Access Block. The transition to the use of Access Block has been recently encouraged, to reinforce the concept and understanding that EDOC is a form of Access Block with roots and causes that frequently lie outside of the ED. To remain consistent we have chosen to continue to utilize the abbreviation EDOC to describe Access Block that manifests within the ED.

those who can be safely discharged from the ED.

- b. **Report Non-aggregated Data:** EDOC is primarily a problem of academic centres and high volume urban centres. Aggregating regional or provincial data will obscure significant local problems. Performance of individual facilities must be reported separately.
  - c. **Format of metrics:** For internal performance monitoring, reporting of metrics at the 90<sup>th</sup> percentiles has advantages and is recommended for health care professionals and system administrators. On the other hand, public reporting requires the use of medians which are better understood by the public and patients. Averages have problems in skewed data sets and should be avoided.
4. Targets are an important component of performance improvement. Very little evidence exists to guide the setting of targets for ED wait times, but targets should be determined using best existing evidence in conjunction with expert consensus. Ideally the targets should be aligned across jurisdictions to allow performance comparisons. Without objective measures and system access benchmarks it can be difficult to quantify the level of Access Block within a hospital, region or province. Worse, without gauging success at achieving targets over time, it can be very difficult to assess whether system adjustments designed to improve flow are accomplishing their intended effect. At a minimum it is recommended that targets be established for the following parameters, and, based on existing provincial goals and expert consensus, the suggested targets are as follows:
- i. **Time to physician initial assessment (PIA):**
    - Median of 1 hour, 90<sup>th</sup> percentile of 3 hours.
  - ii. **Time (to transfer) to in-patient bed:**
    - Median of 2 hours, 90<sup>th</sup> percentile of 8 hours.
  - iii. **ED LOS:**
    - **CTAS IV/V discharged patients**
      - median of 2 hours, 90<sup>th</sup> percentile of 4 hours;
    - **CTAS I-III discharged patients**
      - median of 4 hours, 90<sup>th</sup> percentile of 8 hours;
    - **Admitted patients (all CTAS levels)**

- median of 8 hours, 90<sup>th</sup> percentile of 12 hours.

5. It is important to keep in mind that wait times are different than “length of stay”. The wait times are the intervals where a patient is waiting for something (i.e., care from a health care provider or assignment to a bed). Length of stay markers measure the time it takes for a patient to receive care, including assessment and treatment. While the experience of waiting and receiving care can be intimately intertwined in an ED visit, they are frequently confused. It is important to provide clarity when publishing and discussing these numbers, as spending a total of 8 hours in an ED including assessment, complex diagnostics and treatment (ED LOS) is considerably different from waiting 8 hours in an ED waiting room awaiting assessment by a physician (time to PIA).

## INTRODUCTION

ED overcrowding is a complex, multi-dimensional health services problem which is conceptualized using the input-throughput-output model.<sup>9-11</sup> While media attention has highlighted input factors and inappropriate use of the ED across Canada, the primary and definitive cause of ED overcrowding is hospital overcrowding (also known as “Access Block”).<sup>11</sup> Hospital overcrowding can also be conceptually organized with the same model: input (e.g., elective and ED admissions); throughput (in-patient services and flow), and output (e.g., discharge, community care resources, access to LTC).

## BACKGROUND

CAEP published its first position paper on ED Overcrowding (EDOC) in 1994 with a revision in 2009. The first paper identified and defined the issue of EDOC which helped to propel Emergency Department Wait Times onto provincial forums as well as causing ED wait times to be included on the national Wait Time List supported by the Canadian Medical Association (CMA). Having identified EDOC as a growing health care concern, the second position paper stressed the system-wide origins of EDOC and recommended wait time targets to improve patient care as well as stressing the fact that Access Block solutions must occur on a system wide basis. Since the

last position paper in 2009, change has rapidly occurred in Canada and internationally. At a provincial level, several provinces have taken steps to look at and address ED wait times. Over time, there has been a growing appreciation of the multi-factorial causes of EDOC, and a system-wide approach to addressing Access Block has now been generally accepted.

The main factors causing long ED wait times and EDOC penetrate almost every level of the Canadian health care system. Consequently, there has been a shift away from focusing solely on overcrowding alone and processes within the ED to adopting language that better describes the true causative factors of EDOC and the Access Block that patients are experiencing at multiple levels.

