HQCA
Health Quality Council of Alberta

Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and Process of Physician Advocacy

February 2012

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Message to Albertans

This review into quality of care and safety of patients requiring access to emergency department (ED) care and cancer surgery and the role and process of physician advocacy was an important undertaking on behalf of Albertans. Serious questions had been raised about the safety and integrity of our healthcare system. Our investigation into these claims was extensive; many highly qualified people participated with us to ensure our work was thorough and fair.

We believe our findings and recommendations will lead to improvements in:

- quality of care and safety for all Albertans, and

- the relationship between physicians and the healthcare system.

It is necessary in a report of this kind to present our findings in great detail to show the depth of data we mined as we undertook this work. It is how our conclusions stand up to scrutiny and it is how we assure all stakeholders that we did our job. At times, this report is weighted down by these data, but when considered in their totality they tell a story. At its core this review was about, and for, people – their lives and livelihoods.

As we carried out our work, we learned of troubling instances of personal suffering by patients in crowded emergency departments; people in pain waiting unacceptably long times for medication; people waiting for many hours, even days, for a hospital bed; very ill people in their last hours of life who needed compassionate, palliative care, who died instead on a stretcher in the ED.

During the course of the many interviews that the quality assurance committees conducted, we heard deeply moving stories. The Albertans who serve as frontline healthcare workers and professionals have not chosen an easy path. People choose these careers because they want to contribute in a meaningful way to a greater good. Some we talked with expressed satisfaction with their careers and emerging hope for the future. Many others described their frustration with a healthcare system that has undergone frequent profound change. They felt physicians were mistreated and felt disillusioned themselves, even defeated and disengaged.

The personal suffering felt by patients and the disillusionment of heathcare professionals are not the characteristics of a heathcare system we value, though we did see promising signs where things may get better. In the pages that follow we share our views on how this can be achieved.

This review would not have been possible without the support and co-operation of many. We thank those who came forward to share their stories and the many physicians who responded to the province-wide survey and we assure them they were heard. We also thank Alberta Health Services staff for retrieving and providing us with vital documentation, facilitating access to patient charts, and co-ordinating emergency department visits.

Dr. John Cowell, Chief Executive Officer, HQCA

Calgary, Alberta

February 22, 2012

INTRODUCTION

On March 12, 2011 the Honourable Gene Zwozdesky, Minister of Health and Wellness, directed the Health Quality Council of Alberta (HQCA) to conduct an independent review that closely examines wait times for emergency department (ED) services and for cancer care services in the Province of Alberta pursuant to Section 13 of the *Health Quality Council of Alberta Regulation*. (Appendix I)

The minister further directed that the 'independent review shall be provincial in scope and is to be conducted utilizing Section 9 of the *Alberta Evidence Act* in order to maintain evidentiary privilege over the provision of documents and evidence of participants. The council shall also take whatever steps it deems necessary to maintain confidentiality of the people who participate within this process and the council will establish its own terms of reference for this independent review'. (Appendix II)

The review was initiated as a result of issues raised by ED physicians in a letter made public on October 22, 2010 and in a question raised on February 28, 2011 in the Alberta legislature by the Member for Edmonton-Meadowlark regarding wait times for lung surgery and issues of physician advocacy and intimidation.

The purpose of the review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and Process of Physician Advocacy is described in the Terms of Reference released by the HQCA on March 24, 2011. During the course of the review it became evident that the component of the review focused on cancer care services needed to be centred on the specific issue of lung cancer surgery from the late 1990s through the early 2000s at the University of Alberta Hospital in Edmonton. Also, during the course of the review it became evident that the review of physician advocacy had to include the element of physician intimidation and muzzling.

Given the scope of the ministerial request and to ensure the highest possible attention would be given to each part of the review, the HQCA quality assurance committee established three quality assurance subcommittees: one for Part A (*Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery*), one for Part B (*The Role and Process of Physician Advocacy*), and one to serve as an advisory panel of citizen and health experts to counsel on a periodic basis as requested by the HQCA Council or review sponsor (HQCA CEO). The review was conducted under the quality assurance provisions of Section 9 of the *Alberta Evidence Act.*

At the outset of this and the other aspects of the HQCA review, it was understood that some individuals with information that was pertinent to the review would need assurances that they would not be 'punished' for participating. The HQCA put four levels of protection in place to reassure anyone who participated that he or she would not personally be disadvantaged:

- A QAC, constituted under Section 9 of the *Alberta Evidence Act,* conducted the review.

- Written assurances were obtained from the CEO of Alberta Health Services; the Dean of the Faculty of Medicine, University of Calgary; and the Dean of the Faculty of Medicine, University of Alberta that no individual would face disciplinary action or any other consequence if it was learned that he or she participated in the HQCA review. (Appendix III)

- Written assurances were obtained from the CEO of Alberta Health Services and the Dean of the Faculty of Medicine, University of Calgary that any individual who had signed a non-disclosure

agreement with the organization or a predecessor organization would be exempt from that agreement as it pertained to the HQCA review. (Appendix III)

- The HQCA would keep confidential the list of people whom it did or intended to call as witnesses before its QAC and keep confidential whether an individual chose to appear or not appear before the QAC. Individuals were informed that they were free to reveal that they had participated in the review and were told that if they chose to disclose publicly what they had discussed before the QAC then the protection that they would have had under Section 9 could be compromised.

While the scope of the review did not include advocacy issues among other healthcare workers or professionals, we at times heard of their concerns. It is hoped that the work undertaken as a result of this review can be viewed from the perspective of its applicability to other groups.

Interim reports on the review were issued on June 29, 2011 and October 27, 2011. The final report of the review is provided below. (Appendix IV)

EXECUTIVE SUMMARY

Part A
I. Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care

BACKGROUND

On October 22, 2010 a letter from the Alberta Medical Association's (AMA) section president for emergency medicine to the Minister of Health and Wellness was made public. In it, Alberta's emergency department (ED) doctors warned of "potential catastrophic collapse" without immediate intervention in the province's major EDs. Also made public was the existence of a list of 321 identifiable patients who attended the University of Alberta Hospital (UAH) ED in 2008 and a second list of nine identifiable patients (AHS communication, March 9, 2011) who attended in 2010 whose care was compromised by prolonged waits. Other communication exchanges between physicians and ministers of health and the Premier were subsequently tabled in the Alberta legislature; all the correspondence dealt with the issues of a worsening crisis of ED crowding in Alberta.

The Canadian Triage and Acuity Scale (CTAS) for ED patients defines five levels of patient acuity, ranging from 'I' (requires resuscitation) to 'V' (non urgent). The Canadian Association of Emergency Physicians (CAEP) recommends maximum waiting times to be seen by a physician for each level of acuity. A person at CTAS I experiencing cardiac arrest, for example, needs immediate help; someone at CTAS II (emergent) or III (urgent) with chest or abdominal pain should wait no longer than 15 and 30 minutes respectively; and a CTAS V patient with a skin rash, for example, should wait two hours at most. When EDs become crowded it is impossible for these ill patients to be assessed in a reasonable time frame. In basic terms ED crowding occurs when the demand for ED services exceeds the capacity of the ED to provide them.

Models or diagrams of patient flow can be useful for understanding ED crowding. The 'input – throughput – output' model is commonly used to categorize factors that lead to or contribute to ED crowding. Input refers to the demand that is placed on the ED (by patients presenting for care); throughput refers to what goes on within the ED that involves providing care to patients; output factors are those that may limit patients' ability to leave the ED, such as whether they can get an inpatient bed, for example.

METHODOLOGY

Since the issue of crowding in Alberta's EDs resurfaced publically in 2010 and 2011 as a result of the advocacy efforts of some ED physicians based at the University of Alberta Hospital (UAH), a large (but not exclusive) focus for this review was on that acute care site and on the former Capital Health. The mandate of the review, however, was to 'make recommendations for system-level improvements in access and wait times for emergency department care' and so the QAC adopted several lines of investigation so as to understand ED crowding in a context for all of Alberta. The QAC examined seven areas of focus: chart reviews of patients who attended the ED at the UAH; selected patient experiences at the UAH ED; interviews; a review of the former Capital Health's strategic plan for ED crowding; analysis

of administrative data from province-wide databases; and reviews of best management practices and the medical literature.

FINDINGS

University of Alberta Hospital chart reviews

UAH ED physicians provided the QAC with a list of more than 300 patients whose care might have been compromised due to long waits for care in the ED. Most cases were dated 2008; several patients were added to the list from 2010 and a few patients from 2009. Additional patient charts from the UAH ED from 2008 were reviewed to ensure that no potentially adverse patient outcomes had been overlooked when the UAH ED physicians compiled their list. The additional charts were selected from those patients aged 18 to 85 who attended the UAH ED in 2008 and who might have suffered serious harm or death due to excessive waiting for ED services.

In total, the charts of 695 patients were reviewed, representing 821 visits to the ED (because some patients came more than once). All the charts of patients with identifiable information were reviewed to determine: (1) patient outcome; (2) if patient outcome had been compromised, then was the outcome likely to have been the result of, or been made worse due to, excessive ED waiting for service(s); and (3) the times required for patients to access various services during their stay in the ED, as well as the time required for the patients to be moved to an inpatient bed if they were admitted.

Chart review data were analyzed separately for those patients listed by the UAH ED physicians (referred to as ED-MD patients) and for those patients identified by the QAC (RT patients) who met specific criteria.

CTAS II and III patients in both 'lists' waited to be assessed by a physician much longer than the times recommended by the CAEP for their level of acuity. Half of the ED-MD patients waited 10 times longer; 20 per cent of patients waited 20 times longer.

In the list of ED-MD patients, approximately one-third had time-sensitive conditions. These patients had similar waits for an ED bed and assessment by an ED physician as did the rest of the patients on the list, demonstrating that the system was incapable of responding faster to patients whose well-being was at more risk.

Half of the patients who were suffering with pain waited to receive analgesia for more than 4.5 hours and 20 per cent of these patients waited more than 7.5 hours from the time they were first seen by the triage nurse.

Overall, half the patients in the ED-MD group who were admitted to hospital spent nearly one full day (22.6 hours) in the ED; 20 per cent of patients spent nearly two full days (47 hours). Results were not much better for the RT identified patients.

No patients in the ED-MD identified group died while in the ED, although some died later in hospital. The QAC did not identify any deaths in this group that could have been attributed to ED waiting. One patient suffered a serious outcome that required urgent, life-sustaining therapy, which happened the day after he left the ED without being seen following a five-hour wait. The patient had been discharged from hospital one week previously after undergoing open-heart surgery. The patient survived his resuscitation in the ED, was admitted to hospital, and then finally discharged home. None of the patients in the RT

identified group had a serious adverse outcome that was the direct or indirect result of ED waits or delays. Of the patient deaths in the RT group that were reviewed, none of the deaths were related to ED waiting in the opinion of the QAC.

A substantial number of people needing end-of-life care came to the ED and had less-than-ideal experiences. Among the patient charts that were reviewed, 21 of the ED-MD patients and 43 of the RT patients had a palliative diagnosis, such as untreatable cancer, or had previously chosen (or had their goals of care determined) to decline life-saving resuscitation in the event they were near death. Although it was not possible from chart reviews alone to determine why patients with these conditions came to the ED, it appeared, in most cases, that it was because of a lack of other options to receive the end-of-life care they needed. Some of these patients died in the ED, which was clearly not the best place for people to spend their last few hours of life.

University of Alberta Hospital patient experiences

The experiences of many patients were documented to highlight some of the challenges that ED patients faced, which included:

- Patients transferred to the UAH from another hospital, and whose care had been accepted by an admitting service in the hospital, were still routed through the ED where they were made to wait extended periods – often more than 24 hours – for an inpatient bed.

- Patients whose goals of care were palliative and required only supportive care or pain management came to the ED and often stayed for a prolonged time, waiting for an inpatient bed. Some of these patients spent their last hours of life in the ED, while others died within hours of finally being transferred to an inpatient bed.

- Patients came to the ED who had 'do not resuscitate' orders or had a level-of-care status that had not been clearly documented, despite the patient having a non-curable diagnosis. Sometimes a patient's resuscitation status was not clearly documented and he or she was provided advanced types of medical intervention that did not appear to match the patient's goals of care.

- Patients who required life-sustaining interventions were cared for in the ED for long periods of time despite needing care in an intensive care unit.

Provincial administrative data review

Administrative data include information that is retained in vast databases from distinct sources. These sources include, for example, the ED information system; the admission, discharge, and transfer database (into, from, and between acute care facilities respectively); the inpatient discharge database; and the ambulatory care information system. The QAC analyzed administrative data from Edmonton, Calgary, and Lethbridge to gain an understanding of how measures of ED crowding and contributing factors changed over the past several years in each of these former health regions. The analysis of the administrative data was undertaken to highlight important system factors that contribute to ED crowding and to address some fundamental issues. Several questions were posed:

- Are the worsening wait times for patients coming to EDs related to consistent increases in the number of patients arriving for care?

- Has population growth greatly increased ED demand?

- Has the type of ED demand changed?

- Are there too many 'low acuity' patients coming to the ED and using up constrained resources?

- Where is the most significant constraint (tightest bottleneck) in patient flow?

- How many acute care beds are being taken up by patients requiring an alternate level of care? How has this changed over time?

- What is the source of demand for inpatient beds and how well did the former health regions manage variability in demand (admissions) and variability in creating capacity (discharges)?

These questions are explored in detail in the main report. Information is presented for the AHS Edmonton Zone (and the former Capital Health) and for individual hospitals in Edmonton. Results for Edmonton and the former Capital Health have been compared to those for the AHS Calgary Zone (and former Calgary Health Region) and the former Chinook Health Region (Chinook).

Among this report's key findings, the time spent by ED patients waiting to have their initial ED physician assessment was 30 to 100 per cent longer in Edmonton and Calgary compared with Chinook. The time spent waiting by CTAS II and III patients for physician assessment, on average, was twice as long in Chinook and four to five times as long in Edmonton and Calgary compared with CAEP guidelines.

Over a six-year period, ED patients in Edmonton who were admitted but waiting for a bed waited considerably longer (around 20 hours) than did patients in Calgary (around 15 hours). In a striking contrast, admitted patients in Chinook consistently waited only about four hours in the ED for an inpatient bed.

This review looked at occupancy rates, which are a function of the number of acute care beds, patient demand for the beds, and their length of stay. Chinook purposely reduced its number of acute care beds in 2003 to free up funds that could then be used to invest in increasing the number of supportive living spaces. Despite reducing acute care capacity, Chinook was able to achieve and maintain desired inpatient occupancy rates by focusing on strategies that reduced length of stay for patients. Edmonton and Calgary have been unable to maintain occupancy rates at an acceptable level although this is somewhat variable between the cities and between the hospitals within each of the cities. Using common conditions as examples, the average length of stay in 2010/11 for a patient with pneumonia in Edmonton was 11.4 days; in Calgary, 12.9 days; and in Chinook 7.6 days. A person with heart failure stayed an average of 14.4 days in hospital in Edmonton, 15.9 days in Calgary, and 9.5 days in Chinook. Average length of stay for other common conditions was also lowest in Chinook.

On a per-population basis, taking into account age, gender, and patients sent to or accepted from other regions, the Edmonton Zone has had more acute care beds than the Calgary Zone or the former Chinook Health Region; has had lower average occupancy rates than Calgary; and yet has had substantially worse ED performance, especially when looking at how long ED patients would have to wait for an inpatient bed once the decision was made to admit them.

A sizeable percentage of hospital inpatient beds are occupied by patients who no longer require acute care services but are waiting for an alternate level of care (ALC) in another type of facility. Chinook reduced the percentage of its acute care beds occupied by ALC patients from approximately 11 per cent to less

than five per cent by making strategic investments in supportive living facilities that better matched the needs of its population. Calgary's percentage of ALC patients almost tripled between 2006 and 2009 (from 2.5 per cent to above seven per cent). Edmonton, more consistently and to a larger degree, opened more long-term care, supportive living, and other types of ALC beds than did Calgary over the past seven years, yet has had and continues to have a greater percentage of ALC patients (seven to eight per cent) than Calgary.

Another key finding, the pattern and sources of demand for hospital inpatient beds, showed that ED demand is much greater on weekend days than scheduled demand for inpatient beds but they are almost equal during the week; and more importantly, from the perspective of managing wait times, the variability in demand is much greater for scheduled admissions than for ED admissions. This is a well-described paradox in many acute care institutions: The source of demand over which an organization has the most control (scheduled admissions) shows the greatest variability. The conclusion from this is that healthcare institutions in Calgary and Edmonton are not managing this variability. A key strategy for managing queues is to reduce (smooth) the variability in demand for a service.

Chinook was found to be an excellent example of best practice in regional healthcare. From its inception as a regional health authority in June of 1994 to its dissolution in 2009 when Alberta Health Services was formed, Chinook articulated a clear vision for a regional healthcare delivery model in which care was 'integrated' to meet the needs of its residents. That is, there was an explicit understanding that the individual components of the healthcare delivery system would be more effective, and offer greater health benefits to patients, if each component operated as part of an integrated system instead of independent silos of care delivery. Chinook leadership sought to reduce costs and improve quality and safety. In so doing, Chinook serves as a model for the effective regional delivery of healthcare. This important finding is explored in the main report.

The analysis of the complete provincial administrative data review is provided in the main report, as are the findings from the interviews; the review of the former Capital Health's strategic plan for ED crowding; and the review of the medical literature.

CONCLUSIONS

Conclusions regarding the group of UAH ED patients

- The waiting times to see an ED physician experienced by a significant percentage of ill patients (CTAS II and CTAS III) identified by the UAH ED physicians in 2008, 2009, and 2010, and those patients identified by the QAC, far exceeded (by 10 to 20 times) Canadian guidelines.

- Once patients were able to access care in the UAH ED the QAC, overall, had no concerns about the quality of care provided by physicians and nurses, other than the crowded and at times inappropriate physical space in which the care had to be provided.

- The crowded space, the excessive waiting times for care, and at times the suboptimal space available to provide necessary care compromised patients' margins of safety. The example of a patient – who was in the ED several days after being discharged from hospital (after cardiac surgery), left the ED after five hours without being seen because of the long waiting time and returned to the ED the next day just before suffering a cardiac arrest – illustrates how seriously safety margins had been

compromised. In the list of patients identified by UAH ED physicians approximately one-third had time-sensitive conditions. These patients had similar waits for an ED bed and assessment by an ED physician as did the rest of the patients on the list, demonstrating that the system was incapable of responding faster for patients whose well-being was at more risk. This is additional evidence that the safety margins for these patients were substantially compromised.

- Although safety margins had been jeopardized, none of the patients identified by the UAH physicians or by the QAC died as a result of prolonged waiting in the ED. One patient, however, (as described above) met the QAC's definition of suffering serious harm due to excessive waiting.

- Patients who were suffering with pain waited unacceptably long times for medication due to the severe system crowding. Half of the patients with pain (which had been noted by the ED physicians) waited to receive analgesia for more than 4.5 hours and 20 per cent of these patients waited more than 7.5 hours from the time they first presented to the triage nurse.

- There were many unfortunate cases of patients whose goals of care were clearly palliative who received care in the ED, some of whom died there. The needs of these patients, in the last few hours of their lives, had to be met in a setting that was never designed to provide this type of care. It diminished them and only further burdened the ED.

Conclusions regarding the findings about factors contributing to ED crowding

Conclusions are grouped into four major areas: (1) ED output factors; (2) ED throughput factors; (3) ED input factors; (4) research evidence. The areas are listed according to the most important factors related to ED crowding.

ED output factors

- The most serious constraint to patient flow in 2008 at the UAH ED was emergency department inpatients (EIPs), as evidenced by their extremely long waits for an inpatient bed. Half of the admitted patients identified by the UAH ED physicians waited at least 10 hours and 20 per cent waited longer than 33 hours for an inpatient bed. This situation was not unique to the UAH; the other three Edmonton hospitals had similar (Misericordia Community Hospital) or much longer (Grey Nuns Community Hospital and Royal Alexandra Hospital) waiting times for an inpatient bed.

- Over the past six years the average time that admitted ED patients spent waiting for an inpatient bed correlated closely with inpatient bed occupancy rates. This is strong evidence for the close relationship between ED waiting (and ED crowding) and inpatient bed occupancy. Although median wait times for an inpatient bed and numbers of EIPs have declined in the past year, the waits are still unacceptably long. Until this most critical constraint (bottleneck) has been adequately dealt with, targets for ED wait times and crowding will not be met and patients will continue to wait much too long in the ED.

  The delay for ED patients in being moved to an acute care bed after a decision has been made to admit them is the greatest constraint and therefore the issue that needs to be addressed first. Until this constraint is addressed all other efforts to improve efficiency, reduce waiting times, and lengths of stay in the ED will have limited benefit. Thus, the focus of efforts to address ED waits and delays is dependent on how a healthcare system manages its hospital inpatient beds.

- High inpatient occupancy rates can be the result of too few beds, high demand, or inefficient use of the resource.

  - The number of required inpatient beds should be based on the sum of bed numbers for the different inpatient services in a hospital. This information was unavailable so it is impossible to comment on whether total bed numbers, or how they are apportioned between inpatient services in Edmonton and Calgary hospitals, are appropriate.

  - The number of patients seen in Edmonton and Calgary EDs and the percentage of patients who are admitted to hospital has increased only slightly; therefore, the demand for inpatient beds from ED patients has been reasonably stable over the past six years.

  - Previous reports suggested that the average length of stay (ALOS) in Edmonton hospitals was too high. This would effectively reduce hospital bed capacity. The analysis in this report found that the ALOS in Edmonton and Calgary was similar and has been increasing over time (with the exception of the UAH over the past two years). In contrast, ALOS in Lethbridge decreased over the same time period.

  - The number of inpatient beds that are used by patients queuing for supportive living and long term care facilities (ALC) is approximately six to eight per cent, which represents an inefficient use of a critically limited resource that further contributes to high inpatient bed occupancy rates.

  - Inefficient use of an important resource can result when there are no clear lines of accountability for managing it. There is no current accountability model for inpatient bed use that is structured around clinical inpatient services. Beds are managed at an organizational level but this is not the centre of control. A proper accountability model requires accurate, valid information by which to manage. Current information systems do not routinely capture or report performance such as inpatient occupancy rates by admitting service or length of stay.

  - The high degree of variability in the number of scheduled inpatient admissions in both Edmonton and Calgary contributes to overcapacity situations. Since scheduled admissions can be controlled by hospital administration, this variability suggests a lack of planning and/or information and models of patient flow that would allow more responsive management. There are three levels of planning and management required that do not appear to exist currently:

    - Long-term planning (months to years) that would specify the amount of resources required to meet certain levels of demand and performance. This planning would require a detailed 'bed map' (numbers of beds for each service in the hospital to meet the needs of their particular patient population).

    - Short-term planning (days) that would reduce variability and improve matching of demand and capacity. This planning would require detailed system models and information systems that would support such an activity.

    - Near-real-time management (minutes to hours) to foresee crises developing and allow quick implementation of strategies at the level of clinical services to avoid system gridlock. This management strategy would require a real-time information system that provides information on scheduled demand, non-scheduled (and non-ED) demand, ED demand, wait times, EIP numbers, wait times for inpatient beds, occupancy rates by inpatient service and unit, pending

discharges, ALC patients, patients who do not require acute care treatment, and cycle (turnaround) times for key services, such as diagnostic imaging, for example.

- The full-capacity protocol (admitting ED patients to an extra bed on an inpatient unit when regular inpatient bed occupancy rates are at 100 per cent) was part of Capital Health's strategic ED crowding plan, first developed in 2006 and implemented in 2007. This is best thought of as a surge-capacity plan to handle unexpected increases in demand for inpatient beds. If used in this way it should rarely be required. Although many people who were interviewed believed that implementing a more effective full-capacity protocol in the past 12 to 18 months has helped improve ED performance indicators, this protocol puts additional strain on an already over-burdened acute care system and should not be viewed as a long-term effective strategy. Although some measures have improved, such as ED length of stay for admitted patients, the current results are similar to those from 2006, which at the time were deemed to be unacceptable.

- The promising practice at the UAH, the Care Transformation project, was found to be a good example of how improving efficiencies in medical services at the UAH can improve ED waiting times.

ED – throughput factors

- Notwithstanding the many bottlenecks that limit patient flow in the ED, one of the critical waiting times in the ED is the initial wait by a patient to be assessed by an ED physician; this is especially critical for patients with time-sensitive conditions. Sometimes it is unclear that a patient has a time-sensitive condition until a physician assesses the patient or until the patient has undergone some diagnostic imaging, laboratory, or other types of testing ordered by the physician. Before seeing a physician, a patient first waits to get a bed and then waits for the physician to come to the bed. If an ED is properly staffed with physicians then the time from bed to assessment should be a few minutes. Yet, the data from chart reviews and administrative data from Calgary (the data from Edmonton were not available) suggest that patients wait in a bed for a physician often longer than 30 minutes and at times more than an hour. This indicates problems with staffing models that match physician supply with the predictable fluctuations in arrival rate of patients. The current reimbursement model (fee for service) for ED physicians provides incentives for them to be as busy as possible (100 per cent occupied), which does not allow the ED to cope with large variations in demand.

- There are currently different roles and models of care in place at the large metropolitan EDs in Alberta. Edmonton, before the creation of Alberta Health Services, implemented a triage liaison physician (TLP) role. Many EDs have created rapid assessment zones (RAZs); some EDs are trialling clinical decision units or medical assessment units. To date, the evidence for the effectiveness of most of these strategies is weak. Triage is an inefficient use of valued resources (physician or nursing): it uses experts to sort – rather than manage – patients. In a high-functioning ED system, triage would be unnecessary. Given the limited resources available for managing ED crowding AHS has an opportunity to determine value for investment and standardize the way that EDs function in Alberta.

- There is little or no accountability for the amount of time a consulting or admitting service (i.e., a specialist unit in the hospital) takes to respond to an ED's request for consultation/admission and there is no accountability for creating enough inpatient space for anticipated demand. For the ED-MD identified patients whose charts were reviewed, the median time from being assessed by an ED

physician until being seen by a consultant was 3.5 to over five hours; the median time until a decision was made for admission was an additional three hours (with 20 per cent of patients waiting nearly seven hours). It is important to note that admitting/consulting services have many demands on their time so that the ED may not always be top priority. In addition, teaching hospitals usually have several levels of trainees who come to the ED to assess a patient before final decisions are made regarding his or her needs.

ED – input factors

- Increasing ED crowding and patient length of stay in Edmonton and Calgary in the years evaluated for this report cannot be attributed to increases in numbers of patients presenting to the EDs. That is, input does not appear to be an important factor contributing to the ED crowding crisis over the past six years. A review completed by the Canadian Health Services Research Foundation reached similar conclusions.

ED – research evidence

- The research evidence for the effectiveness of various interventions to improve ED crowding is weak. In many cases where there may be a promising intervention published in peer-reviewed literature, it is challenging to understand how results from other organizations (quite often from different countries with dissimilar healthcare systems) can be applied locally in Alberta. This reality highlights the need for cycles of continuous tests of change to inform improvement initiatives and to support this with robust evaluation and measurement. Alberta has the capability to make important contributions to the understanding of ED crowding and the successful implementation of effective interventions.

RECOMMENDATIONS

Recommendations related to the chart reviews of the UAH ED patients

Analysis

An extensive review of charts was completed. The QAC's concerns about quality-of-care issues were all related to the excessive waits and delays caused by factors leading to ED crowding; these factors are covered in the following recommendations.

1. RECOMMENDATION

No further action is required regarding the patient charts reviewed by the HQCA's quality assurance committee and the lists of patients identified by the University of Alberta Hospital emergency department physicians for the years 2008 to 2010.

Recommendations to reduce ED crowding and address high inpatient occupancy rates

Recommendations are listed together with required actions; these are actions the QAC believes are necessary so that the recommendation is implemented effectively.

Analysis

In both Edmonton and Calgary the biggest constraint to ED patient flow and therefore the most important factor that contributes to extended lengths of stay for patients in the ED is the lack of available inpatient beds and/or high inpatient occupancy rates. To relieve this critical constraint, targets for inpatient occupancy rates should be established that take into account the known variability in demand for the resource. Recommended targets for average inpatient occupancy rates are 85 to 90 per cent. Until this constraint is adequately corrected there will be little chance of reducing ED crowding. Three approaches can be taken to reduce inpatient occupancy rates: (1) increase the number of inpatient beds; (2) improve the efficiency of resource use (reduce length of stay); and/or (3) reduce the variability of demand for inpatient beds.

Effective management of any critical resource like inpatient beds requires detailed, timely information combined with accountability for decisions that are made. Because physicians make decisions that affect patient length of stay and administrators make decisions about expenditures and resource use, there has to be a joint accountability for inpatient bed management. This accountability should be at an operational level in a structure that reflects services that patients require. This is not how inpatient beds are currently managed. The accountability for managing beds needs to be extended to accountability for response times to the ED. Physicians who provide a consulting service for the ED and/or admit patients from the ED should be structured to function in such a way that they can be responsible to the ED for seeing patients quickly and expedite the decision to admit a patient.

A key factor that contributes to increases in hospital length of stay (and therefore increased bed occupancy rates) is the extra time spent in acute care beds by patients who are waiting for a supportive living or long term care space (alternate level of care) in the community.

Reducing inpatient occupancy rates begins with accurately estimating the number of acute care and long term care beds that are required in order to have enough resources available for the demand that exists now and over the next few decades. This estimate should include detailed human resource planning. Detailed mathematical modelling of Alberta's healthcare system is required so that wise investments are made in healthcare infrastructure.

2. RECOMMENDATION

Alberta Health Services takes steps to reduce inpatient occupancy to target levels of 85 to 90 per cent for each of its key admitting services in each acute care institution.

REQUIRED ACTIONS

- Structure inpatient services in acute care institutions around key patient population care needs rather than historical professional organizational structures.

- Empower inpatient services with the appropriate administrative and clinical structure and authority to manage required resources. In addition to being accountable for inpatient length of stay, these services should also be held accountable for their level of responsiveness to the emergency department for consult and decision-to-admit times. Services should be required to develop surge-capacity plans and target average or median occupancy rates below 90 per cent.

- Gain an accurate estimate of the number of beds required for each inpatient service based on appropriate statistical modelling of demand using historical case-mix-group data and population-age-growth data (see recommendation 4).

- Implement an information system that provides clinicians and administrators with long-term, short-to-medium-term, and near-real-time data about the demand for inpatient beds and capacity at the system, program, and service levels. Such an information system would contribute to the dynamic management of inpatient bed capacity and support an accountability model for inpatient services.