On the input side, changes occurring in primary care have also resulted in Access Block that can contribute to EDOC. Patients without a primary care provider (PCP) may turn to the ED as their only access to health care, while other patients may have a PCP that cannot accommodate semi-urgent bookings, so they often turn to the ED for urgent attention. This creates a situation where more patients utilize the EDs, and worse, a larger proportion of these patients have missed opportunities for preventative care and thus present with illnesses that are further advanced. In addition, the age of patients presenting to the ED and the complexity of their problems has increased. Consequently, in many EDs, there is an increased need for investigations, advanced imaging and consultation, further extending the length of stay and contributing to overcrowding. Finally, utilization of ED's for episodic care and chronic conditions also creates a need for better communication between EDs and PCPs to help coordinate the overall care of patients.

On the output side, ALC patients can have a significant impact on EDOC by occupying acute care spaces that could be utilized by newly admitted ED patients. In addition to the reduced bed capacity that results from high ALC levels, the patients waiting ALC placement are not receiving the appropriate ALC care in the optimal place which can impact on their outcomes and experience - and thus their needs have to be addressed as part of the solution.

This position paper will serve to update the previous position papers to reflect these changes. The goal of this update is to add recent experience and scientific literature to the discussion in the hopes of creating a document that can be used when trying to address the multi-layer causes of EDOC.

## **PROBLEM DEFINITION**

Delays in emergency care can occur at a variety of levels. As outlined in the Executive Summary, the inability for admitted patients to access in-patient beds from the ED is the most significant factor causing EDOC in most busy Canadian hospitals. Although ED input pressures can contribute to EDOC in some communities, specifically where a lack of timely access to a PCP is a significant factor for patients, the vast majority of the time the system bottlenecks are located “down-stream” from the ED and occur on the output side of patient flow. Problems associated with flow of admitted patients out of the ED and into the hospital, and then ultimately back out into the community, can arise from several factors. At different times in different hospitals/communities the problems can be based on numerous capacity and efficiency limitations and may include:

- Suboptimal utilization of acute care beds including access to diagnostics;
- A shortage of acute care bed capacity - actual bed numbers may be inadequate and/or beds may be blocked for budget or other reasons including presence of ALC patients;
- ED staffing shortages (including physicians);
- Physicians/consultants and programs providing inpatient services;
- Limited community care resources - both home care and post-acute care resources such as long term care or rehabilitation services;
- Lack of integration of community and hospital-based resources;
- Poor communication between acute care facilities and PCPs when patients are ready for discharge but require timely follow-up;
- Confusion on who is accountable for the patient at different times in the patient's care.

With the shortage of hospital beds and recurring issues with acute care capacity, hospitals increasingly face a situation where more patients require admission than there are beds to accommodate them. The current approach to dealing with Access Block due to hospital crowding involves delaying the outflow of admitted patients into appropriate inpatient areas; resulting in an excessive and unsafe use of EDs to inappropriately “warehouse” admitted patients, both stable and unstable, for long periods of time. This “boarding” of admitted patients within the ED results in EDOC and thus creates delays in seeing new patients presenting to the ED.

Surveys have shown that patients attempt multiple other options prior to accessing the ED.<sup>12</sup> Moreover, patients of lower acuity and urgency do not occupy acute care stretchers, require little nursing care, and typically have brief treatment times. The myth of “inappropriate use” should be permanently dispelled, and administrators and politicians should be encouraged to avoid attributing EDOC to ambulatory patient ED health services access. While patients discharged home are not the cause of ED overcrowding, process improvements for this group can decrease their waiting, and improve their experience. All Canadian ED’s should commit to continuous quality improvement to ensure they are keeping up with best practices and optimizing ED resource use and patient experience. Improving and optimizing care delivery within every ED should be an ongoing priority for all hospitals, but this optimization process will not be able to address the down-stream output bottlenecks that are the root causes of EDOC.

Given the near universal and recurrent issue in Canada of in-patient bed limitations, EDOC is a direct consequence of hospital overcrowding, which in turn is a major contributor to Access Block.<sup>13</sup> In Canada, the problem of EDOC is most critical at trauma, tertiary care, teaching, and high-volume hospital EDs.<sup>3</sup> The consequences of EDOC are, however, similar across the emergency care system; referring hospitals and ambulances are unable to access secondary and tertiary care ED facilities in a timely fashion. For instance; despite having adequate acute care capacity locally, peripheral hospitals often experience Access Block in the form of delayed transfer to definitive care for their patients. This form of Access Block is an important issue for rural physicians and their patients, when physicians are unable to transfer patients requiring a higher level of care to urban receiving facilities which are frequently overwhelmed.

Pressures on ambulance services can occur when EDs are gridlocked with admitted patients and paramedics are unable to transfer patient care to ED staff in a timely fashion. Ambulance offload delays or, in uncommon cases, ambulance diversion are both examples of Access Block where EDOC impacts and delays access to pre-hospital care. While EDOC can compromise care for the EMS patient waiting to be off-loaded to an ED care space, it can also lead to staffing pressures for EMS services and result in longer response times for new calls. This in turn compromises the safety of patients experiencing emergencies in the community as the Access Block moves upstream.