- Take steps to reduce the variability of scheduled patient admissions by developing and implementing – for those inpatient services with large volumes of scheduled admissions – dynamic models of patient flow that more accurately predict length of stay and hence inpatient bed capacity based on the characteristics of current patient populations and projected patient admissions.

- Review length of stay data on common case mix groups across institutions to understand where efficiencies could be gained from reducing length of stay.

- Expand use of information systems that identify patients who meet standard 'readiness for discharge' criteria in an effort to reduce inpatient length of stay.

3. RECOMMENDATION

Alberta Health and Wellness and Alberta Health Services review the current need for long term care and supportive living facilities based on detailed forecasting created by appropriate models (see recommendation 4) to further reduce the percentage of alternate level of care bed days – preferably below three per cent of all acute care inpatient days.

4. RECOMMENDATION

Alberta Health Services and Alberta Health and Wellness develop long-term partnerships with Alberta universities to advise on the use and implementation of operations management tools and methods that would assist with medium- and long-term health system capacity projections.

REQUIRED ACTIONS

- Further develop system dynamic and discrete-event simulation models of patient flow through Alberta's healthcare systems that would provide more accurate predictions of capacity requirements for long term care, supportive living, rehabilitation and acute care inpatient beds and human resources.

- Ensure that predictions for inpatient beds are specific at the service level rather than at the institution level.

5. RECOMMENDATION

Alberta Health and Wellness and Alberta Health Services take steps to shorten emergency department throughput including physician response times.

REQUIRED ACTIONS

- Alberta Health and Wellness with Alberta Health Services and the Alberta Medical Association strongly consider implementing an alternate reimbursement model for emergency department physicians.

- Alberta Health Services continues with its innovative approaches for reducing emergency department throughput for discharged patients, implementing best practices throughout the province to develop a common emergency department delivery model.

- Alberta Health Services continues to promote ongoing evaluation of emergency department interventions designed to reduce patient waiting by partnering with the faculties of medicine at the University of Alberta and University of Calgary to increase the emergency department clinical outcomes research capacity in the province.

- Alberta Health Services incorporate its diagnostic imaging and laboratory information systems into an overall performance measurement model of emergency department waiting such that it can continuously monitor lapsed time from test ordering to test completion and to test interpretation and use this as a basis to drive improvements.

6. RECOMMENDATION

Alberta Health Services continue with innovative solutions to support palliative care patients in their community setting and prevent, wherever feasible, the transfer of these patients to emergency departments.

REQUIRED ACTIONS

- Alberta Health Services standardize across all healthcare sectors its palliative care terminology, such as "goals of care" and "allow natural death", and dissuade the use of descriptors such as "do not resuscitate".

- Alberta Health Services strive to support palliative patients who have a sudden, unexpected symptom crisis so these patients have options for immediate care at home that can obviate the need to go to an emergency department, and support the patient and family's decision to remain at home.

- Alberta Health Services explore options to admit patients with symptom crises directly to an intensive palliative care unit or medical unit, depending on their needs, rather than to the emergency department.

Part A

II. Review of the Quality of Care and Safety of Patients Requiring Access to Lung Cancer Surgery

The QAC undertook this part of its review with the following goals: address the allegations that had been made, and based on the findings and analysis of the investigation of current practices make recommendations for system-level improvements in access and waiting times for cancer surgery. The QAC planned its review with the intention of using what was learned about the management of waiting lists for lung cancer surgery to generate recommendations for the best management of cancer surgery in general.

METHODOLOGY

To investigate the claims of the MLA for Edmonton-Meadowlark that "physicians who raised these issues were either punished or driven out of the province or paid out in millions to buy their silence", the QAC undertook extensive interviews and an evaluation of submitted documents. The QAC constructed a detailed chronology of events, pertinent to the thoracic surgery program at the UAH, from the information obtained through interviews and documents that were supplied to the QAC as part of this review. Information had to be confirmed from multiple sources before it could be considered factual enough to be mentioned in this report.

The QAC was able to recover several lists of patients, which were thought to be relevant to the concerns raised about possible waiting lists for lung surgery. These lists, which dated back to the late 1990s through the early 2000s, had limited information that could be used to identify any specific patient. Only first and last names were supplied. There were no corresponding birthdates, hospital or region numbers, or healthcare numbers. This lack of detail precluded access to individual patient hospital charts or to patient-specific electronic information.

The allegations that "250 patients died on a wait list for surgery, many of whom had lung cancer" strongly implied that patients who required curative surgery for lung cancer did not receive it. If these allegations were true, then the magnitude of that number of patients should be reflected in reduced rates of diagnosis and surgical resections, as well as in higher mortality rates (the number of deaths attributed to this type of cancer during a specific period of time). The reference that was made to the former CEO of Capital Health in relationship to this specific allegation suggested that, if there was a problem with lung cancer surgery, then the problem was most likely relevant to Edmonton. The reference to a former Minister of Health and Wellness suggested a time frame of 2000 to 2004.

Using administrative data from large provincial databases, the QAC initially sought to examine the claims about lung surgery, rather than undertake a more focused examination of lung cancer. Data from physician billings (claims for fee for service payment), Vital Statistics, and the provincial cancer registry were requested from Alberta Health Services and Alberta Health and Wellness. The data sources could not, with a high degree of confidence, be used to identify lung operations nor could the data sets be adequately linked to determine mortality rates for thoracic-surgery-related procedures. The HQCA therefore focused its investigation on the alleged deaths of lung cancer patients during their wait for care. Mortality rates for patients with lung/bronchus cancer and incidence rates (the number of new cancer

cases diagnosed during a specific time period) were analyzed over the period of 1997 to 2002 and comparing Alberta with the rest of Canada and comparing Edmonton with Calgary.

To address the second major objective of the review, ("based on the findings and analysis of the investigation of current practices make recommendations for system-level improvements in access and wait times for cancer treatment"), the QAC undertook further interviews with practising physicians and clinical administrators. The purpose of the interviews was to understand current and future plans for improving access of patients with possible or known lung cancer to Alberta Health Services resources for diagnosis and treatment.

FINDINGS

Capital Health's thoracic surgery program chronology

For several years leading up to the late 1990s, the program for thoracic surgery in the former Capital Health experienced numerous changes in how it was organized within and between Edmonton hospitals. At times, there was only one thoracic surgeon working at UAH, for whom it was recognized the workload was high. In around early 2000, concerns surfaced about the management of patients waiting for possible thoracic surgery. Patient lists, for the most part, were managed by surgeons' offices and usually consisted of a paper-based or an electronic spreadsheet on a single office computer; the latter was the case for thoracic surgery at the UAH. A review of patient charts by Capital Health was undertaken around that time to determine if any patients with potentially resectable tumours had been waiting extended lengths of time for an operation. During that review additional concerns were raised about quality of patient care. This led to a more focused analysis of patient outcomes and included a request for an external expert reviewer to participate.

In 2004 a thoracic surgeon who had left in 2000 filed a statement of claim against Capital Health and two Capital Health medical administrators. A settlement was reached without going to trial; allegations in the claim were never proven or disproven and the settlement included a non-disclosure agreement. In 2006 Capital Health decided to review the quality of thoracic surgery care at the UAH; an internal review was supplemented with the opinions of two experts from outside the province, who recommended that Capital Health consolidate thoracic surgery at a single site so as not to have any surgeon practising alone. The reviewers also recommended that one of the surgeons undergo a period of retraining. The surgeon voluntarily withdrew from clinical practice and ultimately reached an agreement with Capital Health about this change. The parties agreed to financial compensation for lost clinical income and to not disclose the details or the circumstances leading up to the agreement. This surgeon does not currently have a medical staff appointment with Alberta Health Services.

As quality-of-care issues about thoracic surgery arose and were reviewed, the College of Physicians & Surgeons of Alberta was involved appropriately. The medical staff bylaws of Capital Health were not used to govern how the quality reviews were undertaken.

Waiting lists of thoracic surgery patients

The detailed review that Capital Health undertook in 2000 in response to concerns about possible patients not gaining timely access to thoracic surgery was aimed at patients who might have been on a 'list' and waiting for additional testing or surgery. The QAC has been able to determine that several lists were

generated—all of which pertained to a single surgeon at the UAH. There were two lists of patient names, generated approximately two months apart, on the surgeon's office computer. One list contained 141 names, the other 133; 110 patient names appeared on both lists. Between the two lists there were 164 unique patient names, half of whom were described as having a 'lung malignancy'.

Reviewers at the time these lists were generated found that some of the patients did undergo surgery, some were ultimately found to have benign disease that did not require surgery, and a substantial number with lung malignancy were found to have inoperable conditions. Some of the details about patients included on these wait lists would clearly indicate that most of them were never candidates for surgery and hence should never have been on a 'surgical wait list'. This left a small number of the listed patients who had 'operable' lung cancer and these patients appeared to have been looked after appropriately, although it was not possible to determine the length of time they waited from diagnosis to resection of the tumour nor what the ultimate outcome was for them.

To find additional patients who may not have been on the surgeon's office computer, Capital Health undertook a search of billing records (claims submitted to the Alberta Healthcare Insurance Plan) to be analyzed for two time periods: The first search included billings from June to September 2000 and a second search was subsequently performed of billings from March to June 2000.

In the first search an office chart and/or a hospital chart with what's called a 'consult sheet' were sought to identify important patient information. A total of 320 patient names were identified from the billing records during that time period. There were no office files or consult sheets for 55 of the patients. Of the 265 files available for review, nearly all patients who were identified had previously also been found on the office-generated waiting lists. There were 23 additional patients identified for whom it was thought there might be a need for surgery. After detailed chart reviews it was determined that 14 of these patients had already been assessed and found to have advanced disease, were therefore not surgical candidates, and had been appropriately referred to the Cross Cancer Institute. Seven patients were noted to have benign, stable disease and two other patients had been referred to a thoracic surgeon at the Royal Alexandra Hospital.

When Capital Health undertook a further review of billing records from March to June 2000 a total of 258 patients were identified, 83 of whom had been identified in the first billing record review, leaving an additional 175 patients for review. A total of 36 patients were thought to require some form of surgical followup or other form of treatment. Of these, only five patients required surgery for a lung malignancy and all of them received it. None of the information suggested that patients with resectable lung tumours had died as a result of waiting too long for surgery. For its own review that is the focus of this report, the QAC was unable to track long-term survival rates for any of the patients who were listed as having a lung malignancy.

Another review of patient charts that Capital Health performed was based on examining the files of patients who had been wait listed with the UAH admitting department between March 1998 and August 2000. There were 174 patient names on this list, with 117 of them having been previously identified through the processes described above. Of the remaining 57 patients, records were available for 51; the other six patients could not be tracked and remained unaccounted for. No additional action was required, in the opinion of the Capital Health review team, for any of the 51 patients identified though this approach presumably because the patients had received appropriate evaluation and treatment.

Lung cancer – incidence, mortality, surgery, and disease-stage rates in Alberta (1997-2002) (2003-2008)

Detailed information on patients with cancer is maintained in Alberta's cancer registry and this information can be used to investigate unexplained changes in treatments and outcomes for cancer patients. The QAC analyzed the provincial registry database to look for unexplained lung cancer outcomes or treatment results. In Alberta approximately 1,400 patients are diagnosed with lung cancer every year and about 17 per cent of them undergo surgery.

The allegation that "250 patients died who were on a waiting list" implies that the patients had potentially curable cancers. The QAC hypothesized that, if that many patients failed to receive surgical treatment, anomalies would show up in statistics for that time that show how many people had lung cancer, died from it, received surgery for it, or were diagnosed with earlier-stage (I or II) cancers. In other words, those patients would show up somewhere else in the statistics. Comparisons were made between Alberta and national data over time to determine if there had been any substantive changes in age-standardized incidence rates (ASIR) or age-standardized mortality rates (ASMRs)[i]. Incidence and mortality rates were standardized (adjusted) for the age of patients, since this is known to be a determinant for both of these measurements. No anomalies were found. The data show:

- That Alberta's ASIR and ASMR for lung cancer was consistently below that of the national average.

- There were no changes in Alberta's ASIR and ASMR between 1997 and 2002. (Also, the QAC data analysis shows no change in the years 2003 to 2008.).

- There were no substantive changes in Edmonton's or Calgary's ASIR and ASMR over the same time period.

- Although Edmonton's ASIR and ASMR were slightly higher than Calgary, the differences between the two cities are not statistically significant.

In 2008 Alberta Health Services released a report that examined ASIR and ASMR over a 20-year period (1988 to 2008) and concluded that Alberta rates had not significantly changed over that time period. Based on the national and provincial ASIR data, the QAC did not find any non-statistically or statistically significant change in the incidence of lung cancer in Alberta, Edmonton, or Calgary.

In summary, the QAC is satisfied that the former Capital Health did an extensive search for patients who may not have been offered timely surgery for serious underlying lung, esophageal, pleural, or mediastinal disease. Further, there is no evidence that there was a 'true surgical wait list' (i.e., a list of patients who had completed diagnostic and preoperative workups that showed conclusively that the patients had disease appropriate for surgical resection and they had been evaluated as medically fit for surgery). There

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[i] Incidence or mortality rates for a given population are mathematically adjusted for the age of the population so that rates can be compared between different populations of different ages.

were multiple lists generated of patients who had been seen; a substantial proportion of these patients did not have cancer and a larger percentage did not require surgery. Legitimate concerns were raised about proper management of surgical wait lists; these concerns were investigated and managed by Capital Health.

The QAC interviewed many knowledgeable people about the thoracic surgery issues at the UAH and developed a thorough understanding of the concerns regarding patient management; how physicians' performance was assessed, including the use of external reviews; as well as the decisions that were ultimately reached about the stopping of surgical practice. The QAC is confident that physician advocacy was not the reason the Capital Health decided to review physician practices and their patients' outcomes. Furthermore, the QAC had no reason to believe that any thoracic surgeon was 'punished or driven out of the province' because of advocacy efforts. Financial settlements were reached with the affected surgeons to reimburse them for lost income that included agreement not to disclose details; in such situations that is standard practice. Characterizing these settlements as 'money to buy silence' is not supported by facts.

CONCLUSIONS

There were two objectives specified in the Terms of Reference for the cancer surgery part of the HQCA review:

- To determine whether the quality of care and the safety of the group of 250 patients on a surgical wait list of 1,200 were seriously compromised due to delayed access to surgery as alleged in a question raised in the Alberta legislature on February 28, 2011.

- Based on the findings and analysis of the investigation and an analysis of current practices, make recommendations for system-level improvements in access and wait times for cancer treatment.

During the course of the review the QAC gained insight into the challenges that were encountered with managing the thoracic surgery program in the former Capital Health.

Conclusions regarding the question of a group of 250 patients on a surgical wait list of 1,200

- The allegation that about 1,200 patients are (*sic*) (were) on a waiting list for lung surgery is unfounded.

- The allegation that 250 patients died waiting on a lung surgery waiting list is unfounded.

- The inference that physicians who raised these issues were punished, driven out of the province, or paid out in millions because of advocating on behalf of patients is not supported by the facts.

- There is no basis for suggesting that former ministers of health and wellness, the former CEO of Capital Health, or the Registrar of the College of Physicians & Surgeons of Alberta (CPSA) suppressed knowledge of illegal or unethical behaviour or actions.

- The QAC is satisfied that when the issue of the waiting list first surfaced, the former Capital Health launched an appropriate investigation and took actions to ensure that patients were appropriately followed and had an opportunity to receive testing and treatment.

- The QAC cannot, with 100 per cent certainty, conclude that no patients experienced a delay in surgery such that the delay compromised their chances for long-term survival because the QAC did not have sufficient information to identify patients that would have allowed an independent investigation of

patient outcomes. Nevertheless, based on extensive interviews and analysis of data from Alberta, Edmonton, and Calgary for incidence and mortality rates, surgical resection rates, and proportion of patients presenting with early stage lung cancer, no evidence could be found of a systematic worsening of patient outcomes for Edmonton patients.

- There were issues and concerns with how a former surgeon at the UAH was managing a surgical waiting list; concerns included:

  - Appropriateness of patients on a 'surgical wait list'; many patients who were on the list were not candidates for the operation that appeared to have been proposed for them.

  - Appropriate prioritization of patients; that is, which patient would go next to the operating room.

  - Appropriate and timely followup of patients who required additional diagnostic testing.

Conclusions regarding the management of lung cancer surgery waiting lists

- The management of cancer surgery waiting lists has been and continues to be problematic. This is the result of:

  - Variability in the use of the standard approach for disease and procedure classification (e.g., the International Classification of Disease).

  - Non-standardized criteria/definitions for:

    - Indications for surgery

    - Clinical staging of disease

    - Overall (medical) fitness of the patient for surgery.

  - Variability in the workup of patients who may require surgery, with respect to type and timing of investigations and consultations.

  - Variability in the criteria used by surgeons to determine that an operation should proceed; that is, the definition of 'operability'. Future refinements in this definition may lie in developing standardized care pathways, which will also establish definitions and thresholds for surgical and non-surgical treatments.

  - Variability as to when patients are registered (listed) with a specific AHS hospital for an operation.

- Current efforts by Alberta Health Services to standardize and streamline the diagnosis for patients with suspected lung cancer and reduce waiting times for surgery are steps in the right direction. It is possible, however, that current efforts will not help patients or their primary-care physicians know when a patient has been placed on a waiting list or learn (without phoning the surgeon) the estimated date of an operation.

Conclusions regarding the management of thoracic surgery and physician performance in the former Capital Health

- While there was a small group of physicians advocating for additional resources, these efforts had no bearing on what finally transpired between Capital Health and the surgeons. The key findings from

this review centred on whether appropriate procedures, including appeal processes, were followed to ensure administrative fairness in evaluating the performance of the physicians involved.

- There were factual issues of physician behaviour and questions about the quality of patient care that required intervention and review by the UAH and Capital Health senior medical and administrative leaders. Senior leaders' lines of authority were blurred and at times undermined by others who intervened because they had the power to do so. The Capital Health Board of Directors, which had delegated the authority to handle physician performance and privileging issues to senior management, was not involved. There were and remain strong opinions about the appropriateness of the way the issues were handled by those involved. The lessons learned from that time focus on the need to have very clear physician performance review-and-appeal procedures based on medical staff bylaws and administrative contract management. These are characteristics of a 'just culture' in an environment that must be focused on safety, where individuals are encouraged to raise concerns without fear of reprisal – a common concept in healthcare. While the handling of physician performance issues frequently requires leadership judgment, ignoring procedures – or, worse, having no procedures – can result in multi-faceted human resource management problems that will and do have a devastating effect on the individuals involved (both those making the decisions and those on the receiving end). When there are no clear rules, or the clear rules are not followed, disagreements invariably arise that can lead to ad hoc involvement of the CPSA.

- There was considerable confusion among the parties as to the manner and timing of CPSA's involvement. Generally there is a pervasive fear among physicians of even the appearance of the CPSA's involvement, given that the CPSA has ultimate control over a physician's right to practise medicine. Involving the CPSA must always be handled in the most appropriate manner.

- The focus of Capital Health reviews into quality-of-patient-care issues in thoracic surgery appeared to rest primarily on individual physician performance with little emphasis on important system issues that no doubt contributed to patient outcomes. Some of these issues would include:

  - Surgeons practising in isolation without the ability to review cases with similarly trained colleagues or having access to highly skilled surgical assistance for complicated cases.

  - Excessive night and weekend 'call'.

  - Excessive workload.

  - Excessive fatigue (contributed to by call and workload).

  - Lack of leadership training among physicians.

RECOMMENDATIONS

Recommendations related to the alleged list of 1,200 patients

Analysis

The following allegations were made by the MLA for Edmonton–Meadowlark on February 28, 2011 in the Alberta legislature that: *(1)* "*about 1,200 Albertans are on a wait list for lung surgery, and 250 died*

waiting on that list, many with lung cancer"; (2) "this happened under Minister Mar and the Hon. Member for Sherwood Park and that Dr. Trevor Theman of the College of Physicians & Surgeons of Alberta, and Capital Health and Sheila Weatherill knew about this"; and (3) "physicians who raised these issues were either punished or driven out of the province or paid out in millions to buy their silence and the costs buried in the books under the former Capital Health Region."

The allegations implied that physician advocacy for patients, physician intimidation, and 'muzzling' associated with financial payments played a part in the 1,200-patient waiting list and the involved thoracic surgeons.

These allegations were examined very thoroughly through extensive, semi-structured interviews protected by the quality assurance provisions of Section 9 of the *Alberta Evidence Act*, informal confidential conversations, extensive documentary reviews and careful analysis of patient wait lists.

7. RECOMMENDATION

The Government of Alberta take no further action, and not establish a judicial or health inquiry, to examine:

- **The allegation of a list of 1,200 patients on a lung surgery wait list or patients who may have died who were on such a list.**

- **The allegation regarding the roles and actions of former health ministers, the former CEO of Capital Health, and the Registrar of the College of Physicians & Surgeons of Alberta.**

- **The allegation that the physicians who raised the issues regarding a 1,200-patient waiting list were either punished or driven out of the province or paid millions to buy their silence and the costs buried in the books under the former regional health authority.**

Recommendations to improve the management of (lung) cancer surgical waiting lists

8. RECOMMENDATION

Alberta Health Services develop standardized approaches for the creation of surgical waiting lists making surgical oncology waiting lists a priority.

REQUIRED ACTIONS

- Alberta Health Services develop a patient care and patient flow map for common oncology operations that documents work up and clinical decision-making up to the point that a patient meets criteria for requiring a surgical operation and hence placement on a wait list.

- Alberta Health Services develop standard criteria for when patients are officially placed on a wait list.

9. RECOMMENDATION

Alberta Health Services invite key stakeholders (e.g., patients and non-surgical healthcare providers) to participate in the Lung Cancer Surgery project so that stakeholder needs are considered.

REQUIRED ACTION

- Alberta Health Services ensures that stakeholders contribute to all phases of the project, including the design of a public portal to an information system, which would allow them to determine when they are on an 'official' surgical waiting list and their current status on that list.

10. RECOMMENDATION

Alberta Health Services develop a comprehensive physician staffing plan (that at a minimum would include respirologists, thoracic surgeons, radiation oncologists, and medical oncologists) to ensure long-term viability of its Lung Cancer Surgery project.

CONCLUSIONS AND RECOMMENDATIONS CONCERNING THE OVERALL HEALTHCARE SYSTEM

During Part A of the review the QAC found evidence of, and reached conclusions about, the overall functioning of Alberta's healthcare system that pertain to more than just emergency department (ED) or cancer surgery. A brief analysis is followed by the QAC's conclusions and recommendations.

Issue: The impact of restructuring the healthcare system

Analysis

It is widely accepted that ED performance (waiting times, number of patients waiting) is the 'canary in the coalmine' indicator of overall healthcare system performance because EDs serve as the healthcare safety net for a population. Following the formation of Alberta Health Services, several key indicators of ED and hospital crowding became substantially worse:

- Median length of stay for admitted patients.

- Waiting time for an inpatient bed following a decision to admit.

- ED beds occupied by emergency inpatients.

- Inpatient bed occupancy rates.

After some stability in leadership over the past year, noticeable improvements have occurred, but results have only now reached the levels of 2006/07.

Conclusion

Health system performance deteriorated for several years following major restructuring in 2008 and only now are the performance measures starting to show a return to 'pre-AHS' levels. This conclusion supports recommendation 1 in Part B of this report.

Issue: Healthcare administrative structure and organization

Analysis

In comparison to Calgary, on a per-population basis, Edmonton has more acute care inpatient bed capacity, long term care/supportive living spaces and slightly lower hospital occupancy rates, yet has had substantially worse ED lengths of stay for patients requiring admission to hospital. These results suggest fundamental differences in how these two healthcare systems previously functioned (and in many respects continue to function). Based on many interviews, the QAC concluded that the differences between Edmonton and Calgary are likely best explained by the historical differences in how they were structured and organized. In Calgary, programs and departments used to be, and mostly still are, regional in structure; that is, there are single departments of emergency medicine, surgery, medicine, obstetrics and gynecology, anesthesiology, etc. In contrast, departments and programs in Edmonton are mostly site-based, meaning each acute care facility has its own departments and programs and two of the hospitals (Grey Nuns Community Hospital and Misericordia Community Hospital) are under a separate governance structure.

In the review of thoracic surgery, one of the important issues that surfaced was the two-site model for the delivery of thoracic surgery that evolved in a region that did not have the population base or surgical volume to justify it. Competition between acute care institutions leads to duplication of services and missed opportunities to develop strong regional (zonal) programs of care delivery.

Conclusion

Historically, the performance of Edmonton's healthcare system has been hampered by having strong site-based programs at its two largest acute care sites and having an independent healthcare system governing its two smaller acute care sites.

11. RECOMMENDATION

Alberta Health Services implement a clinical program management model within its geographical zones that fully integrates all hospitals and urgent care facilities under single-program or service-based leadership.

Issue: Organizational learning regarding strategic planning and leadership

Analysis

Capital Health's strategic plan to address ED crowding, the Emergency Services and System Capacity (ESSC) project, was not clearly articulated to key stakeholders, such as the ED physicians, despite a sizeable investment in the project. The plan to address crowding was by necessity a broad, system-wide approach rather than a quick fix. The ESSC project was not on the agenda of the region's Board of Directors or its Regional Medical Advisory Committee. The QAC concluded from this that ED crowding was not a high priority in the former Capital Health. In an evaluation of the ESSC project done in spring of 2009 it was determined that the project did not deliver the anticipated improvements in ED crowding. One of the deficiencies of the project was that it did not have a clear strategy to address the fundamental causes of severe ED crowding that being high inpatient occupancy.

Although longer-than-average length of stay for key case mix groups was highlighted in the report as an important issue, there were no fundamental changes to how inpatient care was structured or delivered and average length of stay did not change.

In contrast to the lack of results in Edmonton, the former Chinook Health Region developed a strong strategic plan, consistent top-level leadership with an excellent understanding of quality improvement and change management, successful engagement of frontline clinicians, and transformation of acute care beds to long term care/supportive living beds while still maintaining workable inpatient occupancy rates. This was accomplished by shortening inpatient length of stay at a time when it continued to lengthen in both Calgary and Edmonton. The former Chinook Health Region, albeit less complex than the two larger centres, exemplifies what has been described as common habits of high-value healthcare systems:

- Specification and planning: Both operational decisions (e.g., patient flow through an ED) and core clinical decisions are based on explicit criteria.

- Infrastructure design: A deliberate design of clinical microsystems (the core units that deliver care to populations of patients) including staff, information and clinical technology, physical space, business processes, and policies and procedures that support patient care.

- Measurement and oversight for internal process control: Measurement is integrated with other organizational priorities so that it is an integral part of accountability and performance management.

- Self study: Organizations study positive and negative deviances in their processes and outcomes of care, which allows them to make improvements.

Conclusion

There is an opportunity for Alberta Health Services and other healthcare organizations to broaden their knowledge of organizational leadership and strategy. Developing case studies would help develop 'corporate memory' and provide clinical and administrative leaders with key lessons about organizational planning, accountability, engagement of frontline providers, and the importance of developing and following key performance metrics and change management protocols.

12. RECOMMENDATION

Alberta Health Services develop and use case studies about: (1) the strategic planning and implementation of system-wide interventions that the former Chinook Health Region undertook; and (2) the former Capital Health's Emergency Services and System Capacity project.

Issue: Empowering clinical programs and services to conduct quality assurance reviews

Analysis

The QAC found no evidence that the ED physicians in the former Capital Health were supported in leading their own formal quality assurance reviews. Rather, the QAC was provided with examples of quality assurance reviews that were led by one or more individuals from outside of the department or by an administrator with authority for the department. This approach to quality assurance can be, and was, perceived as potentially punitive, which does not support the development of a just culture that is a fundamental underpinning of a safety culture.

Conclusion

A complete understanding of how quality assurance reviews can and should be used in a manner that supports a safety culture was not evident in the former Capital Health's EDs.

13. RECOMMENDATION

Alberta Health Services ensure that its departments or services develop the expertise and the accountability for conducting their own quality assurance reviews with the sole purpose of the review being to improve the reliability and safety of the patient-care delivery system.

Part B – The Role and Process of Physician Advocacy
(including physician intimidation)

The purpose of the quality assurance review under Part B was:

- To investigate the role and ability of physicians to advocate for patients whose quality of care and safety they believe is or could be compromised due to system resources or policies.

- Based on the findings and analysis of the investigation, to make recommendations for system-level improvements in the policies and practices relating to physicians' ability to advocate in the best interests of patients and the public.

METHODOLOGY

This review was conducted by an appointed quality assurance subcommittee (QAC) of the HQCA QAC and was conducted in accordance with Section 9 of the *Alberta Evidence Act.*

There were four major sources of information used for this review:

- A comprehensive review of the healthcare literature on physician advocacy and intimidation.

- A province-wide survey, *Role and Process of Physician Advocacy*, to Alberta physicians to gain an understanding of their knowledge and experience related to advocacy in Alberta.

- Interviews to gain perspective on historical and current practices related to physician advocacy.

- Documentation review. Documents relevant to organizational factors and processes that may influence physician advocacy were obtained through several sources. These included documents provided by interviewees, additional literature sourced and reviewed by the QAC, and multiple documents requested from and provided by Alberta Health Services (AHS). Relevant documentation was reviewed and analyzed by the QAC and referenced during the analysis and report writing process.

FINDINGS

The major findings from the survey, interviews, and review of documentation are summarized below. The complete findings are discussed in detail in the main report.

Role and process of physician advocacy survey

Quantitative results

Overall 7,957 survey packages were sent to the registered physicians throughout Alberta. There was a 26% response rate.

Slightly more than half of physicians who responded (51%) feel their ability to advocate had been limited in the past year; 64% report their suggestions are acted on only "sometimes" and 18% report "never". Twenty per cent (20%) of physicians who advocated experienced "active harmful obstruction" for advocating; and a total of 37% experienced some form of negative outcome, including 10% who reported that their requests were simply ignored. These negative outcomes are much more likely to occur in a

healthcare organization. Organization administration, department administration, or executive are identified as the party who restricted advocacy for as many as 50% of respondents.

Fifty-six per cent (56%) of physicians report their ability to advocate is limited by an unclear process for advocacy, 37% were not aware of a process through which they could advocate and an additional 23% simply didn't know. Many (69%) reported that their contract didn't address advocacy and 45% reported that organization policies did not directly address advocacy. Finally, 69% of physicians report no formal training in advocacy, and physician advocacy remains poorly defined despite an 82% acceptance of its importance as a professional responsibility.

When asked who *enhanced* their ability to advocate, 49% of physicians cite their peers; 13% cite department administration, and 7% cite organization administration. Likewise, 55% identify organization administration as having *restricted* their ability to advocate, as opposed to 20% who identify peers.

Qualitative results

A total of 478 responses to the final question of the survey, an open-ended question that asked respondents to identify "any additional comments, concerns, or suggestions regarding physician advocacy issues as you have experienced them in your practice", were analyzed. All the comments were collated and a thematic analysis was completed.

Physicians' experiences with advocacy and intimidation

Respondents provided many noteworthy comments about their experiences with advocacy:

- Advised to "not continue speaking"; "labelled negative, misinformed, or speaking out of turn".

- "I was never persecuted but was certainly placated, censored, and then ignored."

- Several were threatened with loss of privileges, having their mental competency questioned, and being 'fired' for advocating ("which was traumatic").

- "Intimidation is real but subtle"; "It's extremely difficult to advocate due to undertones of intimidation and being told to stop being so outspoken".

- "No matter what anyone says, a culture of fear, intimidation, apathy, elitism, inequality, and manipulation exists and has existed for some time."

- "Obvious systemic harassment and intimidation that can/does/may have a negative effect on patient safety."

Some respondents had not experienced intimidation themselves but they described intimidation that happened to colleagues and its impact on those around them. Even the rumours of intimidation were enough to stop some doctors from advocating. A number of respondents indicated they had "never seen or witnessed any negative issues related to physician advocacy", nor had they ever been "intimidated" or "obstructed in any way". Some described positive advocacy experiences, and tended to associate that success with having "legitimate needs". Several responses described an emerging hope within AHS, and that AHS, the AMA, and the CPSA were to be commended for their progressive support of advocacy.

Challenges identified with advocating

Some of the challenges identified with advocacy within AHS were related to a perceived lack of stable leadership since its creation. A prevalent theme was the perception that AHS managers and administrators were "far too removed from patient care issues" and the priority for AHS was "not on patient care but on budget concerns".

Why physicians chose not to advocate

A variety of reasons were mentioned as to why some physicians chose not to advocate, including not feeling prepared to advocate (no formal training), thinking others are better at it, and that it takes an inordinate amount of time (away from family) to advocate. It was felt that "many colleagues have long since checked out … and remain disengaged". Other reasons for not advocating included:

- "20 years of pointless, non-productive advocacy causing advocacy fatigue"

- Physician input is "not wanted nor valued"; input was "trivialized, not taken seriously"; "it's not intimidation, it's being ignored and marginalized"

- Contract signed with AHS is "muzzling", "prohibiting them from pursuing advocacy in any manner that may damage the reputation of AHS"

- Potential ethical issues in advocating for one patient or group of patients at the expense of others.

Enabling effective advocacy

Numerous respondents indicated that the "avenues" and "processes" to advocate within AHS and to the media needed to be clearer. Many respondents commented on difficulties working through the "behemoth, unresponsive organizations challenging healthcare providers' ability to provide quality care" and "labyrinth of bureaucracy" in AHS, which was perceived to be "remarkably disconnected from actual care delivery". Some expressed frustration, noting that local administration, while being receptive to concerns, had limited ability to make meaningful decisions.

Lines of authority and accountability

Survey respondents commented on "bureaucratic and political interference" with "increasing control among unelected deputy ministers and assistant deputy ministers". One respondent labelled the "monopoly power (of one provincial region) as extremely intimidating".

Several respondents spoke to the 'fear' associated with the CPSA. They felt "intimidated" and said that physicians were "afraid to speak out" and that if you spoke out you would "be in trouble and punished". Punishment for speaking out was described as "having charts audited" and then being blamed for not advocating enough when patients had received poor care.

Interviews

Participation in a quality assurance review is voluntary. The QAC spoke with 99 people, some of whom more than once, for a total of 106 separate interviews; five people who were invited declined to participate. All interviews were conducted under Section 9 of the *Alberta Evidence Act*. The names of

people who either initiated an interview with the QAC or were invited to participate, and whether or not they participated, will be kept confidential by the QAC.

All interviewees were asked about their perceptions of physicians advocating for their patients, groups of patients, and community, and where appropriate for their insights into advocacy associated with the emergency department (ED) and/or lung cancer surgery in the former Capital Health.

Definitions and descriptions of advocacy varied widely among interviewees, ranging from "letting the system know that there may be a need for improvement" to the idea that advocacy is a "process you can follow if you are well connected" (to decision makers or other influential people). Another perspective was that "docs (physicians) and others speaking to patients' needs is not advocacy, rather is part of your responsibility to the patient; we all have responsibility to put patients first".

Advocacy was seen to be required in several situations:

- When decisions regarding the allocation of finite resources in healthcare are being considered.

- When a resource allocation decision has been made that appears unfair.

- "If money is being wasted, you have to blow the whistle on that."

- When trying to coordinate care for an individual patient meets with barriers due to "lack of coordination" between various components of the system and individuals "working in silos".

Experiencing intimidation and muzzling while advocating

Interviewees expressed widely varied perspectives on how widespread intimidation and muzzling are when advocating for patients. Some thought comments describing "a culture of fear of intimidation in the health system" to be a "grand generalization with no substantiation presented, designed to attract media attention and jeopardize public confidence and further inflame others in their profession." Other interviewees were unaware of any physician ever being "bought off" to remain quiet or being muzzled as a result of advocating for their patients.

On the other hand many interviewees identified, through their own personal experiences or experiences of others, disturbing situations where leaders (most often physician or administrative leaders) had attempted to 'muzzle' or intimidate physicians to prevent or cut short their advocacy. In some cases, this was attributed to leaders being 'directed' from external sources, such as politicians or the government, to stop the advocacy.

Interviewees described numerous situations in which physicians or prominent senior leaders had experienced severe negative repercussions while advocating for patients or system improvements. In some cases the intimidation was "subtle and nuanced and was career destructive", and in others the intimidation was "direct and focused". These experiences caused significant stress for some of the individuals involved and, in some instances, were life-altering, resulting in career changes or a move out of the province. These situations were seen to have sent a clear message that "if you speak up, this is what can happen to you", and were seen as having a 'chilling effect' on others. Other individuals used strong language when describing their experience; one said "it was like I had rabies". Equally concerning were experiences of people being told not to get involved in situations where a colleague's behaviour or performance was being reviewed, with an implication that "it can only hurt you".

Lines of authority and accountability

Throughout the interviews the importance of role clarity and clear lines of authority and accountability in relation to physician advocacy was referenced many times. Interviewees emphasized the importance of well-defined roles and responsibilities and clear boundaries within and between elected officials and the ministry, healthcare organizational governance and administration, health professional colleges and associations, and individual physicians for effective and appropriate advocacy.

Governance of Alberta Health Services

Interviewees identified a continuing lack of clarity between the roles, responsibilities, and lines of authority of elected officials (including the Minister of Health and Wellness), the ministry (or Department of Health and Wellness including the Deputy Minister), the former regional health authorities and now the AHS Board and AHS administration. This was described as "each organization playing in the other's sandbox". There was an indication from some of the interviews that in the current environment the hope is that the lines of accountability between the most recently appointed Minister, the Department, and the AHS Board will become more apparent and adhered to.

Views about Alberta Health Services (AHS) following reorganization in healthcare

It was identified during the interviews that the frequent restructuring of the healthcare system was a major challenge. It was pointed out that healthcare gets "redirected on the political priority of the moment, and the noise in the paper, which takes us off course, so never finish and carry through". In particular, the initial transition year for AHS (2008) "was extremely difficult for everyone in the system because all existing pathways were broken and changed", therefore physicians "had no idea how to advocate successfully". Many interviewees shared past experiences where they knew exactly "who to go to (in order) to get things fixed" but "now I have to start from scratch as to who could approve".

Views about the CPSA (College)

It was suggested that some healthcare administrations have been and are seen as too close to the College, particularly the administration in the former Capital Health: "what disturbs me most is the regulatory body and health system should be functioning separately". It was also felt that physician advocacy can "sometimes be interpreted as disruptive behaviour, especially when it becomes zealous and/or political". Suggestions were made during the interviews that the College was used to silence "disruptive" physicians who were advocating appropriately. It was apparent through the interviews that some physicians do not fully understand the role of the CPSA. The CPSA was described as "heavy handed" and instilling fear if and when it called. The threat of reporting a physician to the CPSA was described as a tactic used by a colleague or administration to intimidate physicians and that "they are going to take my licence".

Documentation Review

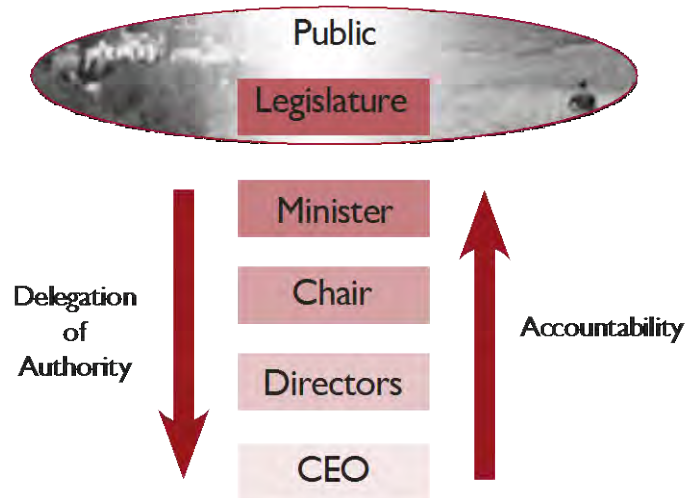### Lines of Authority and Accountability

Key documents were reviewed to gain an understanding of the established definitions and descriptions of current health system structures, roles and responsibilities.

In order for the health system to function effectively, the separation of roles, responsibilities and accountabilities between the various authorities must be clearly defined and articulated to ensure the

public interest is served. This separation and clarity removes ambiguity provides explicit lines of reporting and delineates the accountability frame. This was echoed in the 2007 report *At a Crossroads: The Report of the Board Governance Review Task Force,* which stated "successful governance requires defined lines of authority, responsibility and accountability".

In 2010 the Minister's Advisory Committee on Health report recognized the need to delineate "clearer roles and lines of accountability between government, health delivery systems, providers and the public". In *The Public Agencies Governance Framework*, which was adopted by the Government of Alberta in response to the *At a Crossroads* report, it is clearly stated that "authority flows from the public, through the Minister to the agency directors; accountability returns from the agency, through the chair to the Minister, who is held accountable to the public".

The AHS Mandate and Roles document states that the AHS board is "established, appointed by and overseen by the Minister of Health and Wellness". The *At a Crossroads* report emphasizes that "making sure the best people are appointed to agency boards is absolutely critical to ensuring that good governance happens". It goes on further to say that "board appointments cannot be left to chance when the work of agencies is such an important part of how government provides services to the public". The task force then recommended that the process for the appointment of directors to public agencies should be "transparent, non-partisan and competence-based".

The *Regional Health Authorities Act* (RHAA) states the "Minister may give direction to an RHA for the purpose of providing priorities and guidelines" for it to follow. The Minister can approve or amend the health plan submitted by the RHA (i.e., AHS Board) or refer the plan back to the RHA with direction "to take any further action the Minister considers appropriate". If the Minister "considers that it is in the public interest to do so", the Minister can do "any other thing the Minister considers necessary to promote and ensure the provision of health services in Alberta".

The AHS Board's role is defined within the AHS Mandate and Roles document. The Board, through the Board Chair, is accountable to the Minister for the "delivery and operation of the public health system in Alberta". The Board guides the strategic direction, approves and monitors the AHS health and strategic plans (subject to the approval of the Minister) and financial results. The RHAA, however, also states that

the AHS Board is the "final authority" for promoting and protecting the health of the population, assessing health needs, determining priorities and allocation of resources for providing health services, and ensuring reasonable access to health services within the health region.

As per the AHS Mandate and Roles document, the CEO is "accountable to the board and provides leadership and management for AHS" and administration for all of its programs and services, and ensures "financial, human, capital and other resource management". The CEO reports to and accepts instructions from the AHS Board directly or through the chair, however, the AHS Mandate and Roles document states that the Deputy Minister "coordinates" with the CEO to "provide direction, communicate government expectations, and outline the strategic goals, guidelines, and directions of the department to AHS".

The Alberta Health Services Medical Staff Bylaws and Medical Staff Rules govern the "creation, organization and operation of the medical staff" including the administrative structures, committees, and positions for the governance of the medical staff. They define the accountability, responsibilities and duties for the various medical staff administrative positions and committees. Physicians working within AHS report through the medical staff organizational structure. Their clinical responsibilities are defined in the AHS Medical Staff Bylaws and Rules and/or medical services agreement. Their administrative services, if applicable, are articulated through a medical administrative services agreement with AHS, which also describes the reporting requirements and from whom the physician will receive general directions on the provision of those services.

Physicians are encouraged, in fact have the "right and obligation", as per the Medical Staff Bylaws to advocate on behalf of their patients. The AHS medical administrative services agreements align with the bylaws. The agreements state "Nothing in this Agreement shall prevent the Contractor from advocating on behalf of his/her patients. The Contractor will ensure that should h/she choose to advocate by making public statements, for example to news media, that h/she will take appropriate steps to avoid confusion that h/she is expressing his/her views and not necessarily those of AHS".

The College of Physicians & Surgeons of Alberta website states that the CPSA "regulates the practice of medicine in Alberta". The privilege of self-regulation is granted through Alberta's *Health Professions Act* (HPA). The CPSA also provides a number of programs designed to support physicians, such as continuous professional development, the triplicate prescription program, a physician achievement review program, and the physician health-monitoring program. Confidentiality is a key element described throughout the CPSA's programs.

ISSUES, ANALYSES, AND RECOMMENDATIONS

Several key issues emerged from the analysis of the survey responses, interviews, literature review, and review of key documents. The analysis of each issue is summarized below and expanded upon in the main report.

Issue and analysis: Stability and consistency in the health system

The magnitude, frequency, and at times abruptness of the restructuring of the health system in the past, including the formation of AHS, created a sense of chaos and instability. This has been further complicated by repeated reorganization within AHS. The frequent disruption of established processes and relationships caused by the restructuring was identified by physicians as a barrier to effective advocacy.

1. RECOMMENDATION

The Government of Alberta and Alberta Health Services undertake no further major restructuring in Alberta's healthcare system without first having a clear rationale for the change including a transition plan that specifies the potential ramifications to safety and quality of patient care, the well-being of frontline providers, and the overall integrity of the health system.

REQUIRED ACTIONS

- If major restructuring of the Alberta healthcare system is being considered the government of Alberta must establish a process for effective consultation with relevant stakeholders, the public, and expert advisors.

- If further major internal restructuring of Alberta Health Services is being considered an effective, open, and transparent process engaging its staff and stakeholders must be implemented.

Issue and analysis: Lines of authority and accountability in the health system

Lines of authority and accountability between the Minister of Health and Wellness, the Department of Health and Wellness, AHS governance, and AHS administration and operations are blurred. In this context there is a perceived improper use of authority, especially by the Minister and/or the Department, which causes mistrust between the government and AHS administration. The cascading effect of this mistrust is that frontline providers (physicians and others) are unclear about the genuine authority of the AHS Board of Directors and AHS administration to make decisions that directly affect healthcare service delivery. Physicians are then confused about whom they should advocate to and the appropriate avenues to follow when advocating.

It was also recognized that clear lines of authority and accountability are required for successful governance. This requires that the appointment of directors to public agencies is not "left to chance" but entails a process that is "transparent, non-partisan and competence-based" as recommended in the *At a Crossroads: The Report of the Board Governance Review Task Force*.

2. RECOMMENDATION

The Government of Alberta establish a task force, similar to the one that released *At a Crossroads: The Report of the Board Governance Review Task Force,* to review and make recommendations to the Government of Alberta to clearly delineate the lines of authority, roles and responsibilities, and accountabilities between the Minister of Health and Wellness, the Department of Health and Wellness, Alberta Health Services (including the appointment of the Board of Directors), and the medical profession.

REQUIRED ACTIONS

- The membership of the task force must have an equitable balance of health experts, governance experts, government officials, and members of the public.

- The Minister of Health and Wellness must use a process that is transparent, non-partisan, and competence-based when making appointments to the Alberta Health Services Board of Directors.

Issue and analysis: Culture within AHS

Evidence gathered from the interviews and from the physician survey suggests there is a significant level of mistrust in the system. As long as individuals in the organization, including physicians, feel uncertain as to the consequences of advocating for patients and resources, they will be constrained in the manner in which they participate. The full benefit of the various perspectives that lie within the organization will not be captured. Mistrust fosters disengagement and conflict, which makes it very difficult to develop supportive relationships critical to participation in discussion and decision-making and the goal of delivering safe, effective patient care.

There appears to be an 'organizational memory' of negative outcomes that certain individuals have experienced in the past. Some describe a 'culture of fear' or 'a culture of silence', both a key symptom of mistrust in an organization.

Both the interviews and physician survey responses identified a range of beliefs about the current healthcare environment. Some believe the issues of intimidation have been overblown, while others describe severe, life-altering repercussions. That said, the frequency with which experiences of threats, intimidation, censorship, punishment, ridicule, bullying, or termination are cited is concerning. The impact of this intimidation is that many Alberta physicians motivated to speak out in defence or promotion of the health of patients or populations censure themselves before initiating any advocacy measures. For some, it was to 'tone down' their comments; other chose not to bother at all.

3. RECOMMENDATION

The Alberta Health Services Board of Directors accelerate the development and implementation of an overarching just culture policy that provides the structure and supporting processes to guide the entire organization.

REQUIRED ACTIONS

- The just culture policy must serve as the foundation for all of the organization's policies and procedures, including the medical staff bylaws. To ensure the just culture policy is fully implemented and achieves its maximum impact throughout the organization it must be adequately resourced and supported and must be periodically evaluated.

- The just culture policy specifies, as clearly as possible, responsible and accountable behaviour, particularly as it applies to decisions and actions that affect patient care, including advocacy.

Issue and analysis: Structures and processes to support effective physician advocacy

Within AHS and other organizations, many physicians do not know what channels they should pursue to advocate for patients and populations, what constitutes appropriate and responsible advocacy, under what circumstances it might be appropriate to move from internal to external advocacy, what policies and

guidelines address their role in advocacy, or what processes the health system will use to review their concerns, examine their validity, and determine next steps.

4. RECOMMENDATION

Alberta Health Services, in collaboration with Alberta universities, the Alberta Medical Association, the College of Physicians & Surgeons of Alberta, and other organizations develop and implement clear policies and procedures to guide physicians on how to ethically, appropriately, responsibly, and effectively advocate.

5. RECOMMENDATION

Alberta Health Services, Alberta universities, the Alberta Medical Association, the College of Physicians & Surgeons of Alberta, and other organizations explore the need for and feasibility of a provincial independent process for physicians who, despite exhausting all internal processes, believe their advocacy efforts have not been adequately addressed.

Issue and analysis: Physician education in effective advocacy

There was significant agreement among interviewees and survey respondents that many physicians had received little if any formal education on how, when, and under what circumstances one can and should advocate appropriately, responsibly, effectively, or constructively. Many expressed support for and interest in formal education on advocacy. Most indicated they were generally familiar with the notion of advocacy for an individual patient, but less comfortable advocating for communities, populations, or system-level changes.

6. RECOMMENDATION

The faculties of medicine in Alberta ensure that the Royal College of Physicians and Surgeons of Canada CanMEDS 2005 physician competency framework be the foundation for an advocacy curricula for undergraduates and postgraduates and that it be made available for continuing medical education.

Issue and analysis: Leadership responses to physician advocacy

Physicians advocating for their patients or system improvements may run into conflict with leaders in an organization or government. Ensuring that organizational leaders are prepared and authorized to respond effectively to these advocacy efforts will help resolve the issue in the most constructive manner. Sharing a common understanding of what responsible advocacy looks like in their organization, all parties can differentiate between 'constructive advocacy' and performance issues.

A disturbing number of physicians reported that their privileges, positions, or contracts have been inappropriately threatened or affected as a result of their advocacy efforts. It was also felt that administrators or leaders abused their authority by "cracking down" on physicians who spoke up, concealing this abuse under the guise of addressing problems in physician performance. In some cases where physicians' performance was investigated, established processes were circumvented. The process outlined in the medical staff bylaws was not used because it was seen by health administrators to be too

heavy-handed or onerous. In some cases, physician administrators and colleagues expressed concern over the process used to evaluate their performance and identified the need for more explicit processes.

7. RECOMMENDATION

Alberta Health Services and other organizations that work with physicians train and support physicians and administrators in leadership roles to acquire skills and comfort with conflict resolution, responding effectively to physicians advocating for their patients, and differentiating appropriately between constructive advocacy and physician performance/behaviour issues.

REQUIRED ACTION

▪ Alberta Health Services and other relevant organizations must ensure that processes and procedures, including those articulated in the medical staff bylaws, used by those initiating physician performance reviews clearly differentiate between issues that are performance based versus those that are advocacy based.

Issue and analysis: College of Physicians & Surgeons of Alberta

There exists a perceived lack of transparency and definition between physician-support functions of the CPSA and those functions within it that deal with complaints and investigations of physicians. Many physicians perceive the CPSA has acted and been used inappropriately, which has led to widespread fear of the CPSA.

8. RECOMMENDATON

The College of Physicians & Surgeons of Alberta have clearer lines of separation and clarity between the roles, programs, and services of investigations and complaints versus education and support, and improve how it communicates those roles so that they are well understood by its stakeholders.

REQUIRED ACTIONS

▪ The College of Physicians & Surgeons of Alberta must enhance transparency regarding investigative processes and emphasize its programs of education and support for physicians in order to counterbalance the perception of fear that is prevalent among Alberta physicians.

▪ The Minister appoint an independent task force to review the College of Physicians & Surgeons of Alberta's roles, programs, and services to make clear the distinction between the College of Physicians & Surgeons of Alberta's investigative and support roles and to ensure they are better understood by physicians, outside agencies, and the public.

SCOPE

Part A

Inclusion

I. Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care

1. A chart review of those patients identified by ED physicians at the UAH in a letter made public on October 22, 2010.

2. A chart review of any patient identified by the quality assurance committee, using administrative data, in 2008 at the UAH ED who either died or required life-saving interventions that were possibly related to ED waiting times at the UAH.

3. A review and comparison of administrative records and data, structures, and processes (historical and current) across Alberta to determine health system factors that have contributed to prolonged ED waiting times.

4. Key informant interviews to gain perspective on historical and current actions to address ED waiting times in Alberta.

5. A review of best practices in Canada and abroad searching for health systems that have made substantial and sustained improvements in ED overcrowding and reducing patient waiting times for ED care.

II. Review of the Quality of Care and Safety of Patients Requiring Access to Lung Cancer Surgery

1. A chart review of the 250 thoracic surgery patients alleged to have died, many with lung cancer, while on a waiting list of 1,200 as posed in a question raised in the Alberta legislature on February 28, 2011.

2. A review and comparison of administrative records and data, structures, and processes (historical and current) across Alberta to determine health system factors that have contributed to waiting times for thoracic surgery.

3. Key informant interviews to gain perspective on historical and current actions to address waiting times for thoracic surgery in the former Capital Health/AHS – Edmonton Zone.

Exclusion

1. This review will not examine additional cases of alleged excessive waiting times other than those identified publicly on October 22, 2010 and February 28, 2011.

2. The review will not focus on waiting times throughout the healthcare system per se; rather, the review will focus only on those waiting times directly related to ED care or lung surgery care.

3. The review will not investigate issues of financial or administrative irregularities or suspicion of criminal behaviour.

4. The review will not (for either individual providers or administrators):

   - assign blame
   - investigate individual performance
   - make recommendations regarding individual performance improvement.

Part B - The Role and Process of Physician Advocacy (including physician intimidation)

Inclusion

1. Key informant interviews to gain perspective on historical and current practices related to physician advocacy.

2. Review of administrative documents including but not limited to Alberta legislation, medical staff bylaws and rules, professional codes of conduct and codes of practice, AHS policies and procedures, AHS committees' terms of reference to determine organizational factors and processes that affect physicians' knowledge, skills, and attitudes to advocate for their patients and the public.

3. A review and comparison of structures and processes (historical and current) across Alberta to determine factors that have affected the ability of physicians to safely and appropriately advocate for patients and the public.

4. A province-wide survey of Alberta physicians to gain an understanding of their knowledge, skills, attitudes, and experiences with advocating for their patients.

Exclusion

1. The review will not investigate issues of financial or administrative irregularities or suspicion of criminal behaviour.

2. The review will not (for either individual providers or administrators):
   - assign blame
   - investigate individual performance
   - make recommendations regarding individual performance improvement.

3. The review will not investigate advocacy issues among other healthcare workers or professionals.

PROJECT GOVERNANCE

Ultimate accountability for this review lies with John Cowell BSc, MSc, MD, CCFP, FRCPC, Chief Executive Officer (CEO) HQCA and project sponsor, as authorized by the HQCA Governing Council.

Part A - Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Lung Cancer Surgery

The following members have been appointed to the Part A quality assurance subcommittee (QAC) of the HQCA's quality assurance committee by Dr. John Cowell:

- W. Ward Flemons, MD, FRCPC, Chair Part A QAC, HQCA

- Donna MacFarlane, RN, Administrative Lead HQCA

- Charlene Blair, BScPharm, RPh, PGDM, Patient Safety Lead HQCA

Additional members of the QAC have been appointed by Dr. Ward Flemons and include HQCA staff and external consultants:

- Jan Davies, MSc, MD, FRCPC, Quality and Safety Expert Consultant, Professor, Department of Anesthesia, Faculty of Medicine and Adjunct Professor of Psychology, Faculty of Arts, University of Calgary

- Carmella Duchscherer, RRT, BHS(RT), MPA, Quality and Safety Consultant

- Chris Brown, MD, FRCPC, Executive Physician Consultant, Professor of Medicine, Adjunct Professor of Engineering, University of Calgary

- John McGurran, MSc, Clinical Epidemiologist Consultant, Adjunct Professor, Dalla Lana School of Public Health, University of Toronto

- Kim Trufyn, MT, Program Assistant HQCA

- Markus Lahtinen, PhD, Healthcare Quality Analyst HQCA

- Jody Pow, BA, MA, Health Data Analyst HQCA

- Ed Enns, MEc, Health Data Analyst Consultant

We acknowledge Dr. Robert Hilsden's input and expertise regarding lung cancer epidemiology.

Part B - The Role and Process of Physician Advocacy (including physician intimidation)

- Dr. John Cowell, Chair Part B QAC, HQCA

Additional members have been appointed by Dr. John Cowell to the Part B QAC of the HQCA quality assurance committee and include HQCA staff and external consultants:

- Charlene Blair, BScPharm, RPh, PGDM, Administrative Lead HQCA

- Charlene McBrien-Morrison, RT (CSLT), MBA, Executive Director HQCA

- Ernie Higgs, MD, Executive Physician Consultant

- Arlene Weidner, RN, MSc, CHE, Healthcare Systems Consultant

- Al-Noor Nenshi Nathoo, BSc, MA, Bioethicist, Executive Director Provincial Health Ethics Network

- Dennis Kendel, MD, FRCPC, Executive Physician Consultant, former Registrar of The College of Physicians and Surgeons of Saskatchewan

- Rinda LaBranche, RN, BEd, MEd, Patient Safety Lead HQCA

- Anette Mikkelsen, BScPsych, BScPT, MBA, Quality and Safety Initiatives Lead HQCA

- Donna McFarlane, RN, Patient Safety Lead HQCA

- Kim Trufyn, MT, Program Assistant HQCA

Advisory Panel

The HQCA named an advisory panel to provide advice and counsel to the HQCA Council and CEO in its review of the quality of care and safety of patients requiring access to emergency department care and cancer surgery and the role and process of physician advocacy.

Advisory panel members are:

- Zaheer Lakhani, CM, MD, FRCP, cardiologist Royal Alexandra Hospital, clinical professor University of Alberta Department of Medicine

- The Honourable A. Anne McLellan, PC, OC, former MP Edmonton Centre, former federal Minister of Health and Deputy Prime Minister

- Art Price, PEng, Chair and CEO Axia NetMedia Corporation, Executive Director, founder and principal owner, The Sunterra Group

- Simon B. Sutcliffe, MD, FRCP, president International Network for Cancer Treatment and Research, past president British Columbia Cancer Agency

- The Honourable Allan H. Wachowich, QC, LLD, former Chief Justice Court of Queen's Bench of Alberta

- Doug Tupper, PEng, former Executive Director Edmonton Police Commission, former HQCA Council member

PART A

I. REVIEW OF THE QUALITY OF CARE AND SAFETY OF PATIENTS REQUIRING ACCESS TO EMERGENCY DEPARTMENT CARE

BACKGROUND

On October 22, 2010, a major news story broke in Alberta when a letter from the Alberta Medical Association's (AMA) section president for emergency medicine to the Health Minister was made public. In the letter, Alberta's emergency department (ED) doctors warned of "potential catastrophic collapse" in the upcoming months without immediate intervention in the province's major EDs.[1] Also made public was the existence of a list of 321 identifiable patients who attended the University of Alberta Hospital (UAH) ED in 2008 and a second list, confirmed by Alberta Health Services, of nine patients who attended in 2010 whose care was compromised by prolonged waits. Other communication exchanges between physicians and ministers of health and the Premier were subsequently tabled in the Alberta legislature; all the correspondence dealt with the issues of a worsening crisis of ED crowding in Alberta. On March 12, 2011 the Minister of Health and Wellness, in a letter to the Chair of the Health Quality Council of Alberta wrote: "Pursuant to Section 13 of the *Health Quality Council of Alberta Regulation,* I hereby direct the Health Quality Council of Alberta (the Council) to conduct an independent review that closely examines wait times for emergency department services and for cancer care services in the Province of Alberta. The central purpose of this independent review is to identify and analyze issues related to these two important services and to make recommendations to improve system performance."

ED crowding in Alberta's urban centres, leading to unacceptable wait times for services, has been an issue in Alberta for well over a decade. In Calgary the issue resulted in a public inquiry in 2003[2] and a review by the Health Quality Council of Alberta (HQCA) in 2007.[3] This issue is not unique to Alberta or Canada;[4,5,6,7] indeed, many healthcare systems in the developed world describe similar challenges to address the problems.[8,9,10,11,12,13,14,15] There have been major task force reports about EDs released in Manitoba and Ontario dating back several years.[16,17,18] In addition, position statements have been issued by the Canadian Association of Emergency Physicians (CAEP)[19] and the British Columbia Medical Association.[20] In 1998 the CAEP, the National Emergency Nurses Affiliation (NENA), and the L'association des médecins d'urgence du Québec published the Canadian Triage and Acuity Scale (CTAS) for ED patients, which defined five levels of patient acuity and identified the recommended maximum waiting time until a patient was assessed by a physician.[21,22] The CTAS system for adults has undergone two revisions.[23,24] The recommended maximum waiting times by ED patients for an initial assessment by a physician are listed in Table 1.