Access Block can also occur within hospitals on multiple levels. Within the ED when inpatients occupy ED stretchers for prolonged periods of time they block access to these care spaces by ill and injured patients in the waiting room and increase waiting times for newly arriving patients. For the inpatients housed in the ED, the care provided is not equivalent to that on a ward and thus there is Access Block to appropriate inpatient care. Within many Canadian hospitals, elective surgery cases have been delayed or cancelled in an effort to deal with hospital and ED overcrowding, and in doing so patients awaiting scheduled surgery experience Access Block. On the inpatient wards, as hospital overcrowding increases, nursing workloads that are often perceived as dangerous result and provider/patient satisfaction decreases when over capacity protocols (OCP) are initiated.

In 2009, Canada had only 1.7 acute care beds per 1,000 Canadians, ranking 33rd out of 34 Organisation for Economic Co-Operation and Development (OECD) countries (OECD average was 3.4/1,000).<sup>14</sup> The lack of acute care beds in Canada means that most hospitals frequently operate at unsustainable occupancy rates of higher than 95%, a level at which regular bed shortages, periodic bed crises, and hospital overcrowding are inevitable.<sup>15–17</sup> Functioning at capacities above 95% occupancy does not allow for flexibility in the system to accommodate the natural peaks in patient volumes and admissions that will periodically occur.

Acute care bed capacity can also be significantly affected by patients who occupy acute care beds but who actually require an “alternate level of care” (e.g., long term care, rehabilitation etc.) and yet cannot access this care because of shortages in community resources and post-acute bed capacity. These patients account for the occupancy of up to 20% of acute care hospital beds, and thereby contribute to ED overcrowding and Access Block by preventing the admission of emergency patients to hospital beds.<sup>18</sup> The majority of patients in ALC status are elderly; with life expectancy increasing and the population aging this bottleneck will escalate if the problems are not addressed.

As can be seen, the problem of Access Block in general, and more specifically the growing concern of EDOC, is a multifaceted issue and no one single intervention will be effective. Any attempts to address EDOC will require a system-wide approach that will need to take into account input factors (improved primary care access and improved ongoing care for

patients with chronic conditions), throughput issues and ED optimization, along with addressing output bottlenecks and the flow of admitted patients (from acute care capacity and efficiency improvements all the way back out to the community and to post-acute care capacity).

**RECOMMENDATIONS**

The following recommendations have been generated from evidence-based documents with input from CAEP experts' opinions and consensus.

**i Establish national benchmarks for key intervals in the ED experience and report them publicly:**

CAEP recommends the establishment of national benchmarks for key intervals in the experience of patients receiving care within the ED. In order to encourage transparency, and to ensure this issue remains in the forefront of the public's attention, these targets and individual non-aggregated hospital performance measures should be publicly reported. All benchmarks must be measurable and be linked to an accountability framework in order to adequately assess performance. Reliable, complete, and accurate data must also be collected in every ED so that progress can be measured and interventions evaluated.

For public reporting the median is best understood by lay people and reflects the typical patient experience. The 90th percentile targets should also be measured and reported as they better reflect majority experience and are a better tool for identifying existing delays and for judging process improvement, and can be used for incentives such as pay for results programs.

It is predicted that hospitals across the country will be at varying levels of performance initially, but patients can expect us to work towards a common

standard of service. In general, expecting improvements of 5-10% per year towards these targets are reasonable.

Currently, there are many different targets in place across Canada – see Table 1 – CAEP urges provinces to meet and agree on common targets and reporting standards so Canadians can know how their community compares to others across the country.

1. **Time to PIA:** This is the interval from triage or registration until the patient is seen by an MD. This is the interval that most patients would intuitively think of as their “wait time” on an emergency visit, and correlates to “left without being seen” rates, overall patient satisfaction and total ED length of stay.

**CAEP recommends a target of one hour at the median and 3 hours at the 90<sup>th</sup> percentile.**

2. **Time to In-patient Bed:** This is the interval from admission decision until a patient departs to the ward. It is the other key waiting interval and reflects bed availability at the time of admission, as well as hospital administrative efficiencies in assigning beds and arranging transfer of care and transportation. Admitted patients wait in uncomfortable circumstances in the ED for long periods of time, and this should be avoided in an optimally resourced and well-functioning health care system.