Table 1. Canadian Triage and Acuity Scale (CTAS) recommended maximum waiting times for an ED patient to be assessed by a physician

CTAS level	Diagnosis example	Recommended maximum waiting time
CTAS I – resuscitation	Cardiac arrest	None
CTAS II – emergent	Chest pain – possible MI	15 minutes
CTAS III – urgent	Abdominal pain (normal vital signs)	30 minutes
CTAS IV – less urgent	Fractured arm	1 hour
CTAS V – non urgent	Skin rash	2 hours

MI = myocardial infarction
Vital signs = blood pressure, pulse rate, respiratory rate

Of the five CTAS levels, CTAS III patients have traditionally been considered to be at highest risk of a poor outcome related to treatment delays. This is because as a group they represent a significant percentage of patients in most large urban EDs and they wait proportionately longer than the CAEP/NENA recommended time than do patients with other CTAS scores. Patients in CTAS levels I, II, IV, and V are generally thought to be at lower risk of poor outcomes caused by treatment delays. CTAS I and II patients historically have represented a small percentage of the overall ED patient population (5 – 10 per cent)[25] and are usually seen relatively quickly because of their (potentially) life-threatening conditions (higher acuity level). In recent years, however, the number of CTAS II patients has increased, as have their waiting times to be seen by a physician. CTAS IV and V patients are lower risk because of their lower acuity level and can therefore wait longer for assessment.

Prolonged waiting creates at least five important issues for ED patients, healthcare providers, and healthcare organizations:

- Patients' safety margins are reduced

  Delayed diagnosis of and treatment for time-sensitive conditions increases the likelihood that some patients will suffer harm that might not occur if the patient was seen and treated more promptly. In addition, long waiting times will trigger some patients to leave the ED without being seen, which may also contribute to their suffering harm.

- Negative patient experience

  Prolonged waiting times often do not match expectations, leading to patients being disappointed with their care and creating feelings of dissatisfaction. In many cases these have translated into negative media coverage and subsequent public reaction. Patients' expectations of their ED care were studied in Calgary in 2001 using structured focus group discussions with recent ED users and non users.[26] The study highlighted several themes, the most important of which was related to appropriate waiting times. A follow-up telephone survey of 837 recent users of a Calgary ED found that most patients felt they should be moved into a treatment space (and presumably assessed by a physician) within 30 to 60 minutes if they had a non-life-threatening condition and in less than five minutes for a life-threatening condition.[27] The majority of respondents felt that a reasonable total time to spend in the ED if they

were then discharged was two to four hours. The majority also felt that two to four hours was a reasonable time to wait for an inpatient bed if they were admitted to hospital.

Patient satisfaction and experience with the health system in Alberta has been assessed five times by the Health Quality Council of Alberta (HQCA) since 2003. In 2010, 59 per cent of respondents reported being satisfied with ED services; 22 per cent were dissatisfied.[28] Of the wide range of healthcare services that Albertans were asked to rate, their satisfaction with ED services was third lowest. The main factors influencing satisfaction/dissatisfaction with ED services was the time patients had to wait to be assessed by a physician and the ED staff's explanations of the reasons for the wait.

- Healthcare provider dissatisfaction

  The inability to provide optimal, timely care to all patients leads to frustration and is cited as being a major contributing factor to high rates of turnover of personnel and difficulty in recruiting replacements, resulting in understaffing of EDs with experienced healthcare providers.[29]

- Healthcare organization reputation

  Repeated stories in the media highlighting long ED waiting times for groups of or even specific patients erodes the public's trust in an organization's ability to meet its mandate of providing high-quality care.

- Community safety

  Emergency Medical Service (ambulance) crews are held in EDs waiting, often for many hours, to transfer patients to the care of ED staff. This results in a reduction of the number of ambulance crews available to respond to other emergency calls in the community.

The following provides a context for ED crowding and for understanding: (1) how patients typically move (or flow) into, through, and out of an ED, and (2) the reasons or theories about why ED crowding occurs, which provides a framework for analyzing what has happened across Alberta over the past six to seven years.

Understanding ED crowding – contributing factors and analysis

To better understand ED crowding, it is important to first define the term (sometimes referred to as overcrowding). Experts do not easily agree on a common definition;[30] however, in basic terms crowding is a situation where the demand for ED services exceeds the capacity of the ED to provide them. This results in patients lining up (queuing) to wait for service.

Models (or diagrams) of patient flow can be a useful aid for understanding ED crowding. The 'input – throughput – output' model,[31] is shown in Figure 1. Input refers to the demand that is placed on the ED (by patients presenting for care); throughput refers to all process(es) provided within the ED that involves providing care to patients; output refers to where patients go after leaving the ED.

Figure 1. Input, throughput, output model of ED patient flow (modified from Asplin et al)[31]
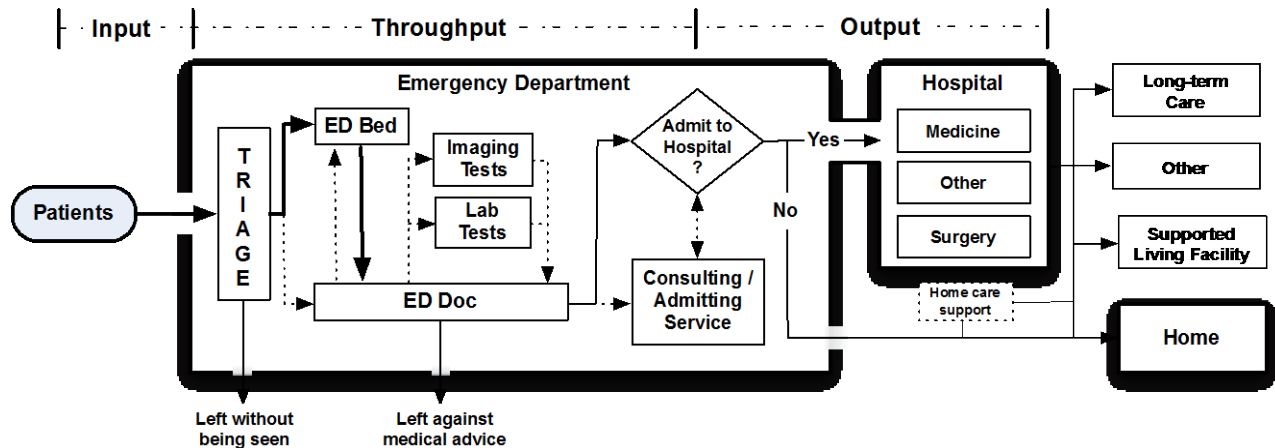
Patients arrive at an ED in different ways (e.g., walk-in, ground ambulance, air ambulance), from different places (home, nursing home, doctor's office, another hospital) and require many different types of services. When patients first arrive at the ED they are assessed by one or more of the ED staff — typically nurses and occasionally physicians — to briefly determine the nature of a patient's problem and to check vital signs. This assessment, called triage, determines the urgency of a patient's condition. After a variable waiting time, patients are admitted to an ED treatment space; this is usually a stretcher (bed) but in some situations may be a chair. There, an initial assessment by an ED physician takes place, usually followed by some tests (e.g., blood tests or X-rays). If necessary, a patient may undergo a procedure and/or treatment. The ED physician coordinates this care; in some cases the physician will determine that a specialist (consultant) with particular expertise is needed to assist in either the diagnosis or treatment of a patient's condition. Most patients will be discharged from the ED back to their home (or from wherever they originally came); a smaller percentage of patients (10 to 20 per cent) will need to be admitted to hospital. For most patients who return home from the ED, 'output' is not a barrier to patient flow; rather, 'output' is often a barrier for patients needing admission to hospital.

Large hospitals in Edmonton and Calgary (like other major centres in Canada) are places where physicians who are in training (medical students and residents) work with consultants and are organized into teams called 'services'. When patients come into hospital they are admitted to one of these services and stay until they are well enough to be discharged home. For some patients, their needs are such that they cannot be adequately cared for in a home setting and require additional support at a level of care that is different from what is required in hospital; that is, an 'alternate' level of care, such as rehabilitation, a nursing home, or a supportive living facility. When patients need this type of care and it is unavailable, they wait in hospital for a bed in the type of care facility they require. The numbers of days that patients who are in hospital waiting for an alternate level of care (ALC) are characterized as ALC days. These ALC days are an inefficient use of an expensive resource (hospital bed) and prevent or 'block' the use of that bed by another patient who needs it.

Some patients need an 'alternate level of care' (ALC), such as rehabilitation, a nursing home, or a supportive living facility. Sometimes they wait in hospital for a bed in the type of care facility they require. The numbers of days they wait in hospital are characterized as ALC days, which are an inefficient use of an expensive resource (hospital bed) and prevent or 'block' the use of that bed by another patient who needs it.

The journey that patients follow into and out of the ED can be seen as a pathway and the 'flow' of patients along this pathway can be measured and characterized by several factors. When patients have to queue for a service or a resource, it is because there is a bottleneck or constraint to flow. The amount of time spent waiting and the number of patients in a queue are reliable indicators of how seriously constrained the resource is.

Factors that contribute to ED crowding

To the casual observer, two obvious explanations for ED crowding would be too many patients coming to the ED (demand is too high) or insufficient ED beds, nurses, or doctors (capacity is too low). It may be that there is an insufficient availability of a resource (e.g., beds, nurses, physicians, diagnostic imaging technicians, or consultants) or the resource is being used inefficiently (wasted). Figure 2 shows the interaction of many contributing factors in the community, the hospital, and the ED that directly or indirectly lead to ED crowding. Most of these factors lead to inefficient use of critical resources (e.g., ED beds or hospital beds). When patients are in a queue rather than undergoing assessment, testing, or treatment, they are usually using a resource (like an ED bed) that could be made available for another patient. Queuing is therefore not only a waste of time for patients but is a waste of a resource, effectively reducing (constraining) the availability of the resource for others. A simplified example of this would be a 20-bed ED that, when working efficiently, could see 20 patients within four hours. In a 24-hour period 120 patients could be seen. If there was a delay in one of the required services, so that on average patients are in the ED for six hours rather than four, only 80 patients could be seen.

EDs have the ability to see and treat many patients at the same time. Many services may be brief (e.g., having vital signs measured by a nurse or physician, having a blood test, or going for an X-ray) but there is often a period of waiting for test results or for the next required service. One of the rate-limiting factors is the number of beds in an ED and the time that each patient spends in a bed. Anything that keeps a patient waiting, instead of moving out of the bed (either home or into hospital), makes the bed unavailable to a new ED patient. Factors contributing to inefficient use of ED resources are shown in Figure 2. ED input is generated from the community where there are several factors that influence the number of patients coming to the ED. Throughput factors are with those within the ED; output factors are based in the hospital and extend back out into the community. Some common input factors are an increasing population base; increasing population age that correlates with an increase in the number of patients with chronic, complex medical conditions; and patients being unable to access physicians or other services in the community. Throughput factors include the number of ED beds, nurses, physicians, and availability of lab testing, diagnostic imaging tests, and consultants. The key output factor is the lack of available hospital (inpatient) beds; however, there are many different factors that reduce the availability of inpatient beds, some of which are shown in Figure 2

Figure 2. The interaction of many of the important contributing factors to ED crowding, patient waiting, and dissatisfaction
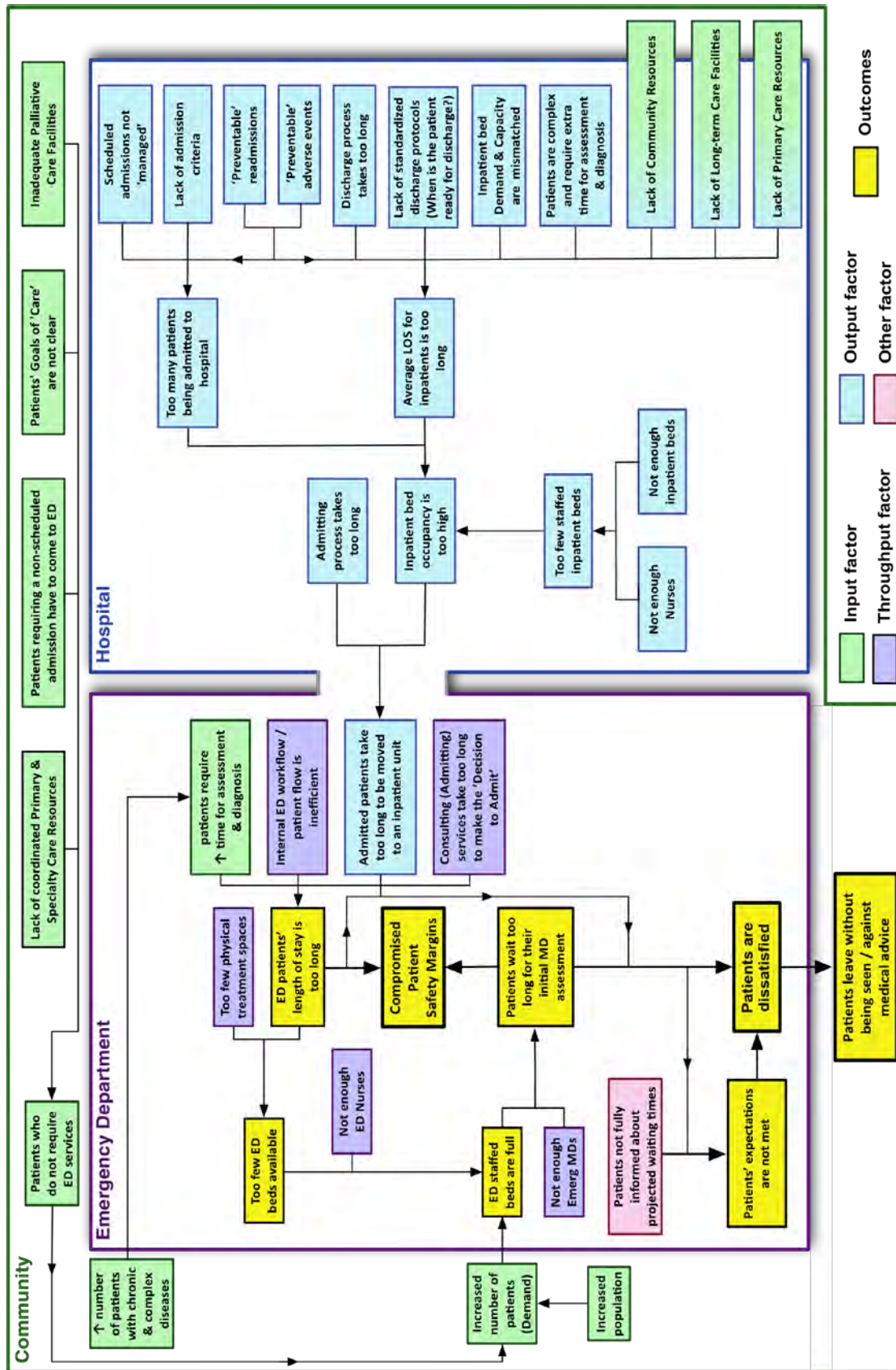
When patients are in a queue rather than receiving assessment, testing, or treatment, they may be using an ED bed that could otherwise be available for another ED patient. Queuing is therefore not only a waste of time for patients but is a waste of a resource, effectively constraining the availability of the resource for others.

There is one additional important factor that contributes to queuing and therefore to crowding – variability. In any ED, the rate at which patients arrive is not constant but is irregular, or variable. Similarly, the time required to provide a service varies with each patient. Variation in the rate of arrival of patients and/or in the time required to provide a service is the usual explanation for queuing when, on average, there is sufficient capacity to meet demand.

The study of queuing and flow falls under the broad heading of operations management research. While this area of research has traditionally been applied to industry, especially to manufacturing, increasingly more research is being applied to the study of complex healthcare services to consider the relationship between demand, capacity, variability in either, efficiency, and wait times.

The flow of patients through an ED can be compared to 'manufacturing' since patients receive multiple services; that is, they go through multiple 'processes'. Operations management theories and tools can therefore be used to understand, measure, and predict the outcome of improvements. For example, the Theory of Constraints predicts that in a multiple process (service) system like the ED, overall improvements in patient flow will only occur when the most seriously constrained resource (or bottleneck) is found and fixed.[32,33,34] Although fixing other, less-constrained processes may result in isolated benefits, these 'fixes' will likely not increase throughput and output. Queuing Theory predicts that, in situations where patients require a service, the wait for that service (and the length of the queue) is determined by how well service demand and service capacity are matched.[35,36,37,38] Even when average demand matches average capacity, variability in either one will result in queues and waiting. If there is a highly predictable demand for a service and little variability in the time it takes for the service to be delivered, then a facility can be designed and staffed to use all of its resources efficiently, even at very high rates of use. In situations where there is variability in either the arrival rate of the demand or the time it takes to deliver a service, however, waiting will result. Logically, it is impossible for a resource or service to both be used nearly 100 per cent of the time and also be responsive (i.e., have short queue times); there will always be a trade-off. Queuing Theory can be used to predict how likely it is that a queue of any particular length will develop and how long a patient will, on average, have to wait for a service, given the variability of demand and/or capacity (which is determined by the number of servers and the duration of service time). As a general rule, when demand is variable and the average use of capacity is running above approximately 85 per cent, then there is an exponential increase in waiting time (Figure 3). The exact level of use where waiting time increases exponentially and the shape of the curve are unique to the specific system being studied.

Queuing is not just a symptom of the mismatch between capacity and demand or even a 'simple' lack of sufficient capacity. Queuing is often a symptom of incomplete planning to address the variability of demand. Although it is possible to construct mathematical models of queuing that can assist with capacity planning, such models do not work well for complex systems like the ED or hospital inpatient services. For planning purposes, modelling approaches like system dynamics and discrete event simulation are recommended.[39,40]

Using this type of approach, researchers at the University of Calgary, working with the HQCA in 2007, created an ED system dynamics model that demonstrated the complexities of input and output[3] highlighting the profoundly difficult decisions healthcare administrators face when trying to address ED crowding.

Although Figure 3 shows the effect that high use of a single service has on queuing in a simple system, the principle applies to more complex systems. Any healthcare system that has critical resources, such as inpatient beds or ED beds, operating at nearly 100 per cent average occupancy, creates exceedingly long queues that contribute to gridlocks in many other parts of the system.

Figure 3. Relationship between waiting time and utilization of a resource or service
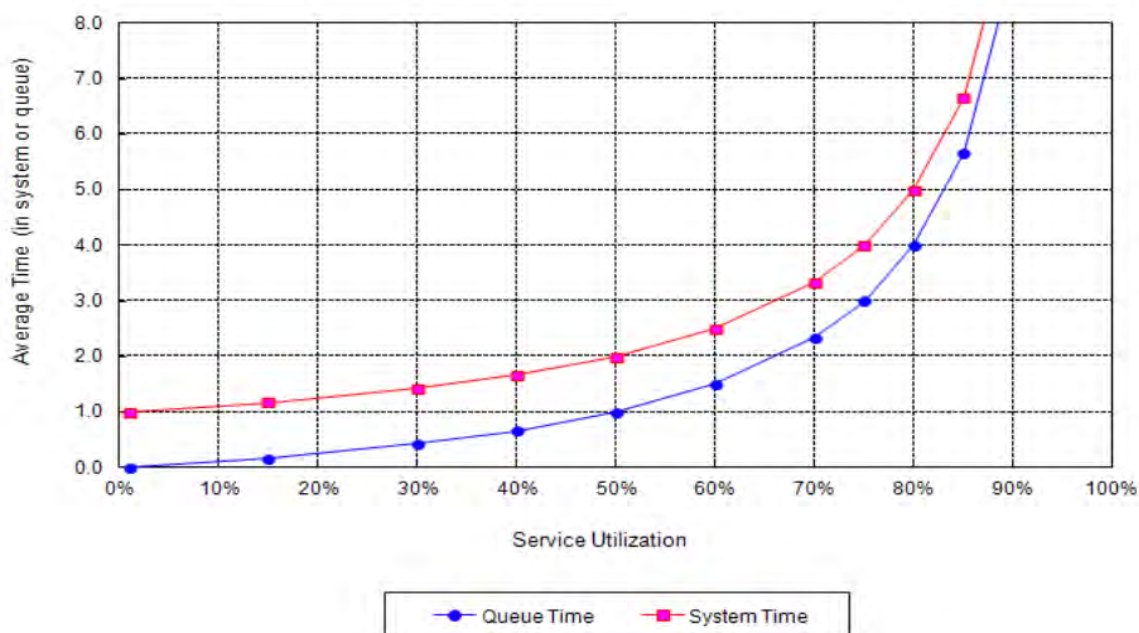
Figure 3 shows the amount of time spent in 'the system', such as an ED (pink line). The time spent in the system is the sum of the time in the queue (blue line) and the time receiving the service (in this very simple example this time has been fixed at one unit or block of time). When demand is low (shown as the low part of the curve) the chance of having to queue for that service is small and the overall time in the queue is minimal. When demand increases so the provider is working at 50 per cent capacity then the queue time has increased by one unit of time (as has the service time) so that the overall time that a patient remains in the system is now two blocks of time. If demand increases to the point where, on average, 80 per cent of the provider's capacity is being used, then the time spent in a queue will be four times the duration of receiving the service, and the total time in the system will be at five units; in other words, 80 per cent of the time a patient spends in the 'system' will be spent in the queue. This is wasted time. (Diagram and explanation courtesy of Dr. Paul Rogers, University of Calgary.)

This context is useful for understanding the complexity of ED management in all healthcare systems.

> *Queuing is not just a symptom of the mismatch between capacity and demand or even a 'simple' lack of sufficient capacity. Queuing is often a symptom of incomplete planning to address the variability of demand. Existing queuing models do not work well for complex systems like the ED... and the profoundly difficult decisions healthcare administrators face when trying to address ED crowding.*

The analysis of ED crowding in Alberta

The scope of this review into Alberta's ED crowding was broad; therefore, several approaches for gathering information were used to reach conclusions about the important factors contributing to the issue as well as understanding the experience of patients. The QAC completed hundreds of chart reviews; examined many documents from the former Capital Health; conducted numerous interviews; performed a detail review of administrative data from several provincial databases; completed a review of best practice in managing system capacity and ED crowding; and commissioned a systematic review of the literature. For the administrative data review three areas of Alberta were examined. The former Capital Health was chosen because this is where the concerns of ED physicians surfaced. The former Calgary Health Region was an obvious comparator to Edmonton, being of similar size and offering similar services. The former Chinook Health Region was chosen because it was a focus of the best practice review of this report. Each of these three health regions made different strategic decisions about how to manage system capacity so it was possible to examine the effect these different approaches had on ED crowding. Although this section is focused on ED crowding, measures of crowding and waiting times for patients are powerful indicators of the overall performance of a healthcare system.

METHODOLOGY

Since the issue of crowding in Alberta's emergency departments (ED) resurfaced publically in 2010 and 2011 as a result of the advocacy efforts of some ED physicians based at the University of Alberta Hospital (UAH), a large (but not exclusive) focus for this review was on that acute care site and on the former Capital Health. The mandate of the review, however, was to 'make recommendations for system-level improvements in access and wait times for emergency department care' and so the quality assurance committee (QAC) adopted several lines of investigation so as to understand ED crowding in a context for all of Alberta. The QAC examined seven areas of focus: chart reviews of patients who attended the ED at the UAH; selected patient experiences at the UAH ED; interviews; Capital Health's strategic plan for ED crowding; administrative data from province-wide databases; best practices; and the medical literature.

Chart reviews of UAH ED patients

UAH ED physicians had been asked by former Capital Health executives in Edmonton to collect examples of patients whose care might have been compromised due to long waits for care in the ED. More than 300 cases were collected, most of which were dated 2008; a few patients were added to the list in 2010. This list was provided to the QAC by the UAH ED physicians; when the list was reviewed it was noted that a few patient visits to the ED in 2009 were also included.

The list had enough 'identifiable information' to assure the QAC it was following the same person through each stage of his or her journey in the ED as the QAC looked through patient charts. Identifiable information would include things like first and last name, year of birth, and healthcare number, for example.

All the charts of patients with identifiable information were reviewed to determine: (1) patient outcome; (2) if patient outcome had been compromised, then was the outcome likely to have been the result of, or been made worse due to, excessive ED waiting for service(s); and (3) the times required for patients to access various services during their stay in the ED, as well as the time required for the patients to be moved to an inpatient bed if they were admitted to hospital.

Additional patient charts from the UAH ED from 2008 were reviewed to ensure that potentially important adverse patient outcomes had not been overlooked by the non-systematic method the UAH ED physicians used to add patients to the list. The additional charts were selected from those patients aged 18 to 85 who attended the UAH ED in 2008 and who might have suffered serious harm or death due to excessive waiting for ED services. The following is a breakdown of the additional charts reviewed:

- 34 patients who died while in the ED and who had spent at least four hours in the department.

- 74 patients who spent at least 10 hours in the ED and were subsequently admitted to an inpatient bed but died within 72 hours from the time a decision to admit had been made.

- 249 patients (in 288 visits) who spent at least 10 hours in the ED and were subsequently admitted to an intensive care unit (ICU). These ICUs included: Medical/Surgical ICU, Burn ICU, Cardiac Surgery ICU, Coronary Medical ICU, Neurosurgery ICU. The charts were reviewed specifically to determine if any patients had required resuscitation or ventilation either in the ED or an ICU.

In total, the charts of 695 patients were reviewed, representing 821 visits to the ED (because some patients visited the ED more than once). These included the charts collected by the ED physicians and the additional charts identified by the QAC.

The QAC's chart review team consisted of four senior physicians, a senior ED nurse, and two senior patient safety specialists. If a reviewer thought that a patient might have suffered an adverse outcome, then the event was flagged and reviewed by at least two physicians. For each chart the following information was extracted:

- Mode of arrival (e.g., by ambulance)

- If the patient had a time-sensitive condition[ii] during his/her initial presentation and assessment

- Presence of a serious adverse outcome related to excessive ED waiting times

- Reviewers' subjective impressions of the quality of care provided

- Times

  - ED arrival

  - Triage nurse assessment

  - ED bed assignment

  - First ED physician assessment

  - Consult service request (it was not possible to report this for most patients because the time was often not recorded in patients' charts)

  - Consult service arrival

  - First lab test result

  - First diagnostic imaging result

  - Inpatient bed request (if admitted)

  - ED discharge (if discharged)

  - Inpatient bed admission (if admitted)

  - Effective treatment or diagnosis (if a time-sensitive condition)

  - EKG (if patient presented with chest pain of possible cardiac origin)

[ii] Time sensitive was defined where with reasonable probability the prognosis would be improved if treatment was initiated within a short period of time; for example, patients who presented with chest pain that could be related to a heart attack.

Patient experiences at the UAH ED

The experiences of several patients were documented to highlight some of the challenges that ED patients faced. Two members of the QAC reviewed each chart and extracted relevant information, which was then summarized. The following important themes were identified:

- Patients whose admission to hospital had been prearranged before coming to the ED but who were required to wait in the ED because an inpatient bed wasn't yet available.

- Patients who were at the end of their lives and therefore whose goals of care were clearly palliative.

- Patients who had already decided that they did not want to be resuscitated if they suffered a cardiac or respiratory arrest.

- Patients who waited extremely long times to be assessed by an ED physician.

- Patients with life-threatening illnesses who had to undergo prolonged periods of resuscitation in the ED.

- Patients who experienced long waiting times to be transferred to an inpatient bed that resulted in conflicts between the ED staff and the inpatient unit staff.

Interviews

The QAC interviewed individuals to gain, in part, first-hand insights into factors contributing to ED crowding. Detailed notes were kept and almost all interviews were recorded with the permission of the interviewee to ensure accuracy. Interviews were analyzed and information was highlighted around the following themes:

- Factors that contributed to ED crowding.

- How the ED crowding issue was managed.

- How physicians advocated for improvement, as well as the responses from the former Capital Health administration.

- The approach used to review cases where patient outcomes might have been compromised due to delays within the ED.

- The understanding and opinions of individuals about the Emergency Services and System Capacity (ESSC) project – the former Capital Health's key approach for addressing the ED crowding crisis – that started in 2006 and finished in 2008.

- Promising practices in Alberta Health Services (AHS). Although the QAC did not set out to do an exhaustive review of important initiatives that have been or may be implemented by AHS, in some interviews these initiatives were discussed and a brief summary has been included in the report.

Capital Health's ED crowding strategic plan

Capital Health developed a strategic approach called the ESSC project, which was designed to address issues that contributed to ED crowding. The project began in 2006 and a detailed assessment of it was completed in 2009 after its scheduled December 2008 end date. The QAC analyzed the project evaluation report in detail and summarized key findings, as well as reviewing: (1) more than 1,000 pages of ESSC

project documents (including the minutes of the ESSC project working group meetings and presentations); and (2) minutes of Capital Health's Board of Directors and senior leadership meetings (Executive Committee and Regional Medical Advisory Committee). In addition, many of the people who were interviewed as part of this review were asked to provide their insights into the ESSC project.

Provincial administrative data review

Administrative data include information that is retained in vast databases from distinct sources in Alberta. These sources include, for example, the ED information system; the admission, discharge, and transfer database (into, from, and between acute care facilities respectively); the inpatient discharge database; and the ambulatory care information system. The QAC analyzed administrative data from Edmonton (Capital Health), Calgary (Calgary Health Region) and Chinook Health Region to gain an understanding of how measures of ED crowding and contributing factors changed over the past several years in each of these former health regions. Each region made different investments and took different approaches to improve healthcare delivery; for example, different administrative management structures and physical/human resources, quality improvement methodology, quality improvement leadership, levels of physician engagement, as well as numbers of acute care beds and long term care/supportive living beds. The QAC rationalized that there would be lessons to learn from these 'natural history experiments'. The data are for the most part presented in a series of graphs (Figure 4 to Figure 17 and Figure 18 to Figure 30). Details about the graphical information is provided in Appendix V and include data definitions/calculations, database source, inclusions/exclusions, time period, geographical sites, and comments about the data analysis.

The approach used for the data analysis

The historical context of ED crowding was examined and analyzed in three different healthcare systems in Alberta: the former Capital Health (now the AHS Edmonton Zone), the former Calgary Health Region (now the AHS Calgary Zone) and the former Chinook Health Region (now part of the AHS South Zone). The goal of this data analysis was to evaluate different aspects of ED crowding and therefore this report examines:

- Evidence whether ED crowding is actually an issue or not, considering waiting times for patients' first assessment by a physician (Figures 5 to 7) and the total duration of patients' ED stay (Figures 8 and 9).

- Data regarding input, including population growth (Figures 10 and 11), increases in the number of ED and urgent care visits (Figures 12 to 14), and the changing nature of patient complexity (Figures 15 through 17).

- Data regarding throughput, including the length of time that ED patients who are admitted to hospital spend at different 'stages' of their journey (Figure 19) and, using limited data from the UAH chart reviews, the turnaround time for laboratory testing, diagnostic imaging, or consulting services.

- Data regarding output, including ED bed capacity tied up by patients admitted to hospital but waiting for an inpatient bed (Figures 20 and 21); inpatient bed capacity (Figure 22) and how it has changed over the years relative to population growth (Figures 23 and 24). Further, the data

analysis examined the average length of stay (ALOS) in inpatient beds (Figures 25 and 26), inpatient bed capacity taken up by patients waiting for an 'alternate level of care' (ALC) bed in another facility (Figure 27) and how the number of ALC beds (long term care, supportive living and other) in the healthcare regions have changed over time (Figure 28).

- The final part of the output analysis examines competing demands for inpatient beds (Figure 29) as well as how well variation in demand and variation in creating capacity (discharging patients) are managed (Figure 29 and 30).

Best practice review

The primary objective of the best practice review was to identify one or more acute care facilities where: (1) ED performance was improved and sustained as a result of a deliberate and strategic system-wide initiative that involved all elements of the healthcare delivery system (and, in this context, where quality and performance benefits accrued not just to the ED but across the continuum of care); and (2) the experience was translatable into an Alberta context. Contacts with key healthcare opinion leaders were sought to identify healthcare systems (primarily Canadian) that met these criteria; only one healthcare system was found – the former Chinook Health Region (Lethbridge and surrounding area). The Chinook Health Region (Chinook) was an excellent example of a high-performing healthcare system with a framework and culture conducive to improving quality across the continuum of care. Chinook was profiled by the Centre for Healthcare Quality Improvement at The Change Foundation in Ontario, as an example of a health region's success in integrating service delivery across the continuum of care and being able to create a strategy starting in the community that improved patient flow in its acute care facility and ED.[41]

Chinook was therefore selected as the subject of this review based on information describing its significant performance improvements and its methods; Chinook became well known for its vision, leadership and comprehensive integrated approach to improving the quality of care provided to its residents.[41,42]

The review of Chinook was undertaken as a qualitative case study consisting of document review and interviews with individuals with the goal of understanding what contributed to the improvements seen in the ED.[43,44] Documents describing the changes undertaken were identified through personal communication with ED quality improvement leaders in Canada and semi-structured internet searches using Google and Google Scholar.

Five in-person interviews and two telephone interviews were conducted as part of this study.

Information from the documents, websites, and interviews were combined to shed light on the former Chinook's system-wide approach to change, which resulted in improved ED performance and patient flow throughout the hospital.

A second objective for this review was to describe the attributes that made Chinook an exemplar of a high-performing healthcare system. To this end, Canadian[45] and Organization for Economic Co-operation and Development (OECD)[46] documents were reviewed to identify two salient features of high-performing systems and in that light to evaluate the work undertaken in Chinook. High-performing systems focus on quality improvement and engage all staff in the pursuit of quality and patient safety.

> *The former Chinook Health Region (Lethbridge and surrounding area) was an excellent example of a high-performing healthcare system with a framework and culture conducive to improving quality across the continuum of care.*

Literature review

Because the main focus of the overall ED review was to look forward and to establish recommendations for future system improvements that would address ED crowding, the HQCA commissioned the University of Calgary's Institute for Public Health, which partnered with the University of Alberta to conduct a systematic literature review. The review focused on interventions that have improved ED crowding and patient flow. A detailed description of the methods used for this literature review is included in Appendix VI. Electronic databases were searched (including PubMed, ISYS, CADTH, NICE, AHRQ, EPOC and SCOPUS) using combinations of keywords and thesaurus terms related to the different interventions that addressed ED crowding. The search was aimed at finding previous systematic reviews, randomized controlled trials, quasi-randomized trials, before-and-after studies, cohort studies, case-controlled studies, interrupted time series, cluster randomized controlled trials, and prospective observational studies. Summaries of previous systematic reviews are provided in the report (Appendix VI) as well as tables describing results of individual trials.

FINDINGS

University of Alberta Hospital chart reviews

Chart review data were analyzed separately for those patients listed by the UAH ED physicians (ED-MD patients) and for those patients identified by the quality assurance committee (QAC) (RT patients) who met the criteria specified in the Methodology section (group **a:** patients who died in the ED; group **b**: patients who were admitted to an inpatient bed but died within 72 hours; group **c**: patients who were admitted to an ICU). The UAH ED physicians identified the majority of their cases in 2008 (96.6 per cent); a small percentage were identified in 2009 (1.5 per cent) and in 2010 (2.0 per cent). All of the RT patients were selected based on visits made to the UAH ED in 2008. The two lists of patients (ED-MD and RT) differed in a number of respects (Table 1). A greater percentage of the ED-MD patients were female (48 per cent) and on average they were a few years younger. A much larger percentage of the RT patients (66 per cent) were classified as CTAS I or II (higher acuity) than were the ED-MD patients (27 per cent). As explained previously, CTAS is the Canadian Triage and Acuity Scale, which rates the seriousness of an ED patient's condition, with 'I' being the most serious.

Table 2. Characteristics of the groups of patients

Group		Age (years) Mean ± SD	Sex Per cent M:F	Per cent CTAS level			
				Level I	Level II	Level III	Level IV & V
ED-MD patients n = 338		56.3 (20.8)	52 : 48	0	27	62	11
RT patients	Total n = 357	60.8 (15.4)	63 : 37	15	51	30	4
	Group **a** n = 34	65.4 (12.2)	53 : 47	50	42	4	4
	Group **b** n = 73	67.8 (12.2)	58 : 42	12	51	30	7
	Group **c** n = 250	58.1 (15.9)	66 : 34	12	53	32	3

SD = standard deviation

Some of the ED-MD patients and RT group **c** patients had more than one visit in the year that was under review; in these cases, the data from multiple visits were summarized. For the ED-MD patients, 67 made more than one visit to the ED while 29 of the RT group **c** patients did so. In total, 821 visits were reviewed (426 ED-MD visits and 395 RT visits).

One of the goals of the chart review was to document the times at which standard services or resources were provided to patients so that results could be summarized for the two groups. The length of time between several key services or resources that patients required in the ED is shown for both groups of patients in Table 3. Although the time for some activities was always recorded and found in the charts (e.g., triage time or initial assessment by a triage nurse) there were some patient visits where some of the time stamps were not recorded (e.g., consultant/specialist review time). The number of patients for whom

data were available to capture the times is therefore reported. Times are summarized as median, which means that 50 per cent of patients waited longer than this time; and 80th percentile, which means that 20 per cent of patients waited longer than this time. Additionally, whereas all patients who were admitted to hospital were seen by at least one consultant, many patients who were discharged saw only the ED physician.

Table 3. Median [and 80th percentile] times (in minutes) for various ED patient 'services' for the ED-MD identified patients and the RT identified patients

a. ED-MD Patients

Times / Patient group	Triage to Bed		Bed to ED Physician		ED Physician to Consultant		Consultant to Decision or Discharge		Decision to Inpatient Admission	
	n	minutes	*n*	minutes	*n*	minutes	*n*	minutes	*n*	Minutes
Admitted	*206*	184 [403]	*120*	30 [70]	*114*	203 [439]	*143*	175 [410]	*194*	602 [2023]
Discharged	*129*	179 [419]	*87*	30 [79]	*31*	282 [553]	*37*	310 [1224]		
CTAS II	*96*	129.5 [295]	*64*	20 [45]						
CTAS III	*192*	231 [441]	*116*	37 [85]						

Enter — Triage — ED Bed — ED Doc — Consultant in ED — Decision to Admit — Exit

b. RT Patients

Times / Patient group	Triage to Bed		Bed to ED Physician		ED Physician to Consultant		Consultant to Decision or Discharge		Decision to Inpatient Admission	
	n	minutes	*n*	minutes	*n*	minutes	*n*	minutes	*n*	Minutes
Admitted	*318*	31 [155]	*223*	25 [60]	*217*	180 [389]	*262*	191 [447]	*291*	665 [1577]
Discharged	*39*	13 [111]	*25*	27 [93]	*14*	75 [236]	*16*	315 [514]		
CTAS II	*180*	22 [65]	*129*	20 [55]						
CTAS III	*112*	124 [246]	*83*	40 [77]						

CTAS II and III patients in both 'lists' waited to be assessed by a physician much longer than the times recommended by the Canadian Association of Emergency Physicians (CAEP) for their level of acuity

(CTAS II recommendation: 15 minutes maximum; CTAS III recommendation: 30 minutes maximum).[22,23] In the ED-MD group, half of the CTAS II patients waited *10 times* longer than CAEP guidelines and one-fifth of them waited more than *20 times* longer. Results were almost as bad for CTAS III patients in this group. Patients waited many hours for a consultant to see them (median time: 3.4 hours; 20 per cent of patients waited longer than seven hours) and then many more hours waiting for a decision to be made about whether they required admission to hospital. The median time for these patients was almost three hours; 20 per cent of patients waited almost seven hours. The median time that patients waited for an inpatient bed, once the decision had been made that they required admission, was more than10 hours; 20 per cent of patients waited more than 33 hours. Overall, half the patients in the ED-MD group who were admitted to hospital spent nearly one full day (22.6 hours) in the ED; 20 per cent of patients spent nearly two full days (47 hours). Results were not much better for the RT identified patients.

Of the 426 ED-MD visits reviewed, 26 patients left the ED without being seen or against medical advice (6.1 per cent). (No comparable results were determined for the RT patients because of the selection criteria used to choose the chart to be reviewed.)

> *CTAS II and III patients waited to be assessed by a physician much longer than the times recommended by the Canadian Association of Emergency Physicians (CAEP) for their level of acuity (CTAS II recommendation: 15 minutes maximum; CTAS III recommendation: 30 minutes maximum). Overall, among the cases brought to light by ED physicians, half the patients who were admitted to hospital spent nearly one full day in the ED; 20 per cent of them spent nearly two full days in the ED waiting for an inpatient bed.*

Table 4 shows how long it took for patients to get their initial diagnostic imaging studies (i.e., X-ray, ultrasound, CT scan), their initial lab results and, for patients presenting with chest pain, their initial EKG completed after they had been assessed by a physician. There were some substantial delays for some patients to obtain any of these tests – 20 per cent of patients in the ED-MD group waited longer than five hours for their first diagnostic imaging study, two hours for a lab test and three hours for an EKG.

Table 4. Median [and 80th percentile] time (in minutes) for patients to receive an initial diagnostic imaging study, lab test, and EKG following an MD assessment

Group	ED Physician to Diagnostic Imaging Study			ED Physician to Lab test			ED Physician to EKG		
	n	Median	80th percentile	*n*	Median	80th percentile	*n*	Median	80th percentile
ED-MD patients	*188*	102	311	*148*	45	131	*61*	59	178
RT patients	*282*	70	183	*224*	30	75	*50*	38	174

A total of 111 ED-MD patients and 73 RT patients were classified by the reviewers as having presented with a time-sensitive condition. Table 5 shows median and 80th percentile times for several time

measures. Examples of these include the time required for a patient to receive effective treatment, such as the time required for a patient with appendicitis to undergo an appendectomy or, in cases where there was no effective treatment, the time required to reach a diagnosis, such as the time required for a patient with an inoperable cerebral hemorrhage to obtain a CT or MRI scan confirming the diagnosis. Half the ED-MD patients waited about three hours for an ED bed and 20 per cent of patients waited about six hours or more. Once in an ED bed, 50 per cent waited about another half an hour or more to be assessed by a physician and 20 per cent waited more than an hour. After that, 20 per cent waited more than 12 hours to obtain effective treatment or a definitive diagnosis that showed there was no effective treatment.

Table 5. Median [and 80th percentile] time (in minutes) for patients with time-sensitive conditions to gain access to an ED bed, be assessed by a physician and to receive an effective treatment or diagnostic test

Group	Triage to ED Bed			ED Bed to ED Physician			ED Physician to Effective Treatment or Diagnosis		
	n	Median	80th percentile	*n*	Median	80th percentile	*n*	Median	80th percentile
ED-MD patients	*101*	169	345	*61*	25	79	*54*	145	751
RT patients	*68*	18	72	*45*	15	40	*36*	56	192

Patients who presented or developed pain while in the ED were identified and the length of time they waited to receive analgesia (usually pain-relieving narcotics) was recorded. A total of 102 patients in the ED-MD group and 81 patients in the RT group had symptomatic pain that was noted in their charts; not all the charts had the time-relevant information. The median and 80th percentile waiting time before they received medication is shown in Table 6.

> *Half of the patients suffering with pain waited to receive an analgesic for more than four-and-a-half hours; 20 per cent of these patients waited more than 7.5 hours from the time they first saw the triage nurse.*

Table 6. Median [and 80th percentile] time (in minutes) for patients suffering with pain to receive an analgesic from the time they were seen at triage or by an ED physician

Group	Duration from Triage to Analgesic			Duration from ED Physician to Analgesic		
	n	Median	80th percentile	*n*	Median	80th percentile
ED-MD patients	*99*	276	472	*65*	69	177
RT patients	*79*	141	328	*70*	45	213

Each of the ED-MD patient visits was scrutinized to determine if any patients suffered an adverse outcome that was likely related not solely to their underlying disease or condition. An *a priori* definition

of a serious outcome was created: death; complete (or nearly complete) loss of limb or organ function; or the requirement for urgent, life-sustaining intervention (e.g., cardiopulmonary resuscitation (CPR)/intubation). No patients in the ED-MD identified group died while in the ED, although some died later in hospital. The QAC did not identify any deaths in this group that could have been attributed to ED waiting. One patient suffered a serious outcome that required urgent, life-sustaining therapy, which happened the day after he left the ED without being seen following a five-hour wait for service. The patient had been discharged from hospital one week previously after undergoing open-heart surgery. The patient survived his resuscitation in the ED, was admitted to hospital and then finally discharged back to his home. None of the patients in the RT identified group had a serious adverse outcome that was the direct or indirect result of ED waits or delays. Of the patient deaths in the RT group that were reviewed, none of the deaths were related to ED waiting in the opinion of the QAC.

> *No patients among those listed by the ED physicians at UAH died while in the ED, although some died later in hospital. The QAC did not identify any deaths in this group that could have been attributed to ED waiting. Among the additional charts scrutinized by the QAC, none of the patients had a serious adverse outcome that was the result of ED waits or delays.*

A substantial number of people needing end-of-life care came to the ED and had less-than-ideal experiences. Among the patient charts that were reviewed, 21 of the ED-MD patients and 43 of the RT patients had a palliative diagnosis, such as untreatable cancer, or had previously chosen (or had their goals of care determined) to decline life-saving resuscitation in the event they were near death. Although it was not possible from chart reviews alone to determine why patients with these conditions came to the ED, it appeared, in most cases, that it was because of a lack of other options to receive the end-of-life care they needed. There was no question the patients required care; however the ED was not an appropriate location for that care. Some of these patients died in the ED, which was clearly not the right place for people to spend their last few hours of life.

Patient experiences

Prior arrangements for an inpatient admission

Some patients were transferred to the UAH from another hospital and were considered a 'direct admit' because an admitting service had already accepted care of the patient. However, instead of going directly to an appropriate inpatient unit, these patients were routed through the ED to wait for a bed. In one such case, a patient was transferred from a less acute, rural hospital to be admitted to a specialty service. The patient's diagnostic imaging was completed and a diagnosis had been made before the patient was transferred to the UAH. The patient then spent one hour and 45 minutes on an ambulance stretcher before being seen by the specialty service. The patient continued to wait on a spine board with EMS present for an additional three hours and 15 minutes before being placed in a bed in the ED. After the specialty service agreed to admit the patient to the UAH, the patient waited an additional 36 hours in the ED before being transferred to an inpatient bed. Even as a 'direct admit', with paperwork in order, this patient waited 42 hours in the ED.

Another example was that of a patient who had been discharged from hospital one week previously. Paramedics brought the patient in from a rural hospital. Admission orders were written by the specialty

service on the triage record, meaning the specialty service knew the patient needed to be admitted before the patient was even taken to the ED. Still, the patient waited in the ED for 80 hours before being admitted to an inpatient bed.

> *A patient who had already been approved for admission to an inpatient unit was routed through the ED and waited there 80 hours before being admitted to the inpatient unit.*

Palliative/end-of-life care

A number of patients (64) whose goals of care were palliative, and who required only supportive care or pain management, came to the ED. These patients often stayed in the ED for a prolonged time, waiting for an inpatient bed. Some of these patients spent their last hours of life in the ED, while others died within hours after being transferred to an inpatient bed.

In one such case, a patient with lung cancer experiencing shortness of breath spent 12 hours sitting in the waiting room in a wheelchair, where an assessment was performed, lab tests were drawn, and the patient was sent to X-ray before being transferred to an emergency bed. One hour and 15 minutes later, admission orders were written. The patient died in the ED, 21 hours later, before an inpatient bed could be found.

A second example is that of a patient with palliative goals of care who was brought to the ED by family members because they were no longer able to care for the patient at home. The patient waited with EMS on a stretcher for 10 hours before being moved into a bed in the ED and being assessed by an ED physician. More than 10 hours later an admission order was written by the consultant service. The patient remained in the ED for another 48 hours before being transferred to an inpatient bed, where the patient subsequently died.

> *A cancer patient who had sought care at another hospital came to the UAH ED and spent more than five hours in a wheelchair in the waiting room. Alone, and too weak to go home, the patient spent 91 hours in the ED before being admitted to another unit where the patient died a few days later.*

Patients with 'do not resuscitate' orders

A number of patients who visited the ED had 'do not resuscitate' orders or had a level-of-care status that had not been clearly documented, despite the patient having a non-curable diagnosis. Sometimes a patient's resuscitation status was not clearly documented and he or she was provided advanced types of medical intervention that did not appear to match the patient's goals of care.

An example of this issue is the experience of an elderly patient who was transferred from an assisted living facility by STARS (Shock Trauma Air Rescue Society) air ambulance. In the ED, the patient required CPR (cardiopulmonary resuscitation), which included mechanical ventilation. Once the medical team was able to determine that the patient had previously expressed a desire not to have this level of care (in the form of a 'do not resuscitate' order), mechanical ventilation was stopped and the patient died a few hours later.

> *Sometimes patients' 'do not resuscitate' orders were not clearly documented and they received advanced medical intervention that did not match their own goals of care.*

Long wait times to see ED physicians (not meeting CAEP guidelines)

Most patients experienced long waits in the ED. Of particular concern was the length of time required for an initial assessment by an ED physician. A physician should, according to Canadian guidelines, assess patients who are classified as a CTAS level II within 15 minutes of the patient arriving in the ED. Patients classified as CTAS level III should wait no longer than 30 minutes. Most patients classified as CTAS II or III waited three to four times longer than the recommended times.

The experience of a CTAS II patient who presented with respiratory-related symptoms provides an example of this issue. The patient waited 90 minutes to be placed in an ED bed, spent an additional 30 minutes before being seen by an ED physician, and had stayed for a total of 78 hours in the ED before being admitted. Another patient (CTAS III), who was feeling short of breath, waited more than two hours to see a physician and spent a total of 51 hours in the ED. In a third such case, a patient suffering from cancer came to the UAH ED after trying to access care at another hospital. The patient spent 5.5 hours in the waiting room in a wheelchair waiting for an ED stretcher. The patient's wish was to go home but the patient, who came alone, was too weak even to call for a taxi. The patient spent 91 hours in the ED before being admitted to an inpatient unit. The patient died several days later.

Long periods of stabilization/resuscitation in the ED

Some patients who required life-sustaining interventions were cared for in the ED for long periods of time despite needing care in an ICU.

In one case, a patient was brought in by ambulance feeling short of breath. In the ED, the patient was unable to breathe adequately and required a special mask and machine to support breathing. After a 24-hour period of care in the ED with this treatment, the patient deteriorated and required intubation (or placement of a tube into the windpipe) and mechanical ventilation. The patient was in the ED for a total of 39 hours before being moved to an ICU.

Interviews

The following are the common themes and related insights that were expressed by the interviewees to the QAC regarding ED crowding:

Factors that contributed to ED crowding

- Patients were older and more ill (had a greater number of concurrent illnesses) and required longer periods of time to assess and treat.

- Long waits to have consult service assess and admit. One of the issues was the existing teaching model that meant a physician with decision-making authority was often preceded by two or three trainees (medical students or residents), which delayed the final decision.

- ED inpatients (EIPs) – patients in the ED who have been admitted to hospital but are waiting in the ED for a hospital bed, thereby tying up an ED bed.

- Inpatient services full – refusing to admit an ED patient.

- Reduced number of patients being discharged on weekends.

- Shortages of nurses, resulting in some funded inpatient beds being closed due to the lack of staff.

- Inability to get inpatient services engaged in the issues and solving problems.

- Excessive number of patients requiring alternative levels of care. Alternate level of care (ALC) patients block inpatient beds that in turn were increasing the number of EIPs. The ALC issue was not given as much attention as other higher-profile initiatives.

Management of ED crowding

- Capital Health's administrators were acutely aware of the ED crowding issues but it was a very complex issue to fix.

- There was increasing ED physician frustration with the inability of Capital Health to relieve the pressure on the EDs. Administrators were willing to engage in discussions about the issues but there was little if any noticeable, sustained change.

- The tension between ED physicians and administration increased over time. ED physicians would call senior administrators on call in the evening or at night when the EDs were gridlocked with EIPs and from some of them would get a response akin to 'what do you want me to do?'. There was a sense of resignation that the administrators were powerless to help much during crises.

- The University of Alberta's Department of Emergency Medicine has a national and international reputation yet the expertise in that department was seldom used to formulate strategic plans for dealing with ED crowding.

- There was too much dependency on external consultants to do the analysis, and evaluation and recommend improvements without an attempt to use local expertise.

- Physicians felt that there was a lack of transparency with data and they were not successful at being engaged with decision-making.

ED physicians advocating for improvement and the former Capital Health's response

- Physicians tried advocating at multiple levels and through several different groups – within hospital sites, within the region, and province-wide.

- Physicians became politically active due to the lack of results from advocating within Capital Health.

- There were no direct requests to stop advocating but there was a definite sense of indirect requests. There were no direct threats to ED physicians but physicians felt vulnerable because they knew some of the care they were providing was not optimal, due to the suboptimal environment in the ED where care was being provided. However, physicians felt that if cases were formally reviewed, then they – rather than the system – might be held accountable for the quality of care, including adverse patient outcomes.

Approach used to review cases where patient outcomes might have been compromised due to delays within the ED

▪ The former Capital Health quality assurance process to review cases of poor patient outcomes that was undertaken by administrators or non-ED reviewers seemed to focus on assessing individual performance rather than system and patient factors. Healthcare providers found this intimidating and felt the process perpetuated a perception that physicians and other frontline providers were going to be held accountable in cases where patients' care was seriously compromised by ED crowding.

Emergency Services and System Capacity (ESSC) project

▪ Few individuals who were interviewed could remember either the name of the ESSC project or even that there was a project designed to address ED crowding.

▪ Some ED physicians recalled that a report had been completed about the (then) current state of system issues that were contributing to ED crowding and potential solutions. (The QAC surmised these individuals might have been referring to a report that the external consultants prepared in 2006 as part of Phase I/II of the ESSC project.) Still, no physician believed they had actually seen a copy of a report that had to deal with current state of, or strategic plans to deal with, ED crowding.

▪ None of the interviewees was familiar with the final evaluation of the ESSC project. While some of the interviewees could name some of the design elements (e.g., TLP, ED navigators – see page 33), almost none of them could describe the ESSC project in any detail or describe the comprehensive plan behind the ESSC project.

Promising practices

▪ The General Internal Medicine (GIM) services at the UAH admit a large number of the medical patients at this site. In 2010 these services began the Care Transformation project, the goal of which was to consolidate patients to their 'home-base' units. Prior to this project, patients who were admitted to one of four GIM services could be placed on one of 13 different units. These patients are termed 'off-service' and being placed in units not designed for their particular needs created incredible inefficiencies for the team, which contributed to increased length of stay and delayed responsiveness to the ED. For example, a patient in early pregnancy with severe congenital heart and lung disease could be admitted to an orthopedic ward. By being allowed some authority over the location for patients' admissions and by actively working to transfer these 'off-service' patients back to the GIM's home unit, many efficiencies and improvements were gained. These improvements shortened patients' length of stay (LOS), enabled the GIM services to respond sooner to the ED for consult requests and, importantly, got patients out of the ED and into inpatient beds sooner.

▪ The Rockyview General Hospital (RGH) in Calgary has recently piloted the ability to have available nearly real-time electronic information about several ED performance measures (e.g., time from triage by a nurse to the time when a patient is first seen by the ED physician, decision-to-admit times, and time from decision to admit until an admitted patient leaves the ED). These measures are being used collaboratively to engage ED and admitting physician groups, as well as inpatient units, on the times that fall within their accountability. This is an excellent initial step towards building a framework of appropriate accountability and authority that will allow for continuous improvement.

*A project launched at UAH in 2010 has improved patient care. Whereas
before, for example, a patient in early pregnancy with severe congenital heart
and lung disease could have been admitted to an orthopedic ward – clearly not
designed or intended to provide the care she would need – patients are now
being cared for more often in the appropriate unit. It has led to shorter lengths
of stay, quicker responses to the ED, and shorter wait times for ED patients
needing an inpatient bed.*

Capital Health's emergency department crowding strategic plan

In Alberta, ED crowding was not a new issue in 2005. The Calgary Health Region had been the focus of
the Motta inquiry in 2002/2003.[2] ED physicians in both Calgary and Edmonton had been advocating with
senior administrators for several years in an attempt to have more focused attention on, and resources
committed to, the issue so that measureable improvements could be realized. Capital Health made a
decision to engage external consultants for assistance in developing a strategic plan for the region that
would address and improve ED crowding. In early 2006 the Emergency Services and System Capacity
(ESSC) project was started. Recognizing that ED crowding was a wider system issue, the project was set
up to address issues of patient flow into and out of the ED. There were three phases to the project: I.
Assessment; II. Design of intervention strategies; III. Implementation and evaluation. The external
consultants facilitated the first two phases of the project. The impact of the project was formally evaluated
in the spring of 2009, looking at results up to the end of December 2008.

Phases I and II of the project involved identifying opportunities for improvement. Recognizing that one
issue that led to crowding was the number of admitted patients waiting in ED beds due to a lack of
inpatient beds, the consultants evaluated inpatient average length of stay (ALOS) in Capital Health,
benchmarking its four major acute care hospitals to other similar hospitals in Canada. (The UAH, given
its role as a teaching hospital, was benchmarked to different hospitals than were the other acute care sites
in Edmonton.) Comparisons were made across similar patient groups using the Canadian Institute for
Health Information (CIHI) data on diagnostic groups (case mix groups or CMGs). Capital Health's
inpatient ALOS was higher than the mean of other hospitals when patients were compared across the
most common CMGs (medical/surgical only). It was estimated that Capital Health could add the
equivalent of 135 acute care beds by reducing ALOS to the mean of the Canadian comparison hospitals.
These were referred to as 'saveable days'. By saving days through reducing ALOS, a calculation was
made that there would then be more available space for ED inpatients without additional cost.

The ESSC project leadership elected to pursue 15 major interventions across the continuum of care,
focused primarily on four areas or issues: the ED, inpatient bed management, inpatient care management,
and community care services. In addition there were a few overarching system initiatives. The 15
interventions are briefly described below. The original target date for project completion was March
2008, but after the project was launched and progress was monitored a decision was made to extend the
date to December 2008.

Emergency department

- ED navigator for patients: A new position in the ED providing comfort, assistance, and information to
  patients and families as well as monitoring patients for changes in their health status.

- Triage liaison physicians (TLPs): A role designed to improve patient flow through the ED and assist with initial assessment of patients, taking all phone calls regarding urgent/critical patients coming to the ED, liaising with Emergency Medical Services, and coordinating ED patient consults.

- ED care coordinators: A new role designed to review the medical necessity for admission with the TLP and to work with Community Care Services (CCS) to determine whether to admit or to return CCS patients in the ED to their community location.

- ED clinical practice guidelines: Designed to allow more timely initiation of tests or procedures by the TLP or triage nurse. The tests and procedures would be linked to research-evidence-based guidelines for best practices and could be implemented sometimes without having to wait for a patient to be given an ED stretcher and a full assessment by an ED physician. For example, a patient presenting with chest pain could have an EKG and blood tests ordered at the stage of triage by the triage nurse.

- ED patient service plan: Provided new training and support to ED staff to improve the ED patient experience (e.g., ED staff customer service training, information brochures, patient pager system, ED navigator's 'comfort cart', and TVs for waiting rooms that could provide information and messages to patients).

- Physician consult assignments: A new process designed to support timely decision-making about ED patient admission and patient placement with an inpatient service by using decision algorithms.

Inpatient bed management

- Site-based centralized bed-hub: New roles and positions were created to manage and coordinate acute care beds in each of the four acute care sites. The roles were created with the expectation that they would improve a site's ability to align supply and demand. Each site bed-hub exchanged information during daily regional bed calls with other sites, the CCS access hub, regional patient transport office, and regional mental health.

- Escalation plan and full-capacity protocol: Introduced a new plan for situations when the number of ED inpatients (EIPs) who were awaiting an inpatient bed reached a specified threshold at which point the EIPs would be moved to overcapacity bed locations on inpatient units.

Inpatient care management

- Care management model (focus on length of stay and discharge planning): New roles were developed for care managers and coordinators who were responsible for directing care management processes and ensuring that patient care/discharge plans were carried out and working to reduce patient discharge delays.

- Inpatient physician advisors: A new physician role that was intended to be a resource for site care coordinators to help resolve problems and educate physician colleagues about care management.

Community Care Services (CCS)

- Centralized access bed-hub: A process established to manage admission from acute care and the community to all types of community care beds ensuring equitable flow of patients requiring CCS.