**CAEP recommends a target of 2 hours at the median and 8 hours at the 90<sup>th</sup> percentile.**

3. **Overall length of stay in the ED (EDLOS):** This is the time from arrival at triage or registration until departure home or transfer to the ward. It reflects total patient experience,

**Table 1. Variation in Emergency Department wait-time targets (as of November 2011)**

	Admits	High Acuity Discharges	Low acuity discharges
Nova Scotia	8 hours 90 <sup>th</sup> %-ile	8 hours 90 <sup>th</sup> %-ile	4 hours 90 <sup>th</sup> %-ile
Quebec	12 hour (mean)	8 hours (mean) * applies only to stretcher patients.	
Ontario	8 hours 90 <sup>th</sup> %-ile	8 hours 90 <sup>th</sup> %-ile	4 hours 90 <sup>th</sup> %-ile
Manitoba		N/A	
Saskatchewan		N/A	
Alberta	8 hours 90 <sup>th</sup> %-ile		4 hours 90 <sup>th</sup> %-ile
British Columbia	10 hours 75 <sup>th</sup> %-ile	4 hours 75 <sup>th</sup> %-ile	2 hours 75 <sup>th</sup> %-ile

Courtesy of the Health Quality Council of Alberta.

including care and waiting. In some cases, better care will require a longer stay, which is partly reflected in the varying target times by acuity/disposition.

- a. **Low acuity discharged patients (CTAS IV or V on arrival):** CAEP recommends a target of 2 hours at the median and 4 hours at the 90<sup>th</sup> percentile;
  - b. **High acuity discharges (CTAS I-III on arrival):** CAEP recommends a target of 4 hours at the median and 8 hours at the 90<sup>th</sup> percentile;
  - c. **Admitted patients:** CAEP recommends a target of 8 hours at the median and 12 hours at the 90<sup>th</sup> percentile.
- ii **Link ED length of stay (ED LOS) benchmarks to incentives and infrastructure investment:** ED LOS benchmarks must be linked with incentives and infrastructure investment for meaningful change to be achieved. The UK and Ontario have achieved significant reductions in ED wait times following the adoption of jurisdiction-wide targets for ED LOS.<sup>19</sup> This was coupled with financial incentives, accountability measures, and tackling delays in access to inpatient beds, specialist doctors, and diagnostic investigations.
- iii **Mandate a national ED repository of visit data:** It is a national conundrum that ED visit data are not all held and reported from one central resource. Only Alberta and Ontario contribute all ED visit data to the National Ambulatory Care Records System (NACRS) database maintained by the Canadian Institute of Health Information (CIHI). Transparent and easy access to valid and reliable data to measure performance, using nationally standardized definitions as per the CAEP CTAS and CEDIS National Working Groups, should be a provincial and federal priority.
- iv **Optimize bed management and proactively plan bed capacity:** In addition to increasing the absolute number of acute care beds, inpatient bed capacity can also be improved by optimizing bed management. Effective bed management strategies should smooth the degree of variability in the numbers of admissions and discharges. Areas of focus for better management include; discharge planning, surgical

smoothing, admission procedures, capacity planning, operational planning, and hospital policies for bed availability priorities and bed use. Hospital overcapacity protocols, along with expedited discharges and formalized discharge processes, will improve overall hospital flow and mitigate EDOC.

#### OTHER POTENTIAL SOLUTIONS

Several strategies have been used to address Access Block/EDOC including:

##### i. **INPUT Solutions:**

1. **Improve Primary Care Access:** Investing in a robust primary care system ensuring all Canadians have reasonable access to a PCP with a focus on prevention and healthy living. Improved and extended access to a PCP, with increased after-hours access and semi-urgent appointments, would possibly prevent patients from becoming ill and thus requiring hospital care.
2. **Improve EMS Coordination:** Consideration should be given to improve EMS offload processes. Utilization of Ambulance Offload Nurses in Ontario has shown some impressive success in addressing Access Block for pre-hospital patients. Ontario provided funding for nurses specifically to take over care of patients arriving by ambulance from paramedics at peak periods of the day – even if no stretcher is available (suitable areas for this to take place are found in the ED waiting/arrivals area or adjacent to the ED). Paramedics are then able to get back on the road. Alberta has also used EMS consolidation processes to address EMS Access Block. In some hospitals multiple EMS patients are consolidated together and cared for by one EMS provider to facilitate the rapid return of ambulance crews back out into the community.

##### ii. **THROUGHPUT Solutions**

1. **Engage in process improvement:** Management techniques such as “LEAN” have shown that many hospital and ED processes can be simplified and improved.<sup>19</sup>
2. **Invest in improving staffing of our EDs:** Most ED’s are staffed to average patient flow demands. Queuing at specific times of the day, days of the week, and during specific seasons is

surprisingly predictable. Volume-based staffing that ensures adequate physicians, nurses, allied health workers, and alternate care providers (e.g., NP's, PA's, GEM nurses, Social Workers, PT's and OT's, Discharge Planners etc.) are present when required, should be part of the staffing plan. Note that a critical volume of ED visits, likely above 30,000 is needed to ensure efficient use of extra resources.

3. **Match staffing to patient demand:** Many ED's can do a better job of scheduling their existing resources by analyzing patient arrival patterns. Recent randomized controlled trial evidence also suggests that altering shifts can be studied using both quantitative and qualitative results.<sup>20</sup> Alternatively, employing staff on administrative functions has been shown to increase overall ED efficiency.<sup>21</sup>
4. **ED Information Systems (EDIS) are basic ED infrastructure:** EDIS or patient tracking systems, can assist with moment to moment management of patient flow and resource use, and can also provide data capture to inform management decisions and assist with compliance with obligations regarding reporting of data.<sup>8</sup> EDIS systems that are aligned with our strategies and incorporate our definitions and targets can allow for real time collection and distribution of performance measures to support transparency on local performance perturbations and support better management of performance at all levels – from unit to hospital to regional to system wide.
5. **Utilize medical directives:** When combined with an appropriate approval process, education and implementation program and ongoing monitoring, medical directives can speed care for selected patients on arrival to the ED.
6. **Utilize Fast Track Areas:** Many alternatives such as dissuading ED use through media campaigns and diversion of patients to walk-in clinics have been proposed; however, most evidence suggests these are ineffective strategies.<sup>22,23</sup> Overall, while the evidence is poorly coordinated, there appears to be support for the role of fast-track areas in most high-volume, urban EDs. These data likely don't apply to smaller, rural hospitals. Several reports conclude that the operation of an ED fast-track system appears to be efficient, operationally cost-effective, safe, and improves patient satisfaction with care<sup>7,24</sup> The author of the most comprehensive report concluded that: 1) fast-tracks were safe and did not appear to provide lower quality of care; 2) because they require less resources, fast-track areas are cost-effective; and 3) the quality of the literature in this area would be considered “weak”.<sup>24</sup>
7. **Utilize “Rapid Assessment Zones (RAZ)”:** Many EDs have had success with organizing and staffing specific areas to meet specific patient population needs. “Fast Tracks”, or ambulatory or minor treatment areas, service patients with low risk of admission who have no need for a stretcher. They can be cared for in non-traditional care spaces, frequently only needing to be in a stretcher for a very brief examination period followed by treatment and wait periods in comfortable chairs that take up less ED space and resources. Rapid assessment zones or RAZ's can be utilized for the initial assessment of intermediate acuity patients who are stable enough to wait in a chair, but require a stretcher for assessment and/or intimate examinations/procedures.<sup>25</sup>
8. **Establish formalized “Intake” Policies and Processes:** Intake is a formalized process where patients who have complaints that cannot be evaluated within a short triage process, can be moved to a rapid assessment area where a physician can do a more formal assessment and streamline the patient to the appropriate care space within the ED. Typically patients with CTAS level 3 complaints, undifferentiated abdominal pain as an example, can be assessed in an intake area of the ED, investigations can be initiated rapidly, and the patient can then be more streamlined into the appropriate acute care space, or to the Fast Track/minor treatment environment to complete their care.
9. **Establish SSU's, CDU's and/or Observation Units, and or MAU's:** In some settings, carefully designed and monitored Short Stay Units, Clinical Decision Units and/or ED Observation Units, or Medical Assessment Units decrease EDOC and improve overall

patient flow and care. In general the higher the ED volume and admissions the greater the positive effect of these types of units. Recent evidence from implementation of CDUs in Ontario suggest the benefit may be less than previously reported.<sup>26</sup>

10. **Dedicated ED Satellite labs:** Given the delays associated with ordering laboratory testing in the ED that have been identified in the medical literature,<sup>27</sup> it might be reasonable to expect that improvements in laboratory times would have dramatic influence on overall LOS. Based on the available evidence summarized in the HQCA Report, the effect of point-of-care testing on turn-around times is supported by relatively strong evidence, whereas its positive effect on LOS is supported by limited evidence. Overall, the best evidence would suggest a 60 minute reduction in length of stay using a dedicated satellite ED lab, although actual results will vary locally depending on baseline turn-around times and the tests available.<sup>6</sup>

11. **Utilize Better Teaching Practices:** The traditional approach to teaching- often with initial assessment by a junior and consequent delayed decision making - can be an impediment to flow. We need to find ways to preserve the teaching experience while remaining patient centred and preserving access and quality.