- Crisis intervention team: New roles were envisioned to create a team that could respond to a patient health crisis in a community care setting, providing short-term interventions that would avoid an ED visit or acute care admission.

Overall

- Acute care to community transitions workgroup: Focused on improving transitions for patients moving from an acute to a community care setting and also considered opportunities to plan transitions of complex patients from acute care to the community.

- Interface management process: Development of a process to improve communication (information about diagnoses made, treatments administered or started, and patient status) between the EDs and primary care physicians or community care services when a patient had been seen in the ED and discharged home or admitted to an inpatient bed.

- Care management and ED 'dashboard' (measurement): New measures that reflected input, throughput, and output functions were illustrated and shown in a 'dashboard' format so that the project team and operations managers/directors could monitor progress and make continuous program improvements. These 'dashboard' reports were produced weekly.

The ESSC project had a plan for evaluation that was designed to assist the ESSC project team with implementing the project and developing performance indicators and standard reports. The ultimate goal was for the evaluation to measure the extent to which the ESSC project achieved important benefits for patients, staff and system capacity. Surveys of physicians, staff, and ED patients were conducted but the last one did not take place until after the ESSC project evaluation report was completed.

Findings

ESSC project final evaluation

- Project costs: Total projected costs, which do not include costs of external consultants, from October 2006 to December 2008 were $18.74 million plus an additional $0.42 million for supplies, less staff deployment ($5.60 million), for final projected costs of $13.57 million. There were $0.88 million temporary costs (until the end of December 2008) for the implementation team. Actual costs were expected to be much lower than this (approximately $9.6 million) due to incomplete project implementation (see below). Actual ESSC project spending could not be reported because individual sites tracked project costs in different ways and through different types of cost centres.

- Implementation: Of the 15 ESSC project approved design solutions, by the completion of the project in 2008, nine of them had been implemented. The six solutions that were not implemented included:

  - ED care coordinators

  - ED clinical practice guidelines

  - Physician consult assignments

  - Inpatient physician advisors

  - Crisis intervention team

- Interface management process.

- Medical or surgical 'saveable days' were not realized during the ESSC project. There was no reduction of ALOS for medical or surgical patients in 2007 or 2008 compared to 2006, which is also reflected in the finding of no increase in the number of medical or surgical patient discharges.

- Savings from reducing the staff and other costs required to care for EIPs were projected to be over $4 million. This was not realized as the number of EIPs over the time of the project did not change.

- Emergency patient LOS did not decrease overall nor did LOS for admitted patients.

- There was no reduction in Emergency Medical Services handover time (the length of time required for EMS staff to turn responsibility of a patient over to ED staff and hence allow the EMS crew to be available for other 911 calls in the community).

- Acute care EDs were almost continuously over EIP thresholds for their full-capacity protocol, suggesting that some or all of these beds were almost always in use.

- There was no sustained increase in demand for ED services over the three-year period (2006–08).

- For the four EDs, on average there were 19 additional inpatient admissions per week (3 per cent increase) in 2008 compared with 2006.

- Increases in numbers of beds from January 2007 (implementation of ESSC project) to December 2008:

  - ED stretchers: 1.9 per cent increase (156 to 159)

  - Acute care inpatient beds: From January 2006 to January 2007 there was an increase of 105 beds (1,910 to 2,015 (5.5 per cent)). The number of funded medical beds increased. The actual functional increase was quite limited and variable, however, due to 'blocked beds'. (Blocked beds represent those beds that, in some months, could be 'blocked' or closed because of staff shortages, infection control, or room renovation.) The number of funded surgical beds remained stable over the project until the fall of 2008 when there was an increase; again, blocked beds reduced the functional number of surgical beds.

  - Over-capacity beds represent an extra inpatient bed that was not part of the usual complement of beds on a particular unit. The total number of over-capacity beds began with 48 beds and increased to 72 beds across the four acute care sites over the time of the project.

  - Community Care Services (CCS) beds: There was a 17.1 per cent increase (1,070) in the number of community beds from 6,262 to 7,332.

- At the same, time, there was an increasing trend in the number of inpatients waiting for a CCS bed. Although CCS bed capacity steadily rose over the period of the ESSC project, it did not keep pace with the increase in demand.

- Introduction of the TLP shifts had a small positive effect in reducing the number of ED patient 'walkouts'; that is, patients who left the ED either without being seen or against medical advice. However, there was no sustained impact on ED patient length of stay.

- Patient/family concerns and commendations specific to the ESSC project were recorded: The specific ESSC project-linked change that raised the most public concern was the placement of patients in full-capacity protocol (FCP) beds, especially at the UAH site. (At that hospital, FCP beds were located in semi-private rooms, which meant that there were three patients in a room designed for two patients.) Patients and families were asked about positive experiences with ESSC project interventions; all commendations were related to the ED patient navigator role.

- Critiques (from the project evaluation) of the ESSC project:

  - The project scope and scale was extremely broad.

  - The design solutions had a limited evidence base; the rationale for, and the linkages between, the different design elements and the expected results were not clear. In addition, introduction of standardized design solutions across sites may have decreased local physician and staff enthusiasm, empowerment, and participation.

  - There was not enough engagement of acute care site personnel (especially frontline managers and staff) in planning. Physicians for the most part were never successfully integrated into the project governance and management structure, despite attempts to involve them.

  - Organizational readiness to change was not assessed at the level of the frontline staff or physicians. There were no incentives for most physicians and frontline staff to change the way they worked so as to align with the project. The long-term benefits of ESSC project to patients, staff and physicians—and the specific behavioural changes required of them—were unclear.

  - ESSC project governance and management roles, responsibilities and accountabilities were not always clear, especially at the site level. Accountability for project outcomes, including who was responsible for achieving certain outcomes by certain times—was unclear

  - The evaluation plan was developed and most performance measures were identified after the project was already underway. Only two ESSC project performance targets were set (other than the original Capital Health Executive 'saveable days' target). There was no formal ongoing measurement of processes once implemented to ensure that design solutions maintained strength, consistency and quality over time.

  - Beyond the first few months of the project there was limited formal communication about implementation progress or results to the staff members of the organization at large or to the public.

  - Early in 2007, the response of the Capital Health's executive to ED crowding and the advocacy efforts of physicians resulted in quicker implementation of full-capacity protocol, which may have compromised people's support for subsequent design solutions. During the final year of the ESSC project, restructuring within Alberta Health Services created organizational uncertainties that further undermined the implementation of some of the design elements.

Minutes of Capital Health committees

The minutes from three Capital Health committees (Board of Directors, Capital Health Executive Committee, and Regional Medical Advisory Committee) were examined for 2003/04 to 2008 to

determine references to or mentions made of plans intended for the ED crowding issues and the ESSC project in particular.

- Board of Directors: The issue of ED crowding or the ESSC project was never raised as an independent agenda item.

- Capital Health Executive Committee: The ESSC project was a regular agenda item; however, the ESSC project was an item for information and there were no regular performance measures brought forward or discussed at the meetings.

- Regional Medical Advisory Committee: ED crowding and the ESSC project was never raised as an independent agenda item.

Provincial administrative data review

The administrative data were analyzed and are first presented by geographic site and then according to the 'input – throughput – output' model of ED patient flow (Figure 1). The analysis was undertaken to highlight important system factors that contribute to patient flow barriers/ED crowding and to address some fundamental issues. For example, the question was posed: 'Are the worsening waiting times for patients coming to EDs related to consistent increases in the number of patients presenting for care?' Data were analyzed over several years to draw comparisons and illustrate how changes in different system factors have or have not correlated with changes in ED crowding/waiting times.

Results for the former Capital Health and individual hospitals in Edmonton have been compared to those for the former Calgary Health Region and the former Chinook Health Region (Chinook). Geographical data for the former Capital Health and Calgary Health Region (e.g., population base and facilities within the geographic area) are comparable to the current Edmonton and Calgary zones, respectively, within the current structure of Alberta Health Services. However, this is not the case for the former Chinook and the current Alberta Health Services South zone. Therefore the report refers to the Edmonton Region/Zone, the Calgary Region/Zone and Chinook, meaning the former Chinook.

Calgary was used as a comparator to Edmonton because of similarities in patient demographics and the range of health services provided. Since some of the system factors in Calgary have historically been different from those in Edmonton, the comparison between the two cities allowed additional conclusions to be drawn about important system factors that contribute to the problem of ED waiting. A third comparison was made with the former Chinook Health Region. It was chosen because of strategic decisions made by that former region's executive, which improved ED patient flow over several years. The 'Chinook story' is highlighted in the next section.

Much of the data for this analysis were derived from the Calgary and Edmonton ED information systems. Calgary had a functioning electronic information system that predated Edmonton's. Comparisons between the two EDs are therefore only possible dating back to the start of Edmonton's system in 2005. Data about inpatients (number of acute care beds, rates of occupancy, and LOS) are derived from a different data source so they can be compared farther back in time. The former Chinook Health Region did not have a separate ED information system and thus for some of the data presented it was not possible to compare results.

Most of this analysis focuses on the four acute care adult sites in Edmonton (University of Alberta Hospital or UAH; Royal Alexandra Hospital or RAH; Misericordia Community Hospital or Mis; and

Grey Nuns Community Hospital or GN) and the three acute care sites in Calgary (Foothills Medical Centre or FMC; Peter Lougheed Centre or PLC; and the Rockyview General Hospital or RGH). Patients in both Edmonton and Calgary have access to other sites they can visit for ED care (Figure 4). Although more patients are seen each year in Calgary than in Edmonton in the urgent care centres and EDs combined, in the fiscal year 2010/11 there were approximately 10 per cent more visits to the acute care ED sites in Edmonton than in Calgary. Approximately nine per cent of ED visits in Edmonton are by patients from outside that region/zone compared to four per cent for both Calgary and Lethbridge.

Figure 4. Total patient visits to emergency departments and urgent care centres by region/zone and site for fiscal year 2009/10
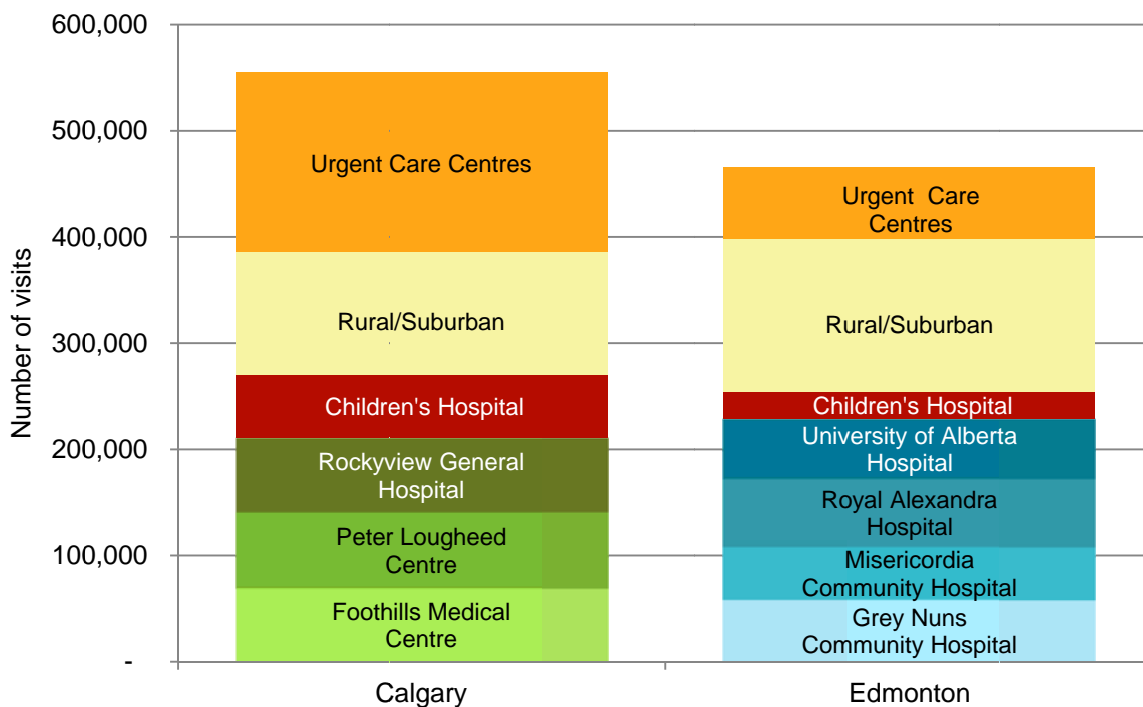
Inpatient beds in Calgary and Edmonton are reasonably comparable; however, there are a few differences between the two centres that are acknowledged:

▪ Edmonton has additional specialized inpatient care beds in hospital settings that are separate from the four main acute care sites for patients requiring rehabilitation (Glenrose Rehabilitation Hospital), cancer treatment (Cross Cancer Institute), and psychiatric care (Alberta Hospital Edmonton). In contrast, in Calgary, patients who require rehabilitation, such as those who have suffered a stroke, undergo rehabilitation at one of the three acute care hospitals and often in the Foothills Medical Centre (FMC) because there is no stand-alone rehabilitation facility. Although Calgary does have a separate facility for the treatment of cancer, the Tom Baker Cancer Centre (TBCC), the TBCC does not have any inpatient beds. Cancer patients who require inpatient services in Calgary are admitted to one of the three acute care hospitals and most are admitted to the FMC. Comparing data about 'discharges' of patients from acute care facilities in Edmonton versus Calgary must therefore be interpreted within the context of the location where the care is provided.
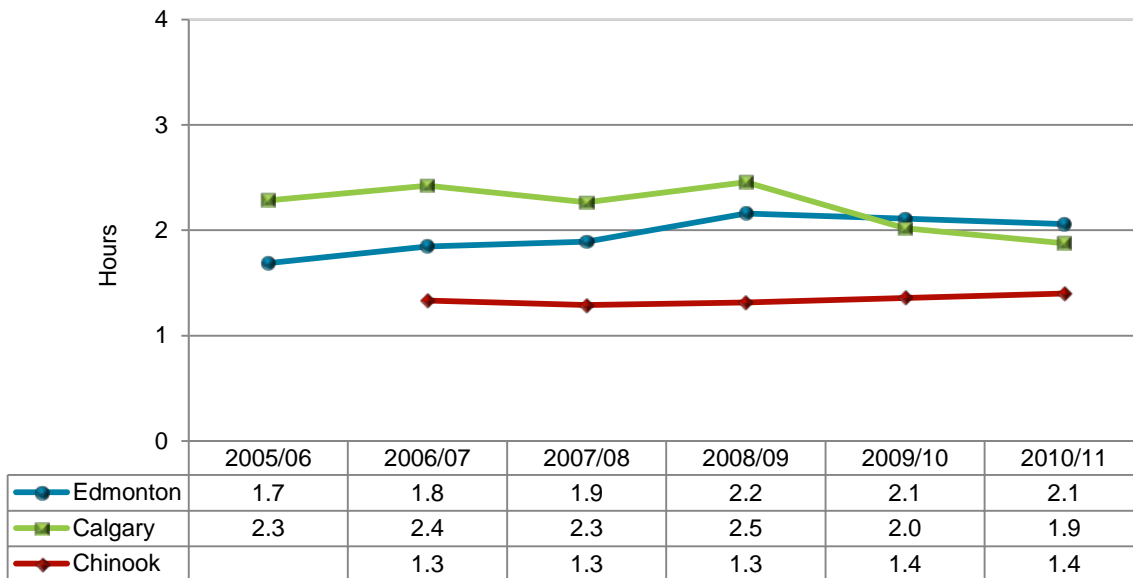
- More acute care bed days are used in Edmonton hospitals to look after patients from outside that zone ("imports") compared to Calgary or Chinook (14.3 per cent versus 5.6 per cent versus 3.2 per cent, respectively, for the fiscal year 2010/11), whereas a greater percentage of Chinook patients receive care in another region's/zone's beds ("exports") compared with Calgary or Edmonton (12.8 per cent versus 1.4 per cent and 1.4 per cent, respectively).

- Edmonton (UAH) looks after all Alberta patients undergoing heart, lung, and liver transplants while Calgary (FMC) looks after all Alberta patients requiring bone marrow transplants.

In the following analysis data are presented about either (1) the population of patients cared for in a region/zone, or (2) patients cared for in a particular hospital. When data about regional acute care (inpatient) beds are presented, the data include beds available at the Cross Cancer Institute and the Glenrose Rehabilitation Hospital. However, the data do not include beds at Alberta Hospital (which provides care for psychiatric patients only).

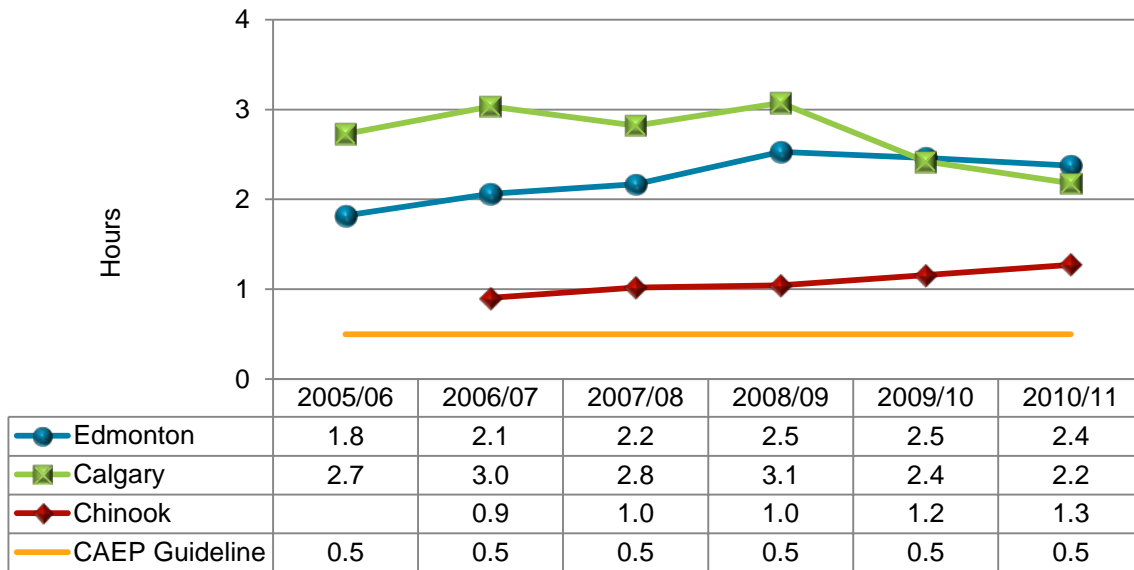## Geographic comparison between Calgary, Chinook, and Edmonton

Waiting times for ED care: The average time patients spent waiting to be assessed by an ED physician and how this time changed over six years in Edmonton, Calgary, and Chinook is illustrated in Figure 5.

Figure 5. Average time spent by emergency department patients waiting to see a physician after being assessed by triage at city adult hospitals by fiscal year and region/zone

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	1.7	1.8	1.9	2.2	2.1	2.1
Calgary	2.3	2.4	2.3	2.5	2.0	1.9
Chinook		1.3	1.3	1.3	1.4	1.4

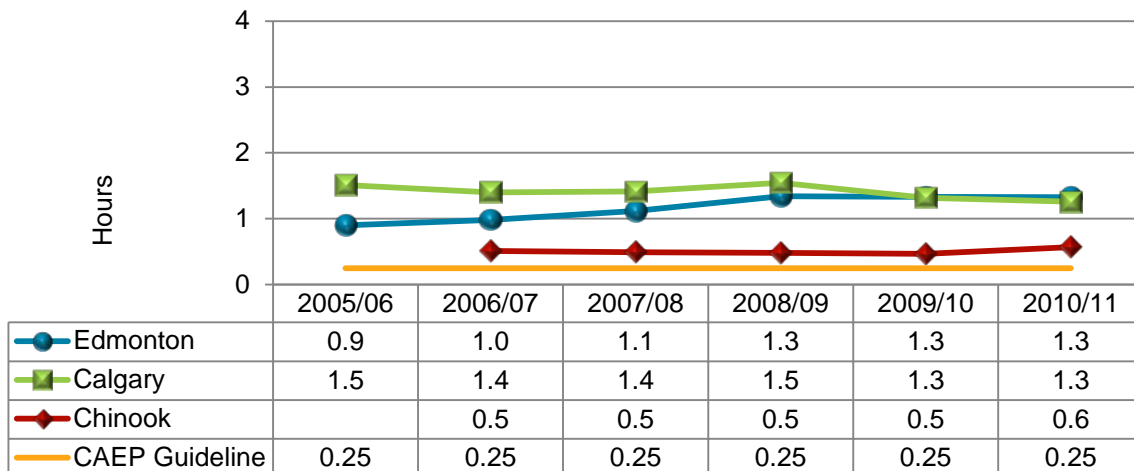Standards established by the Canadian Association of Emergency Physicians (CAEP) for maximum wait times experienced by patients of different acuity (CTAS level) are useful in establishing how well or how poorly EDs in the three cities are able to perform. Figure 6 shows wait times for patients with a CTAS acuity level of III (require care emergently) in relation to the CAEP recommended standard.

Figure 6. Average time spent by emergency department patients waiting to see a physician after being assessed by triage at city adult hospitals by fiscal year and region/zone for patients classified as CTAS III

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	1.8	2.1	2.2	2.5	2.5	2.4
Calgary	2.7	3.0	2.8	3.1	2.4	2.2
Chinook		0.9	1.0	1.0	1.2	1.3
CAEP Guideline	0.5	0.5	0.5	0.5	0.5	0.5

Chinook outperformed Calgary and Edmonton by a factor of two to three over the past five years for CTAS III (Figure 6) and CTAS II (Figure 7) patients with respect to waiting times for a patient's first contact with an ED physician.
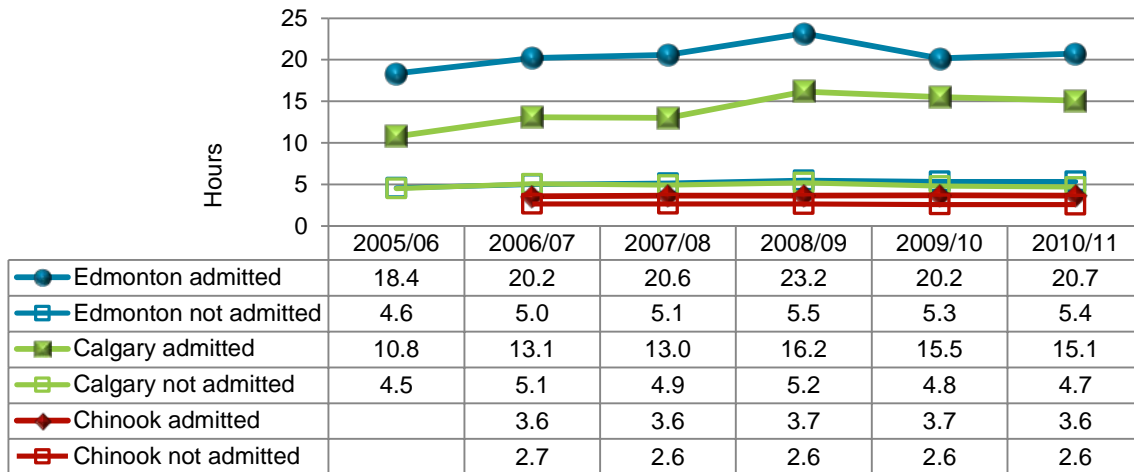
Figure 7. Average time spent by emergency department patients waiting to see a physician after being assessed by triage at city adult hospitals by fiscal year and region/zone for patients classified as CTAS II

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	0.9	1.0	1.1	1.3	1.3	1.3
Calgary	1.5	1.4	1.4	1.5	1.3	1.3
Chinook		0.5	0.5	0.5	0.5	0.6
CAEP Guideline	0.25	0.25	0.25	0.25	0.25	0.25

The length of time that patients spent in the ED is substantially different depending on whether they were discharged (not admitted) from the ED or were admitted to an inpatient bed. While there were insignificant differences between the three regions/zones for patients who were discharged from the ED, admitted patients in Edmonton on average waited considerably longer than did patients in Calgary. There

was also a striking difference in the duration of time admitted patients in Chinook Health Region spent compared to the two larger centres (Figure 8).

Figure 8. Average length of emergency department stay at city adult hospitals by fiscal year and region/zone for patients admitted and for patients not admitted to hospital

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton admitted	18.4	20.2	20.6	23.2	20.2	20.7
Edmonton not admitted	4.6	5.0	5.1	5.5	5.3	5.4
Calgary admitted	10.8	13.1	13.0	16.2	15.5	15.1
Calgary not admitted	4.5	5.1	4.9	5.2	4.8	4.7
Chinook admitted		3.6	3.6	3.7	3.7	3.6
Chinook not admitted		2.7	2.6	2.6	2.6	2.6

When comparing length of stay (LOS) for patients who were admitted (Figure 9a) and those who were discharged (Figure 9b), there were substantial differences between the different acute care sites in Edmonton and Calgary. For several years the Grey Nuns Community Hospital has had the longest lengths of ED stay for patients admitted to hospital; however, over the past year this measurement has improved, as have those for other hospitals in Edmonton and Calgary. The RAH has tended to have the longest lengths of stay for ED patients who are then discharged. The ED is able to influence the amount of time a patient remains in the ED and is discharged because the entirety of this patient's healthcare stay is within the confines of the ED. Once a specialist is consulted for the patient, the ED loses control over a patient's ED LOS as the availability of the specialist and the availability of inpatient hospital beds are major determining factors for that LOS.

> *Over a six-year period, ED patients in Edmonton who were admitted but waiting for a bed, waited considerably longer (around 20 hours) than did patients in Calgary (around 15 hours). In a striking contrast, admitted patients in Chinook Health Region consistently waited about four hours in the ED for an inpatient bed.*

Figure 9a. Median length of stay for emergency department patients at city adult hospitals who are admitted to hospital by fiscal year
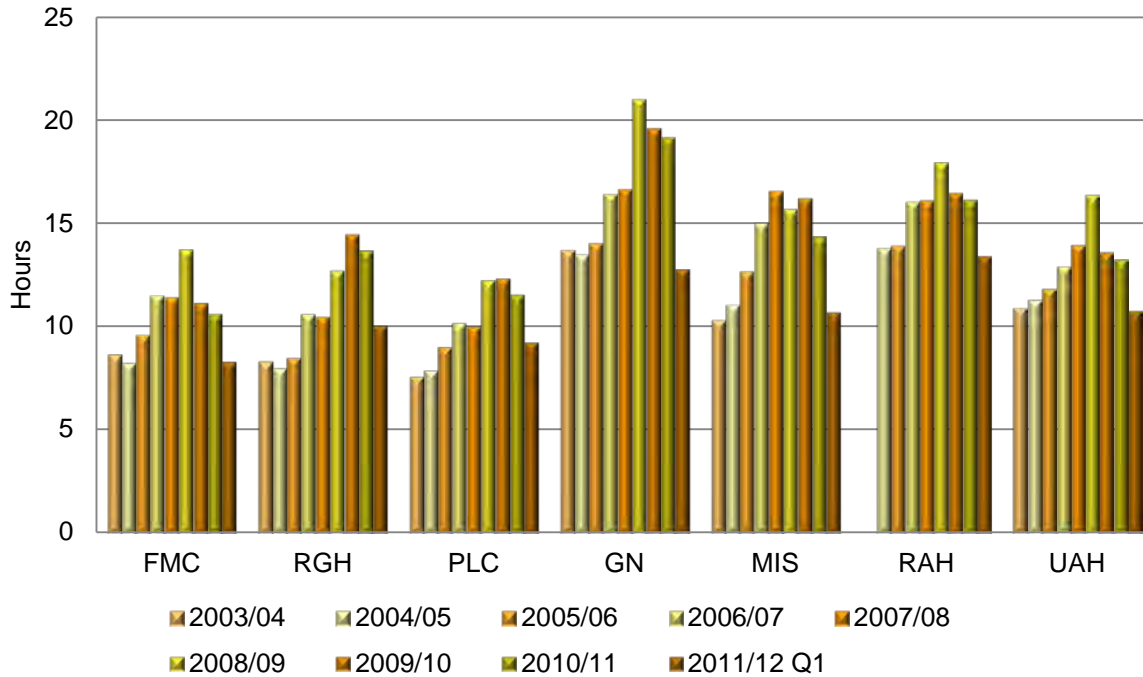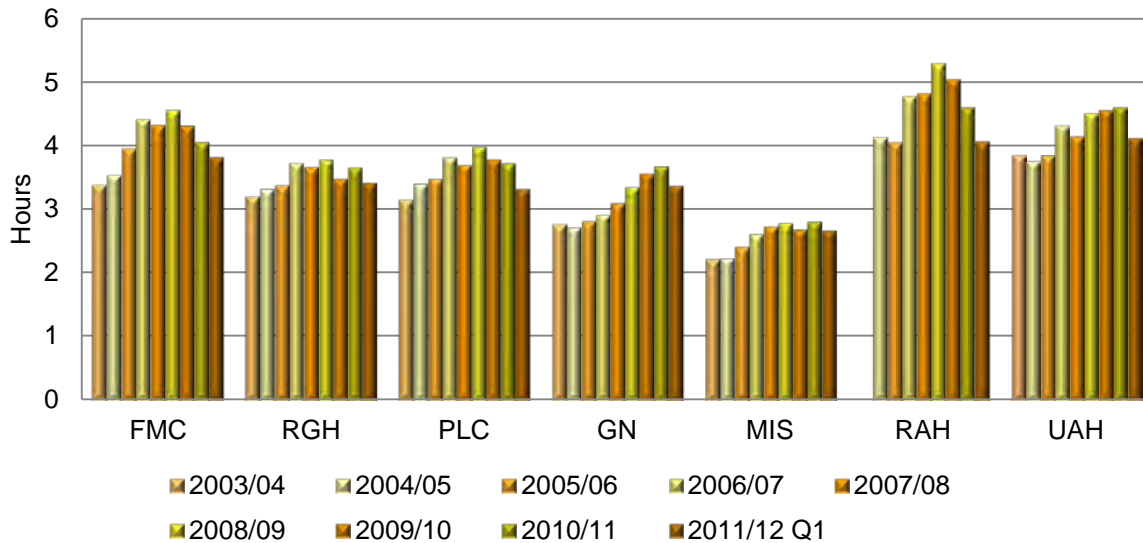

Figure 9b. Median length of stay for emergency department patients at city adult hospitals who are not admitted to hospital

Results by the input – throughput – output model

Input

One reason that EDs may become crowded and patients experience long waiting times or lengths of stay is that 'demand' (numbers of patients presenting to the ED for care) increases without matching increases

in 'capacity' (e.g., number of beds, number of personnel, and diagnostic testing). The population of both the Calgary and Edmonton regions/zones has increased significantly over the past decade (Figure 10) and resulted in some added demand for and on emergency services (Figure 11), especially in Calgary.