### iii. Output Solutions:

1. **Implement overcapacity protocols:** Access block and EDOC are symptomatic of demand exceeding capacity in hospitals and requires system-wide solutions. Access Block and EDOC can be addressed immediately, with existing resources, through mechanisms to improve patient flow. CAEP recommends the rapid implementation of overcapacity protocols as part of comprehensive surge strategies so that all hospitals have an organized approach to deal, in the best manner possible, with situations of demand exceeding capacity. While the evidence for this intervention is weak,<sup>28</sup> implementing overcapacity protocols effectively shares the responsibility for already stabilized and admitted patients with all wards in the hospital, instead of just ‘warehousing’ them in the

emergency department. Overcapacity protocols should be implemented at times of peak inpatient pressures where ED patient care is compromised. While these are not a permanent solution for Access Block or EDOC, they represent a mechanism to temporarily “decompress” the ED. As other strategies lead to better baseline performance the frequency with which these protocols would be required will diminish.

2. **Formalized Hospital Wide Flow Policies and Processes:** One approach to improving flow is to create a Hospital LOS committee to continually monitor and optimize patient flow and to appropriately minimize LOS. These committees would need to be led by senior administrators with local decision making authority. The goal of these committees would be to aggressively address factors directly associated with hospital LOS such as:

- Most Responsible Physician (MRP) designation – which is particularly important in complicated patients with multiple services involved in their care;
- Designated discharge planners;
- Inpatient lab and radiology priorities;
- Monitoring and improving consultant times;
- Improved discharge planning through formalized Evidence Based Guidelines and benchmarks;
- Improving communication with primary care providers;
- Facilitating specialist follow-up;
- Assessment of readmission rates and addressing areas of concern for continuing quality improvement;
- Creation of outpatient/ambulatory care clinics to promote early discharge;
- Earlier involvement of CCAC (home care).

Measures designed to help hospitals achieve ED length of stay benchmarks must be appropriate to the local context. There will not be a “one size fits all” solution. Access Block and EDOC must be dealt with urgently through collaborative action between the provincial governments, health authorities, hospital administrators, community care access organizations, front-line emergency physicians, and all hospital staff in order to effect the necessary changes needed for safe access to emergency care and improved patient flow.

## CONCLUSIONS

Access Block and EDOC represent a public health emergency. Crowded EDs are associated with poorer outcomes including increased mortality for patients seen during crowded periods. Access Block and EDOC is the result of complex multi-layer problems requiring engagement at all levels of the health care system. The accountability for patient care extends well beyond the walls of the ED and the hospital with an increased emphasis on both primary care access and meeting the needs of ALC patients. Incentives need to be aligned with desired behaviours, performance needs to be tracked and reported, and senior executives need to demonstrate leadership and be held accountable. There are now domestic and international examples of jurisdictions that have successfully mitigated this problem. The time to act is now; there is no longer any excuse for delay.

Further information on ED overcrowding and local/provincial progress and successes can be obtained from the Canadian Association of Emergency Physicians at [www.caep.ca](http://www.caep.ca).

## GLOSSARY OF TERMS

**Access Block** - refers to the situation where patients in the emergency department (ED) requiring inpatient care are unable to gain access to appropriate hospital beds within a reasonable time frame, or anywhere else patients needing care are unable to obtain it in a timely fashion appropriate to their need.

**ALC: Alternative Level of Care** - are patients who no longer require hospital care but cannot be discharged due to a lack of beds and/or resources in the community. In short, ALC patients are not receiving the right care in the right place. They are often referred to as “Bed Blockers” as they prevent more acute patients from receiving a required bed, but we should remember they are also not having their needs met either.

**CAEP: The Canadian Association of Emergency Physicians** - CAEP is the meeting place for emergency physicians! CAEP’s mission is to promote the interests of emergency physicians and the specialty of emergency medicine in Canada by advocating for emergency physicians and their patients, connecting emergency physicians, providing leading emergency medicine education and a forum for research in emergency medicine.

**CDU: Clinical Decision Units** - is an observation unit in or adjacent to the emergency department. It is designed to provide appropriate physician and nurse staffing and diagnostic/treatment capabilities to allow extended care for select patients, usually up to 24 hours, in a safe, effective and comfortable environment.

**CEDIS: Canadian Emergency Department Information Systems** - is a working group that develops resources, tools and definitions to promote improved data gathering and reporting in ED’s.

**CTAS: Canadian Triage And Acuity Scale** - is a tool that enables Emergency Departments (ED) to prioritize patient care requirements at arrival in a standardized fashion. CTAS levels correlate with resource requirements including admission rate but are not designed for this purpose and should be used with caution for anything other than triaging of patients.

**ED: Emergency Department** - an area within the hospital designed to respond immediately to patients suffering from serious medical problems.

**EDIS: Emergency Department Information System** - A computer program for tracking patients arriving and departing to ED’s and assist in ED management.

**EDOC: Emergency Department Overcrowding** - defined as “a situation where the demand for emergency services exceeds the ability to provide care in a reasonable amount of time.”

**EMS: Emergency Medical Services** - ambulance services; a mobile medical service dedicated to providing out-of-hospital acute medical care, transport to definitive care, and other medical transport to patients with illnesses and injuries which prevent the patient from transporting themselves.

**GEM nurse: Geriatric Emergency Management Nurse** - provides advanced gerontological expertise in the care of the frail elderly seen in the ED who are at risk of suffering adverse events, loss of independence and admission to hospital or long-term care.

**LTC: Long Term Care** - a facility able to provide a variety of services which help meet both the medical and non-medical needs of people with a chronic illness or disability who cannot care for themselves for an indefinite periods of time (eg a “nursing home”).

**MAU: Medical Assessment Unit** - provides a service for the rapid assessment and treatment of a wide range of medical conditions. It improves the

efficiency in the admission process for unplanned patients by providing assessment, care and treatment for a designated period (usually 48 hours) prior to transfer to a medical ward or home where appropriate. The patients stay on an inpatient ward is eliminated or drastically reduced for appropriate patients when this model of care is used.

**NACRS: National Ambulatory Care Records System** - contains data for hospital-based and community-based emergency and ambulatory care (for example, day surgery and outpatient clinics).

**NP: Nurse Practitioner** - A nurse practitioner (NP) is a nurse with a graduate degree in advanced practice nursing.

**OLD: Off Load Delay** - is a state when an ambulance transports a patient to a hospital and paramedics must wait with the patient until hospital staff assumes responsibility for care of the patient.

**PA: Physician's Assistant** - is a healthcare professional who is trained to practice medicine as part of a team with a physician.

**PCP: Primary Care Provider** - is a health care practitioner who sees patients at their own request for preventative care or for common medical problems. In Canada, this person is usually a family doctor; however, increasingly in North America, this person may also be a nurse practitioner, a Pediatrician, or an Internist.

**PIA: Physician Initial Assessment** - The first contact with a physician after arrival at an ED.

**RAZ: Rapid Assessment Zones** - An area in an ED to facilitate efficient care of patients with moderate acuity. These patients typically are well enough to wait in a chair in an internal waiting area adjacent to the exam areas, but require a stretcher for assessment or intimate examinations. These zones allow privacy while increasing stretcher productivity.

**SSU: Short Stay Units** - provide an alternative to traditional inpatient services for patients with short anticipated hospital stays. See MAU, there is overlap in these concepts.

**Target** - refers to a designated benchmark for key performance metrics.

**Acknowledgements:** The authors would like to thank Lee Arbon, CAEP staff, for his assistance in editing the document and assisting with the process, and the members of the CAEP Public Affairs Committee and Drs. Chris Evans and Bruce McLeod for their thoughtful review of the document.

## REFERENCES

1. Canadian Association of Emergency Physicians and National Emergency Nurses Affiliation. Joint position statement on emergency department overcrowding. *CJEM* 2001;3:82-4.
2. Canadian Association of Emergency Physicians. *CAEP position statement: emergency department overcrowding 2009*. Available at: [www.caep.ca](http://www.caep.ca) (accessed August 2001, 2011).
3. Bond K, Ospina M, Blitz S, et al. Frequency, determinants, and impact of overcrowding in emergency departments in Canada: a national survey of emergency department directors. *Healthc Q* 2007;10:32-40, doi:[10.12927/hcq.2007.19312](https://doi.org/10.12927/hcq.2007.19312).
4. Guttman A, Schull MJ, Vermeulen MJ, Stukel TA. Association between waiting times and short term mortality and hospital admission after departure from emergency department: population based cohort study from Ontario, Canada. *BMJ* 2011;342:d2983, doi:[10.1136/bmj.d2983](https://doi.org/10.1136/bmj.d2983).
5. Sprivilis PC, Da Silva JA, Jacobs IG, et al. Association between hospital overcrowding and mortality among patients admitted via Western Australian emergency departments. *MJA* 2006;184:208-12.
6. de Grood JBM, Villa-Roel C, Zwicker K, et al. *Overview of interventions to mitigate emergency department overcrowding*. Calgary (AB): Health Quality Council of Alberta; 2013.
7. Rowe BH, Bond K, Ospina MB, et al. *Emergency department overcrowding in Canada: what are the issues and what can be done?* Ottawa: Canadian Agency for Drugs and Technologies in Health; 2006.
8. Rowe BH, Bond K, Ospina M, et al. Data collection on patients in emergency departments in Canada. *CJEM* 2006; 8:417-24.
9. Asplin BR, Magid DJ, Rhodes KV, et al. A conceptual model of emergency department overcrowding. *Ann Emerg Med* 2003;42:181-4, doi:[10.1067/mem.2003.302](https://doi.org/10.1067/mem.2003.302).
10. Schull MJ, Slaughter PM, Redelmeier DA. Urban emergency department overcrowding: defining the problem and eliminating misconceptions. *CJEM* 2002;4:76-83.
11. Fatovich DM, Nagree Y, Sprivilis P. Access block causes emergency department overcrowding and ambulance diversion in Perth, Western Australia. *Emerg Med J* 2005;22:351-4, doi:[10.1136/emj.2004.018002](https://doi.org/10.1136/emj.2004.018002).
12. Han A, Ospina M, Blitz S, et al. Patients presenting to the emergency department: use of other health care services and reasons for presentation. *CJEM* 2007;9:428-34.
13. Richardson DB. Increase in patient mortality at 10 days associated with emergency department overcrowding. *Med J Aust* 2006;184:213-6.
14. Organisation for Economic Co-operation and Development. *Statistics*. Available at: [www.oecd.org](http://www.oecd.org) (accessed May 13, 2013).
15. Bagust A, Place M, Posnett JW. Dynamics of bed use in accommodating emergency admissions: stochastic simulation model. *BMJ* 1999;319:155-8, doi:[10.1136/bmj.319.7203.155](https://doi.org/10.1136/bmj.319.7203.155).
16. Forster AJ, Stiell I, Wells G, et al. The effect of hospital occupancy on emergency department length of stay and patient disposition. *Acad Emerg Med* 2003;10:127-33, doi:[10.1111/j.1553-2712.2003.tb00029.x](https://doi.org/10.1111/j.1553-2712.2003.tb00029.x).