Has population growth resulted in large increases in ED demand?

Figure 10. Population of region/zone by year as of June 30 of each year
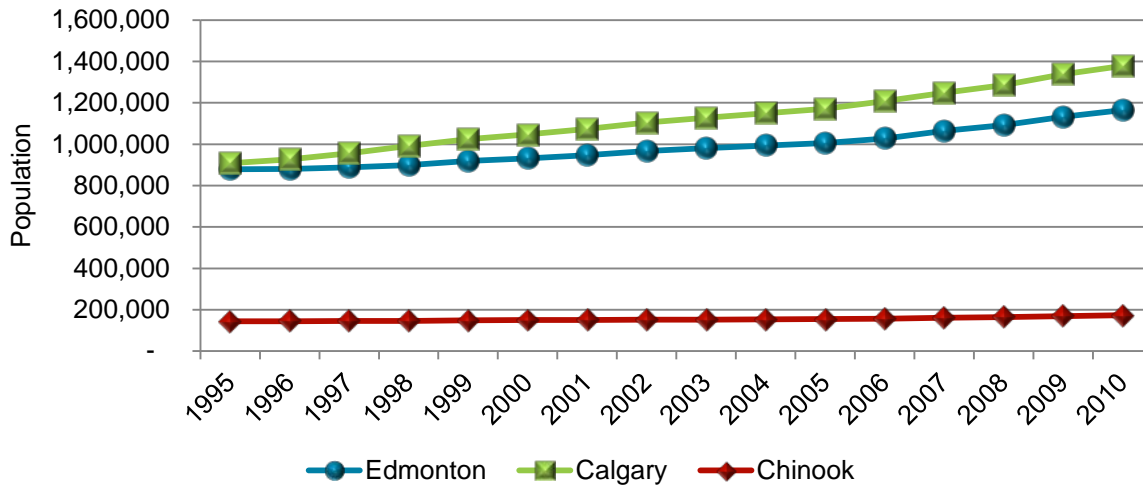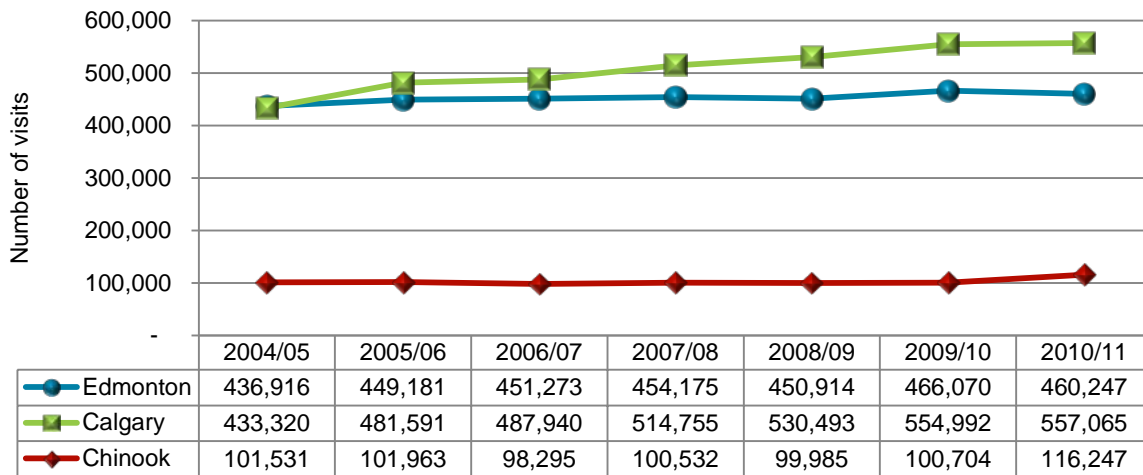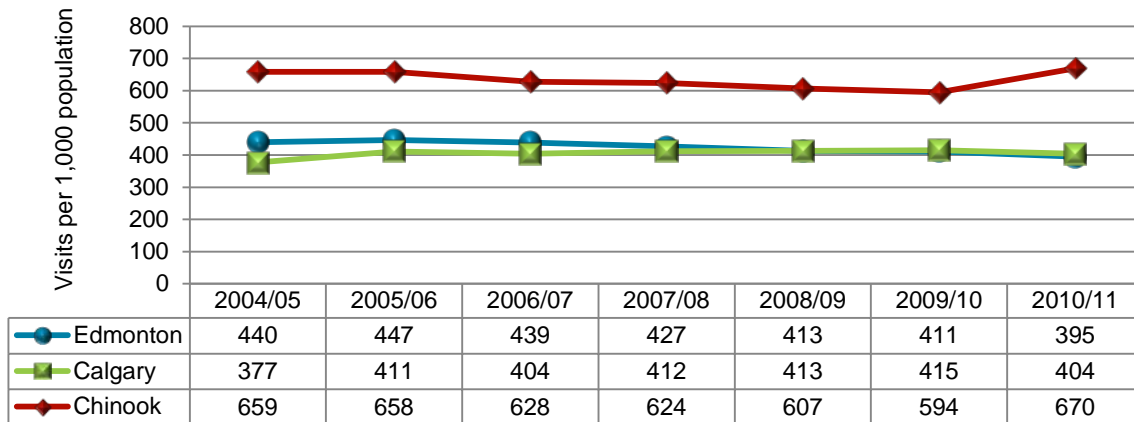

Figure 11. Number of emergency department/urgent care centre patient visits by fiscal year and region/zone

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	436,916	449,181	451,273	454,175	450,914	466,070	460,247
Calgary	433,320	481,591	487,940	514,755	530,493	554,992	557,065
Chinook	101,531	101,963	98,295	100,532	99,985	100,704	116,247

Another way of looking at these numbers is to consider the number of visits to the ED made for every 1,000 people living in or seeking care in the region/zone. Given their populations, Calgary and Edmonton currently have about the same number of visits per 1,000 population while Chinook has substantially more (Figure 12).

Figure 12. Number of emergency department/urgent care centre patient visits per 1,000 populations by fiscal year and region/zone

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	440	447	439	427	413	411	395
Calgary	377	411	404	412	413	415	404
Chinook	659	658	628	624	607	594	670

Y-axis: Visits per 1,000 population

Urgent care centres (UCC) and advanced ambulatory care centres (AACC) provide assessment, diagnostic, and treatment services for unscheduled patients who require immediate medical attention for injuries or illnesses needing greater human and technical resources than are available in physicians' offices.[47] The growth in the number of ED/urgent care centre visits was greater in the Calgary Zone than the Edmonton Zone (Figure 11) over the past seven years. Whereas the demand for ED/urgent care centres services remained stable in the Edmonton Zone over many years (Figure 13a), the increase in demand seen in Calgary was primarily the result of increased visits to facilities outside of the city of Calgary (Figure 13b) (shown as non city of Calgary facilities).

Figure 13a. Number of emergency department/urgent care centre patient visits to Edmonton region/zone facilities by fiscal year
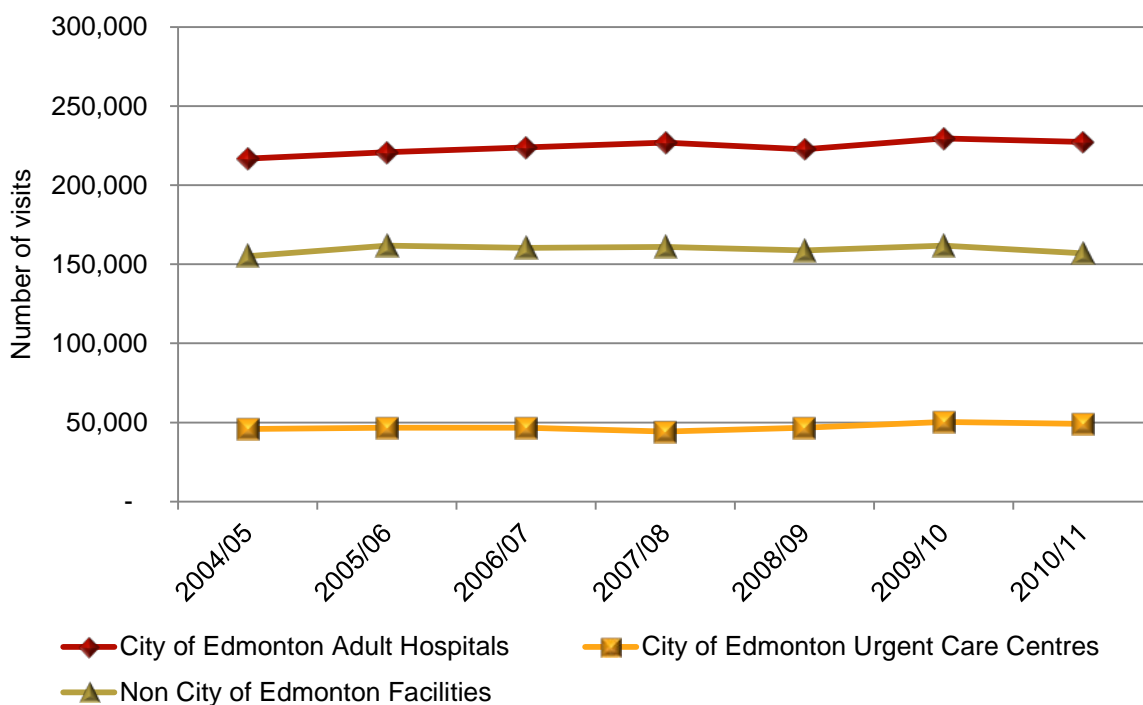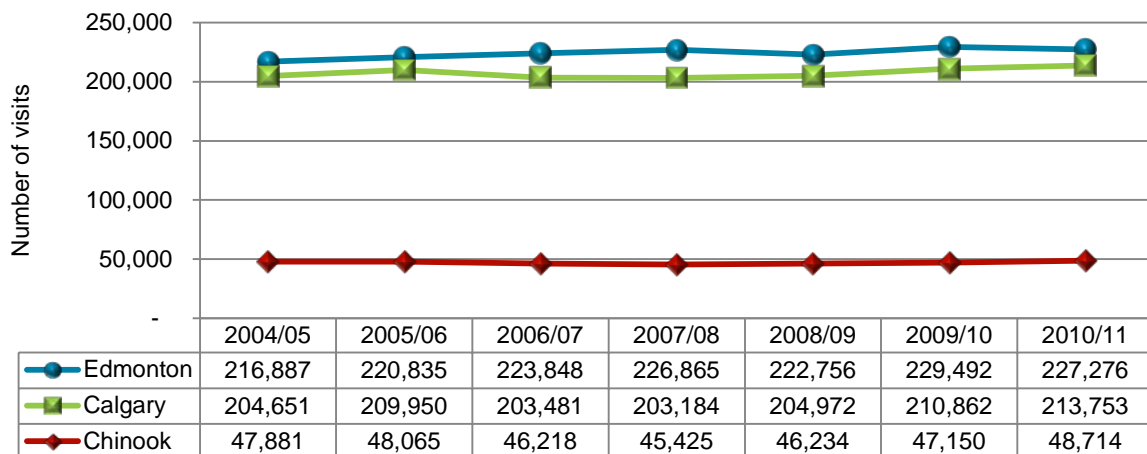

- City of Edmonton Adult Hospitals
- City of Edmonton Urgent Care Centres
- Non City of Edmonton Facilities

Y-axis: Number of visits
X-axis: 2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10, 2010/11

Figure 13b. Number of emergency department/urgent care centre patient visits to Calgary region/zone facilities by fiscal year

Legend:
- City of Calgary Adult Hospitals
- City of Calgary Urgent Care Centres
- Non City of Calgary Facilities
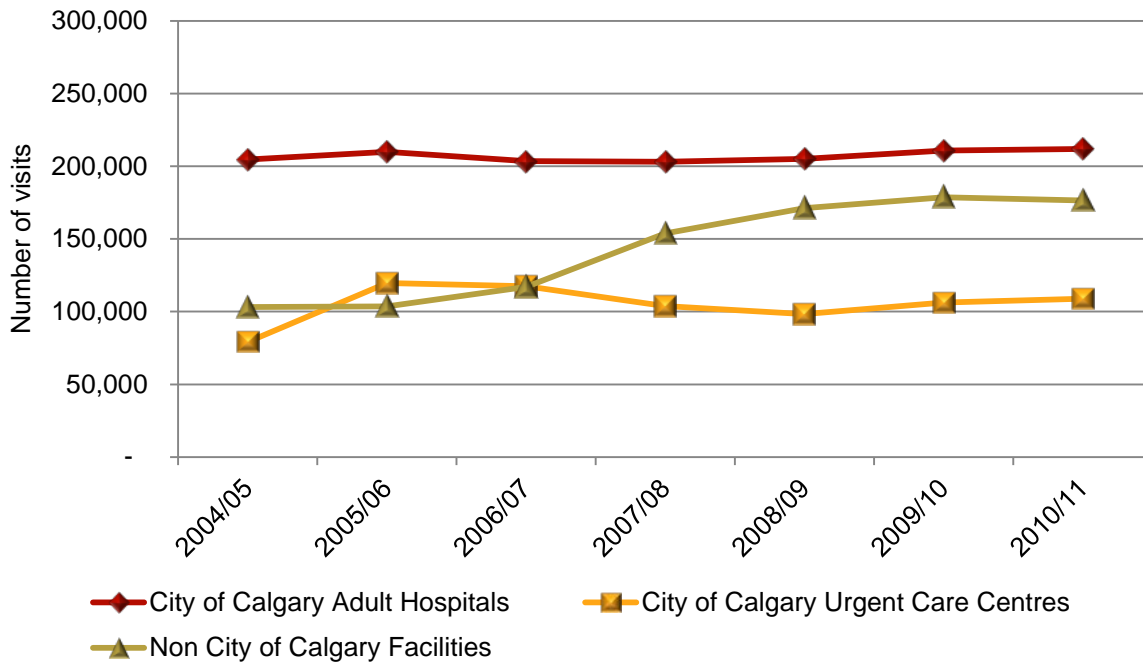
Despite rising populations in the province and consequent rising demand on the EDs/UCCs, the total demand at the major acute care ED sites in Edmonton and Calgary increased only slightly and remained stable in Chinook (Figure 14). In short, the increase in demand on the EDs has been less than the population growth in the three urban centres; with the exception of the increase in Chinook in 2010/11.

Figure 14. Number of city adult hospital emergency department patient visits by fiscal year and region/zone

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	216,887	220,835	223,848	226,865	222,756	229,492	227,276
Calgary	204,651	209,950	203,481	203,184	204,972	210,862	213,753
Chinook	47,881	48,065	46,218	45,425	46,234	47,150	48,714

Has the type of ED demand changed?

While the demand for services from the major acute care site EDs increased only slightly, the type of demand changed. Patients presenting for ED care have had higher acuity ratings (more CTAS I, II, and III patients), and more of them have required admission to hospital (Figures 15 and 16 respectively). In most

EDs there has been a slight upward trend in the percentage of older (65 years of age and up) patients who attend the ED (Figure 17). These data would support the observations made by ED physicians that patients who present for care have more complicated conditions now than they did several years ago; thus, these patients often take longer to assess and treat in the ED.

Figure 15a. Per cent of emergency department patient visits at Edmonton city adult hospitals by CTAS level and by fiscal year
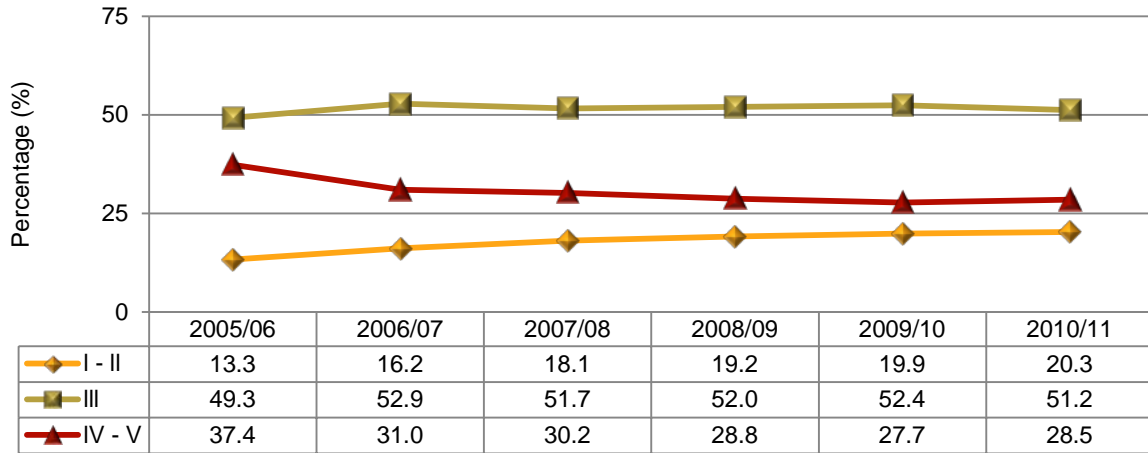

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
I - II	13.3	16.2	18.1	19.2	19.9	20.3
III	49.3	52.9	51.7	52.0	52.4	51.2
IV - V	37.4	31.0	30.2	28.8	27.7	28.5

Figure 15b. Per cent of emergency department patient visits at Calgary city adult hospitals by CTAS level and by fiscal year
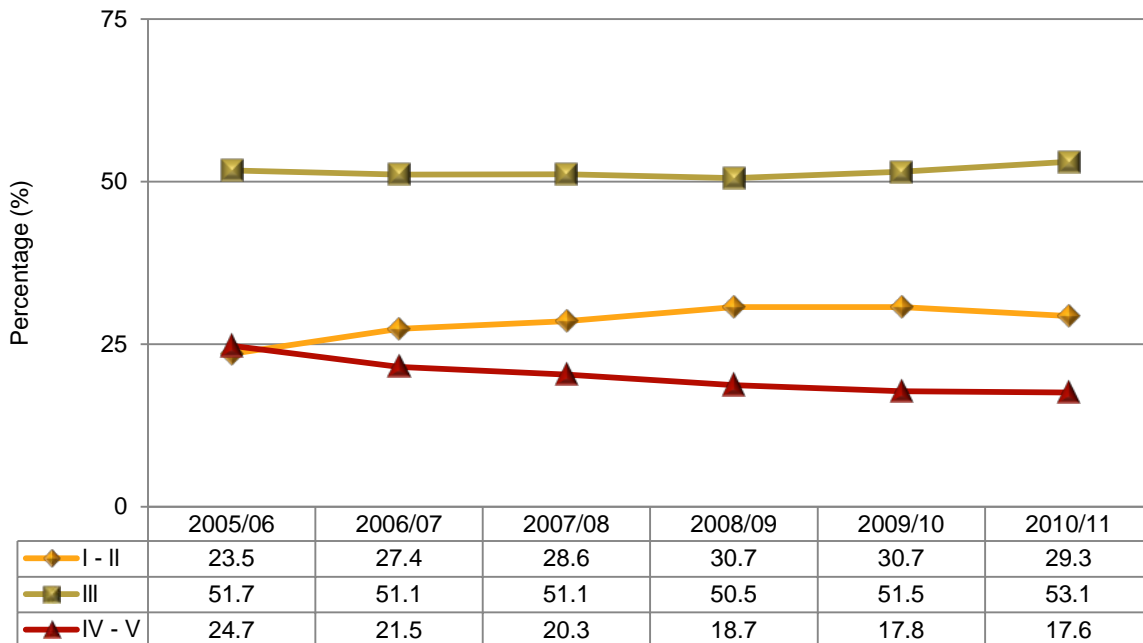

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
I - II	23.5	27.4	28.6	30.7	30.7	29.3
III	51.7	51.1	51.1	50.5	51.5	53.1
IV - V	24.7	21.5	20.3	18.7	17.8	17.6

Figure 16. Per cent of city adult hospital emergency department patients admitted to hospital by fiscal year and region/zone

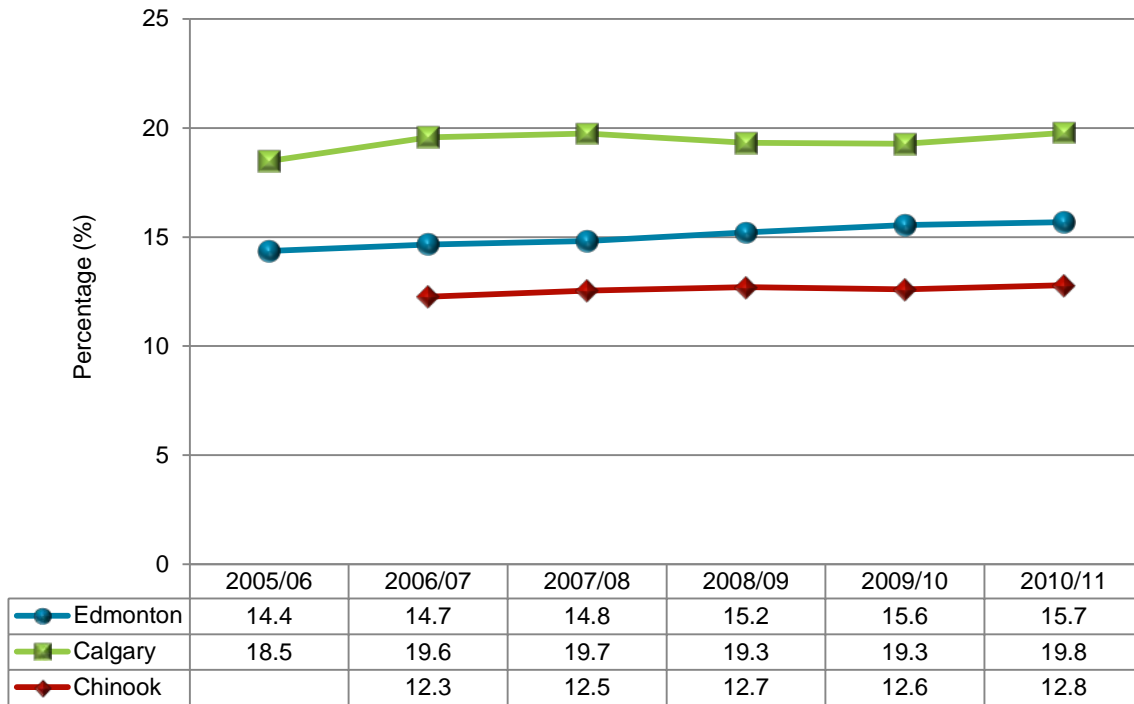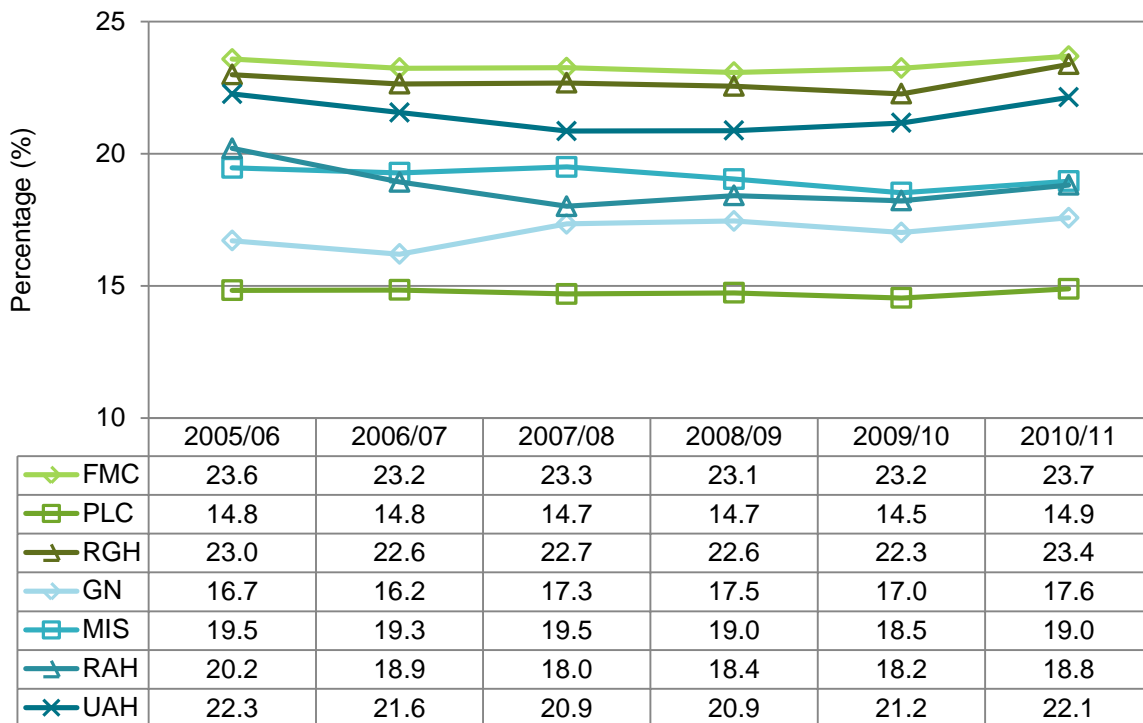|	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	14.4	14.7	14.8	15.2	15.6	15.7
Calgary	18.5	19.6	19.7	19.3	19.3	19.8
Chinook		12.3	12.5	12.7	12.6	12.8

Figure 17. Per cent of city adult hospital emergency department patients who are 65 years of age or older by fiscal year

|	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
FMC	23.6	23.2	23.3	23.1	23.2	23.7
PLC	14.8	14.8	14.7	14.7	14.5	14.9
RGH	23.0	22.6	22.7	22.6	22.3	23.4
GN	16.7	16.2	17.3	17.5	17.0	17.6
MIS	19.5	19.3	19.5	19.0	18.5	19.0
RAH	20.2	18.9	18.0	18.4	18.2	18.8
UAH	22.3	21.6	20.9	20.9	21.2	22.1

Are there too many 'low acuity' patients coming to the ED and using up constrained resources?

Over the years a commonly held belief has been that ED crowding is primarily a result of too many 'low acuity' (CTAS IV and V) patients coming to the ED. Compared with national averages published by the Canadian Institute for Health Information (CIHI), the major acute care sites in Edmonton and Calgary have a low percentage of CTAS IV and V visits. CIHI ED data are collected only for approximately one-third of all ED visits nationally. (Its database includes data from all EDs in Ontario, one in Prince Edward Island, four in Nova Scotia, two in British Columbia, seven in Manitoba, and one in the Yukon.).[48] CIHI reports that 38.1 per cent of the visits in 2009/10 captured in its database were by patients who were classified as CTAS IV and that approximately seven per cent of the visits were by patients who were classified as CTAS V (total CTAS IV and V were 45 per cent). In contrast, during the same time period, the percentage of CTAS IV and V patients in Edmonton's major acute care EDs was 28 per cent and in Calgary it was 19 per cent (Figure 15a and 15b) and the percentage has been trending downwards. Considering all ED/urgent care centre visits in Calgary in fiscal year 2004/05, 26 per cent of the triage levels IV and V cases were treated at the major acute care sites. In contrast, by fiscal year 2010/11, only 14 per cent of the triage levels IV and V cases were treated there. In Edmonton the change was not as dramatic: 47 per cent of the triage levels IV and V cases were treated at the major acute care sites in 2004/05, dropping to 42 per cent in 2010/11.

Throughput

The length of time that ED patients wait for various types of services can provide insight into where the major bottlenecks (constraints) are that prevent them from being discharged home or admitted to an inpatient bed. A patient's ED 'journey' can be broken down into six or seven broad steps (Figure 18), although not all patients require all these 'services' on their journey. To examine the durations for each step requires determining the times at which each of the services were provided. In EDs without an ED information system, most of these times are not captured electronically. In Calgary times are captured electronically for most patients for steps A, B, C, D, F, G, H, and I. Times for lab and diagnostic imaging (DI) are captured in different information systems and are not readily available for analyzing the journeys of individual ED patients without some challenging efforts to link databases. This linkage was not performed for this analysis; however, many of these times were captured by manual data extraction in the chart reviews of the UAH ED patients. The Edmonton ED information system captures the same data as does Calgary's, although the time that it took a patient to be placed in a bed in the ED (Step C) was not available as of the writing of this report. Neither the Calgary nor Edmonton information systems accurately capture times for when patients in the ED were first seen by a consultant (Steps F and G).

Figure 18. Times for each of the services provided to ED patients in their journey through the ED
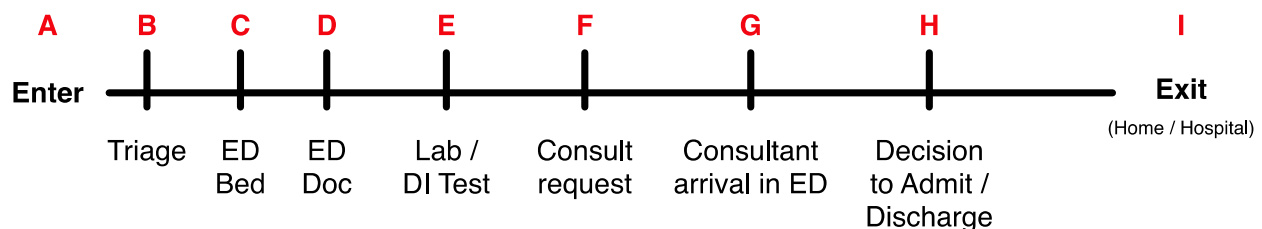
The time that it takes a patient to go from Step A (entry to the ED) to Step H (when a decision is made to admit or discharge a patient) is considered the 'throughput time'. The time between steps H and I – for

admitted patients – reflects issues regarding output (see below). In this analysis it was not possible to carry out a detailed analysis of different throughput times because of the limitations of the available data. The length of time patients wait to see a physician after first contact (triage) is shown in Figures 19a (Edmonton) and 19b (Calgary). The Calgary time is subdivided into time to a bed (white), or Steps A to C, and from bed to a physician (purple), or Steps C to D. Although these times would appear relatively short, they are actually excessive compared with the Canadian guidelines (as has already been highlighted in Figures 5 to 7). The time taken to make a decision to admit or discharge a patient is on average four to five times as long as the total of Steps A to D and represents six to seven hours. This time is similar in Edmonton and Calgary (Figures 19a and 19b, beige bar segment) and there has been little change in this time over the past six years. Based on the analysis of lab and DI waiting times it would not appear that a substantial portion of this time is spent by the patient waiting for laboratory testing or diagnostic imaging. As well, a major component of the duration of time from first physician contact until a decision to admit is the time spent waiting for a consulting service to respond to the request for involvement in a patient's care and then the time it takes for the service to make a decision about what to do with the patient.