17. Wait Time Alliance. *It's about time: achieving benchmarks and best practices in wait time management. Final report.* 2005.
18. Canadian Association of Emergency Physicians. *Backgrounder: emergency department overcrowding in Canada.* 2004.
19. Alberti G. *Transforming emergency care in England.* October 2004. Available at: 2009;54:504-10, doi:<http://aace.org.uk/wp-content/uploads/2011/11/Transforming-Emergency-Care-in-England.pdf> (accessed September 30, 2013).
20. Dickson EW, Anguelov Z, Vetterick D, et al. Use of LEAN in the emergency department: a case series of 4 hospitals. *Ann Emerg Med* 2009;54:504-10, doi:[10.1016/j.annemergmed.2009.03.024](https://doi.org/10.1016/j.annemergmed.2009.03.024).
21. Rowe BH, V-RC, Lashyn T, Singh M, et al. Emergency department staffing decisions using trial data: what really matters? *CJEM* 2012;14 Suppl 1:S46.
22. Rowe BH, Guo X, Villa-Roel C, et al. The role of triage liaison physicians on mitigating overcrowding in emergency departments: a systematic review. *Acad Emerg Med* 2011;18:111-20, doi:[10.1111/j.1553-2712.2010.00984.x](https://doi.org/10.1111/j.1553-2712.2010.00984.x).
23. Hutchison B, Ostbye T, Barnsley J, et al. Patient satisfaction and quality of care in walk-in clinics, family practices and emergency departments: the Ontario walk-in clinic study *Can Med Assoc J* 2003;168:977-83.
24. Affleck A, Innes G. Quality of care in walk-in clinics, family practice and emergency departments: the Ontario walk-in clinic study. *CJEM* 2003;5:350-2.
25. Yoon P. *Emergency department fast-track system.* HTA Initiative #10. Edmonton (AB): Alberta Heritage Foundation for Medical Research; 2003.
26. Bullard MJ, Villa-Roel C, Guo X, et al. The role of a rapid assessment zone/pod on reducing overcrowding in emergency departments: a systematic review. *Emerg Med J* 2012;29:372-8, doi:[10.1136/emj.2010.103598](https://doi.org/10.1136/emj.2010.103598).
27. Schull MJ, Vermeulen MJ, Stukel TA, et al. Evaluating the effect of clinical decision units on patient flow in seven Canadian emergency departments. *Acad Emerg Med* 2012;19:828-36, doi:[10.1111/j.1553-2712.2012.01396.x](https://doi.org/10.1111/j.1553-2712.2012.01396.x).
28. Yoon P, Steiner I, Reinhardt G. Analysis of factors influencing length of stay in the emergency department. *CJEM* 2003;5:155-61.
29. Villa-Roel C, Guo X, Holroyd BR, et al. The role of full capacity protocols on mitigating overcrowding EDs *Am J Emerg Med* 2012;30:412-20, doi:[10.1016/j.ajem.2010.12025](https://doi.org/10.1016/j.ajem.2010.12025).