Figure 19a. Average time spent in different stages by patients visiting Edmonton city adult hospital emergency departments who were admitted to hospital by fiscal year

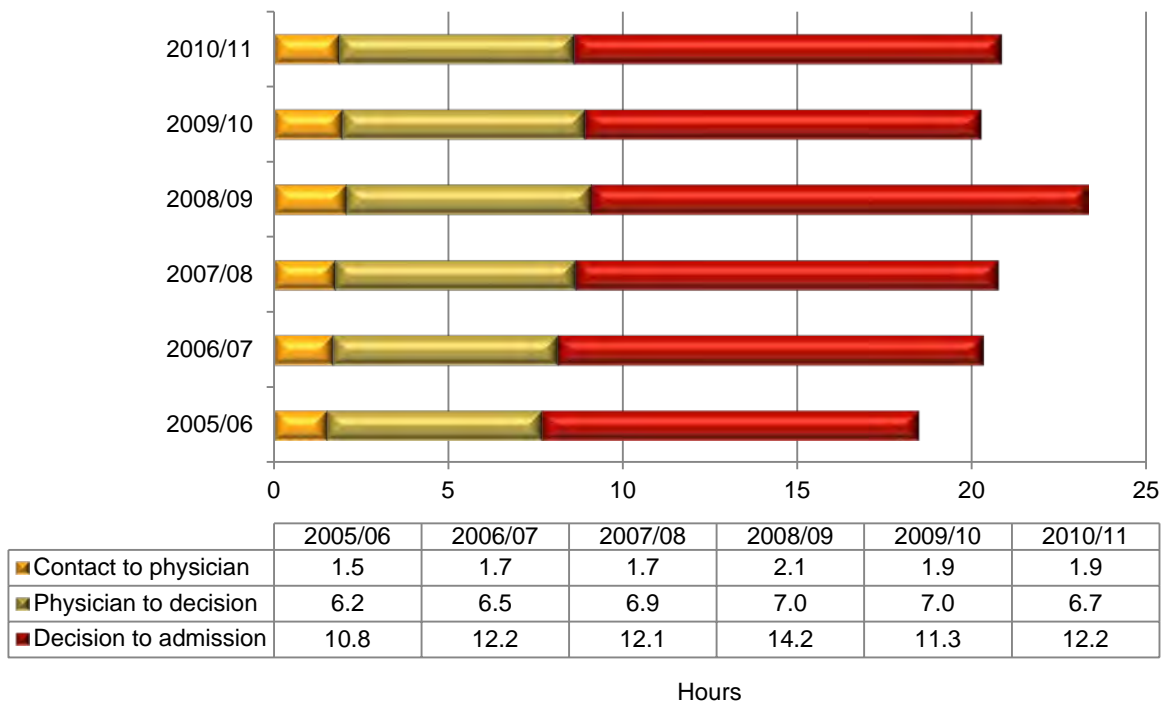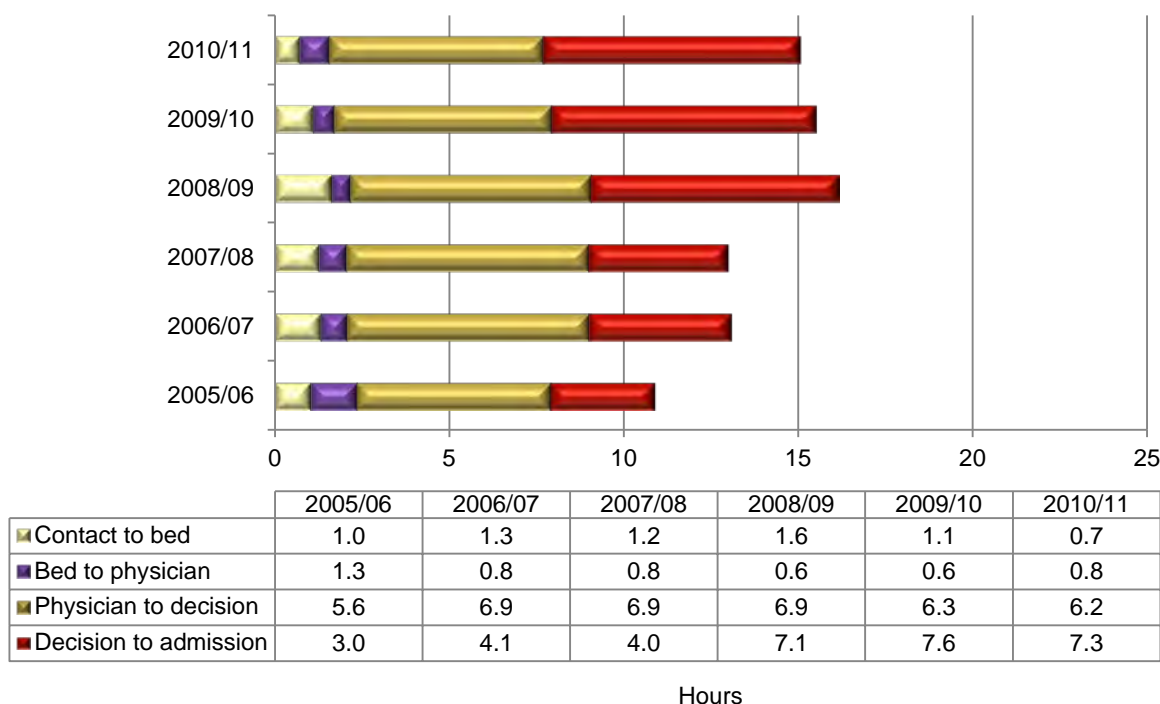|	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Contact to physician	1.5	1.7	1.7	2.1	1.9	1.9
Physician to decision	6.2	6.5	6.9	7.0	7.0	6.7
Decision to admission	10.8	12.2	12.1	14.2	11.3	12.2

Hours

Figure 19b. Average time spent in different stages by patients visiting Calgary city adult hospital emergency departments who were admitted to hospital by fiscal year


	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
▨ Contact to bed	1.0	1.3	1.2	1.6	1.1	0.7
▪ Bed to physician	1.3	0.8	0.8	0.6	0.6	0.8
▪ Physician to decision	5.6	6.9	6.9	6.9	6.3	6.2
▪ Decision to admission	3.0	4.1	4.0	7.1	7.6	7.3

Hours

Output

Waiting for an inpatient bed

Over the past five to six years, the time from when a decision is made to admit a patient until the patient leaves the ED to go to an inpatient unit has been 30 to 40 per cent longer in Edmonton than in Calgary (Figure 8; Figures 19a and 19b). Both the total amount of time spent waiting for an inpatient bed and the percentage that this represented of total ED length of stay substantially increased in fiscal year 2008/09 in both cities. Historically, in Edmonton, the Misericordia Community Hospital and the Grey Nuns Community Hospital have had the longest ED lengths of stay for patients admitted to hospital (10 to 25 per cent longer than the UAH or RAH). This is important because the time that a patient spends waiting for an inpatient bed adds nothing of value to the care that patient receives and indeed takes away from the care's value because of delays in treatment as well as the general discomfort endured by the patient while in a crowded ED versus a bed on a quieter nursing unit. In addition, the fact that the patient remains in the ED means that the space is not available for another patient and is therefore a waste of limited ED resources. Furthermore, although information was not specifically sought about this topic, in some EDs difficulties arise when ED nurses are expected to function as nursing unit nurses and to provide what is often considered to be specialized inpatient nursing skills in which they may not have training or experience. In response some hospitals have moved inpatient nurses into the ED to care for EIPs. While this helps the ED, the nursing units then suffer relative shortages in staffing and a decline in morale. Although fewer than 20 per cent of ED patients are admitted (19.8 per cent in Calgary; 15.6 per cent in Edmonton; 12. 2 per cent in Chinook Health Region), these 'admitted' patients occupy a disproportionate amount of ED bed space (40 to 45 per cent). This is shown in Figure 20. Although data for the fiscal year

2010/11 is shown, the relative percentage of bed hours for admitted patients versus non-admitted patients has not changed substantially over the past six years.

Figure 20. Per cent of city adult hospital emergency department patients who are admitted to hospital and per cent of total ED patient time that admitted patients used (fiscal year 2010/11)

	Edmonton	Calgary
■ % of Visits	15.7	19.8
■ % ED Capacity Utilized	42.2	44.8
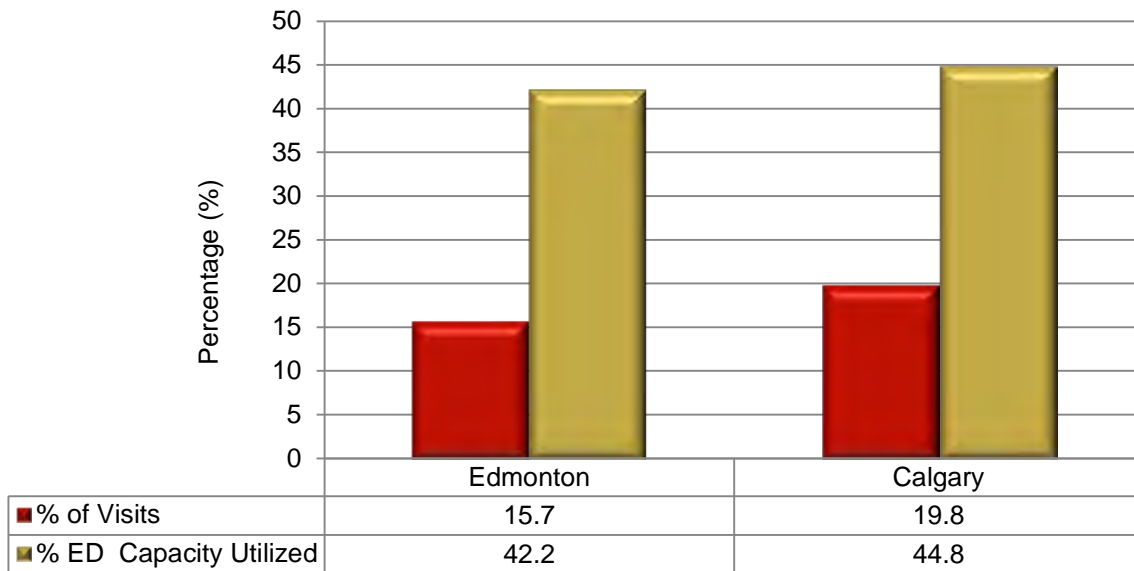
Consistent with other reports[16,17,18,49,50,51,52] and the experiences of ED Medical Directors,[5] issues related to output in Edmonton and Calgary represents the major factor leading to ED crowding and extended wait times. Admitted ED patients waiting for an inpatient bed are typically referred to as boarded patients or emergency inpatients (EIPs). These patients occupy ED bed space that could be used for newly arriving patients. The number of beds that EIPs used is shown in Figure 21a (Edmonton) and 21b (Calgary). This number is calculated at a single point in time of the day (12:00 pm), just as EDs are facing the highest number of patients presenting each hour (or patient arrival rate). Figures 21a and 21b show that at noon, on 20 per cent of the days, there would be at least this number of EIPs in the EDs. The number of EIPs has been relatively constant at the Grey Nuns Community Hospital and Misericordia Community Hospital over the past six years. Although these two hospitals have lower total numbers of EIPs than do the other acute care sites in Edmonton and Calgary, as a percentage of total ED beds in the hospital they are similar. Starting in 2008 and continuing until the end of fiscal year 2010/11, about one-third of available ED beds in Edmonton and Calgary's major acute care sites were unavailable 20 per cent of the days of the year (70 days) at the beginning of the busiest time in the ED because of EIPs.

> *Over the past five to six years, patients in Edmonton EDs are waiting 30 to 40 per cent longer than ED patients in Calgary to be moved to an inpatient unit after a decision is made to admit them.*

Figure 21a. 80th percentile of number of occupied city adult hospital emergency department beds taken by emergency inpatient (EIP) patients at 12:00 noon by site and fiscal year quarter – Edmonton
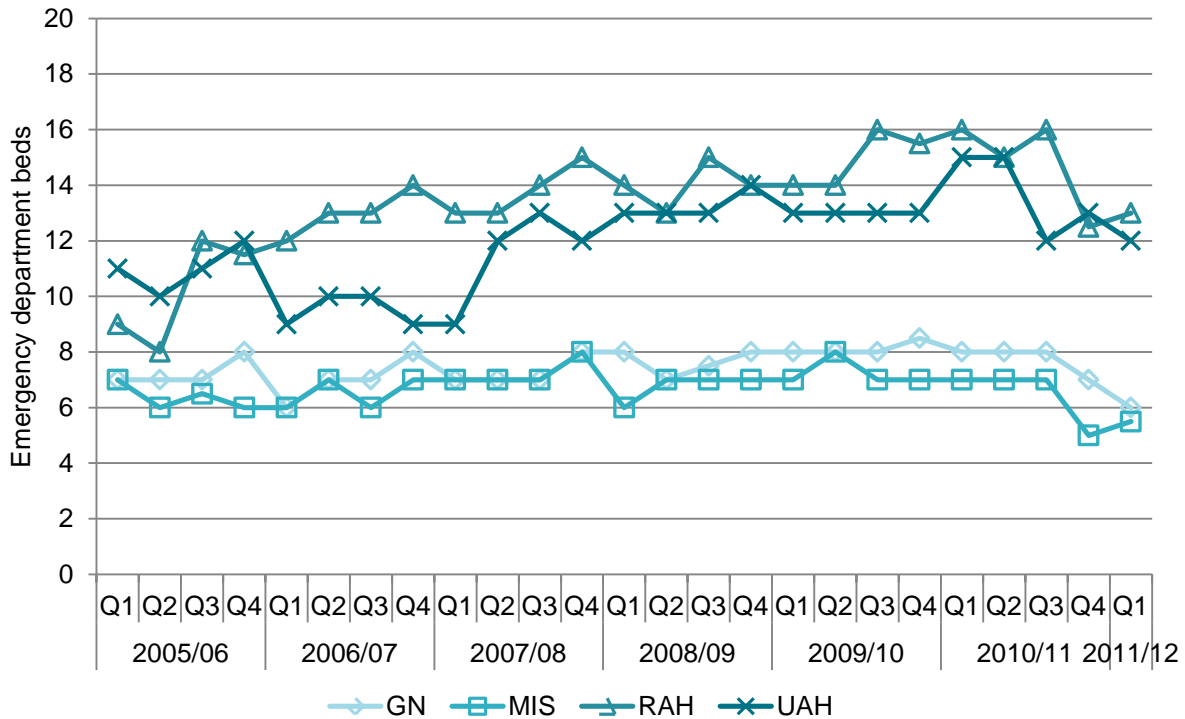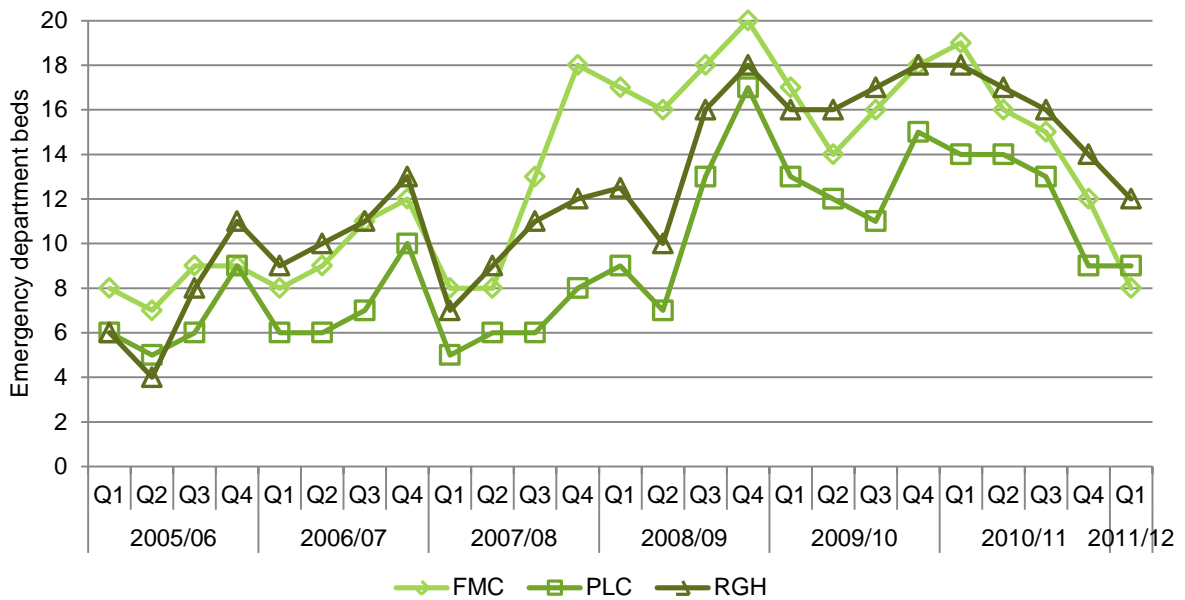

Figure 21b. 80th percentile of number of occupied city adult hospital emergency department beds taken by emergency inpatient (EIP) patients at 12:00 noon by site and fiscal year quarter – Calgary

Several health systems have established targets for ED LOS. The National Health Service in the UK set four hours as the maximum LOS for all ED patients; Ontario set targets of four hours and six hours, similar to Alberta's four hours and eight hours for discharged and admitted patients, respectively. In

2010/11, if Edmonton's acute care ED sites had reduced the LOS of EIPs from 11 hours (Figure 19a) to one hour (which would have taken them close to the target total ED LOS of eight hours) then the number of ED bed hours 'freed up' would have been approximately 385,000 hours or the equivalent of 44 ED beds. In Calgary, this same exercise would have freed up 240,000 hours or the equivalent of 27 beds.

The delay in ED patients being able to access an inpatient bed when the decision has been made to admit them represents the greatest constraint (or 'tightest bottleneck') and is therefore the issue that needs to be addressed first. Until this issue is resolved, all other efforts to improve efficiency and reduce the waiting times and lengths of stay of patients in the ED will have limited benefit. Thus, the focus of efforts to address ED waits and delays is dependent on how a healthcare system manages its hospital inpatient beds. Occupancy rates have to be low enough to be able to deal with the inevitable variability experienced in the demand for this resource. Optimal average occupancy rates are estimated to be approximately 85 per cent.[53] When a system has very high inpatient occupancy rates it becomes gridlocked and inefficient.

Occupancy of acute care beds

Acute care inpatient capacity in Edmonton and Calgary has been problematic for many years, peaking in 2008 (Figures 22a and 22b). In Edmonton, the Misericordia Community Hospital and the Grey Nuns Community Hospital experienced close to 100 per cent occupancy for several years. The inpatient occupancy rates for Calgary's hospitals were notably higher than Edmonton's between 2006 and 2010, especially when comparing the larger sites. In contrast Chinook Health Region kept inpatient occupancy rates below 90 per cent (Figure 22c).

Figure 22a. Edmonton city adult hospital inpatient bed occupancy rates by fiscal year

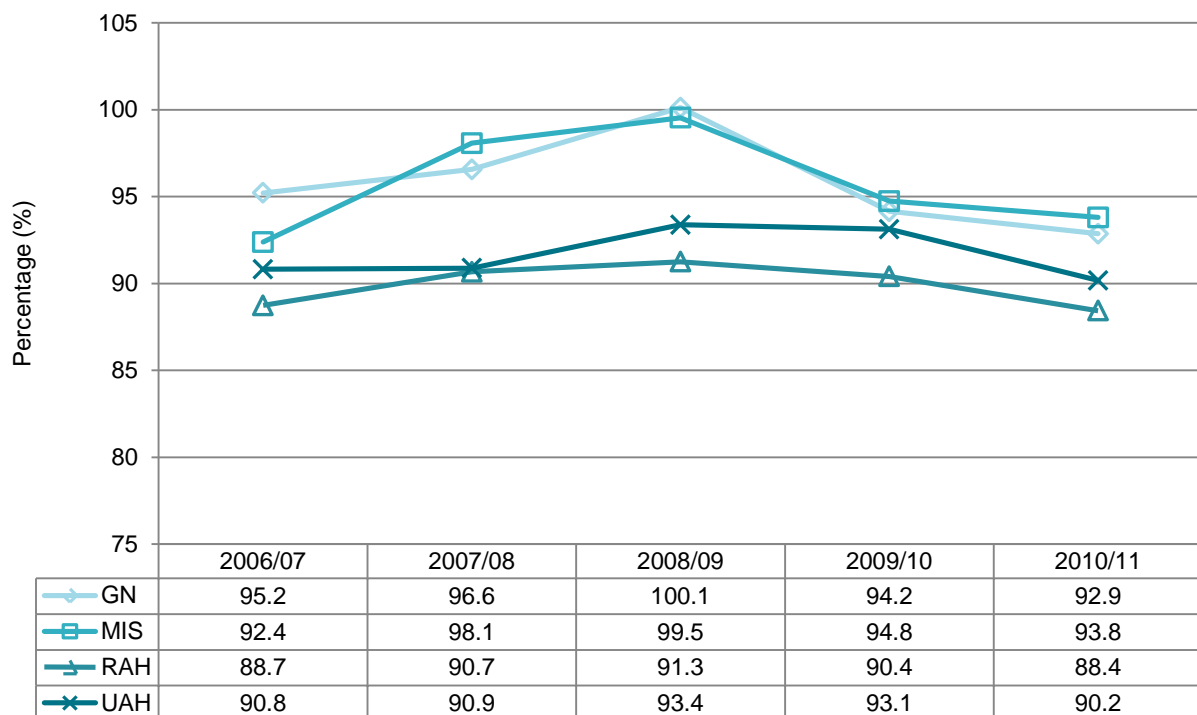|	2006/07	2007/08	2008/09	2009/10	2010/11
GN	95.2	96.6	100.1	94.2	92.9
MIS	92.4	98.1	99.5	94.8	93.8
RAH	88.7	90.7	91.3	90.4	88.4
UAH	90.8	90.9	93.4	93.1	90.2

Figure 22b. Calgary city adult hospital inpatient bed occupancy rates by fiscal year

	2006/07	2007/08	2008/09	2009/10	2010/11
FMC	94.8	96.2	100.8	98.7	96.5
RGH	90.3	94.8	99.7	98.7	96.6
PLC	88.9	93.0	98.5	99.0	95.4

Figure 22c. Chinook Regional Hospital inpatient bed occupancy rates by fiscal year

	2006/07	2007/08	2008/09	2009/10	2010/11
Chinook	88.0	87.0	88.0	85.0	84.0
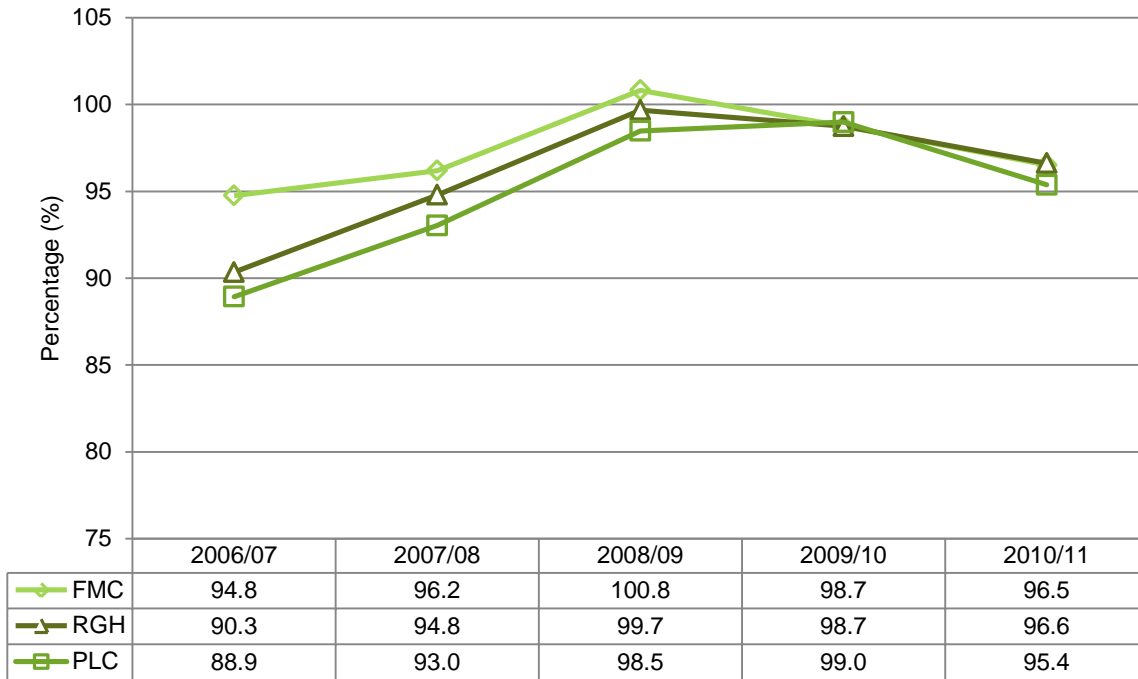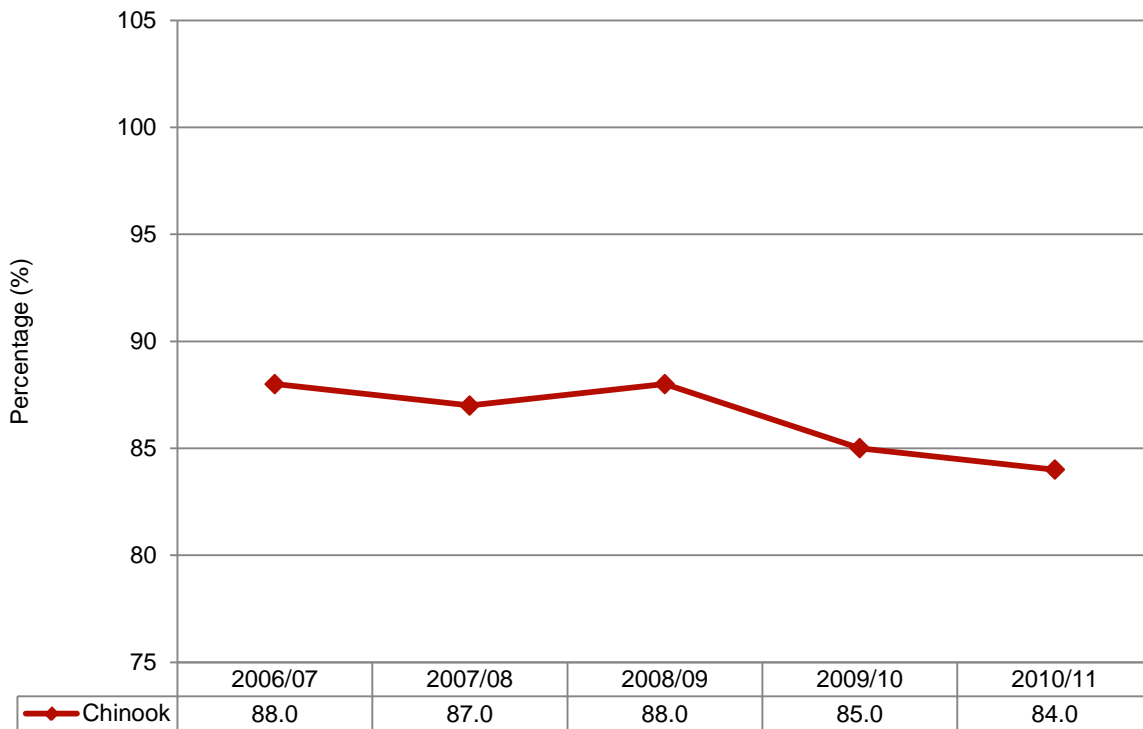
Number of acute care beds and their use

Occupancy rates are a function of the number of acute care beds, patient demand for the beds, and LOS. Figure 23 shows the number of acute care beds per thousand population in Edmonton, Calgary, and Lethbridge[iii] and how these numbers have fluctuated over the years. The former Chinook Health Region purposely reduced its number of acute care beds in 2003 to free up funds that could then be used to invest in increasing the number of supportive living spaces. Despite the reduction in acute care capacity, Chinook Health Region was able to achieve and maintain desired inpatient occupancy rates (Figure 22c) by focusing on strategies that reduced LOS for patients.
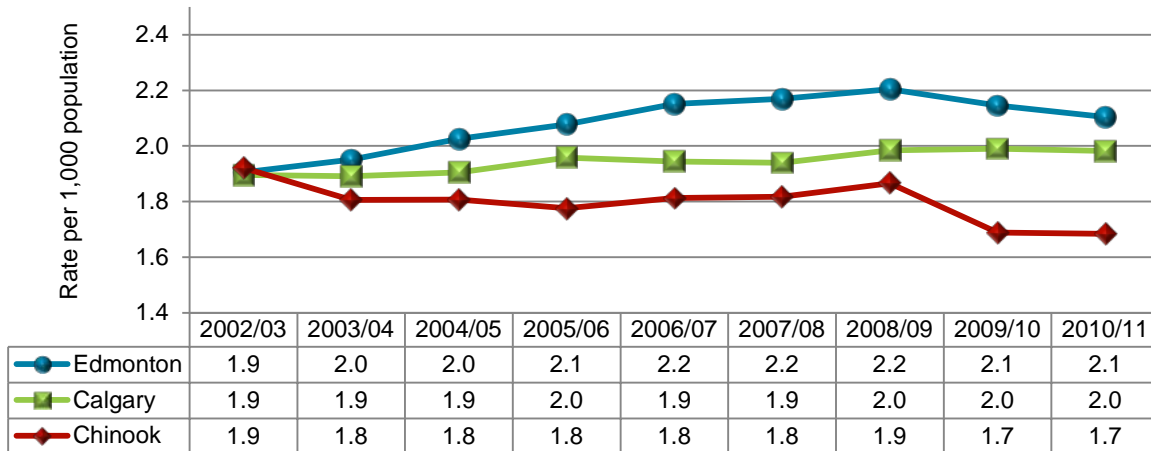
Figure 23. Number of acute care beds per 1,000 population by fiscal year and region/zone

	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11
Edmonton	2.4	2.5	2.5	2.6	2.8	2.7	2.9	2.9	2.9	2.9	3.0	3.1	3.0	3.0	2.9	2.9
Calgary	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	2.1
Chinook	3.0	3.0	3.0	2.9	2.9	2.9	3.0	2.4	2.6	2.5	2.5	2.6	2.5	2.5	2.3	2.3
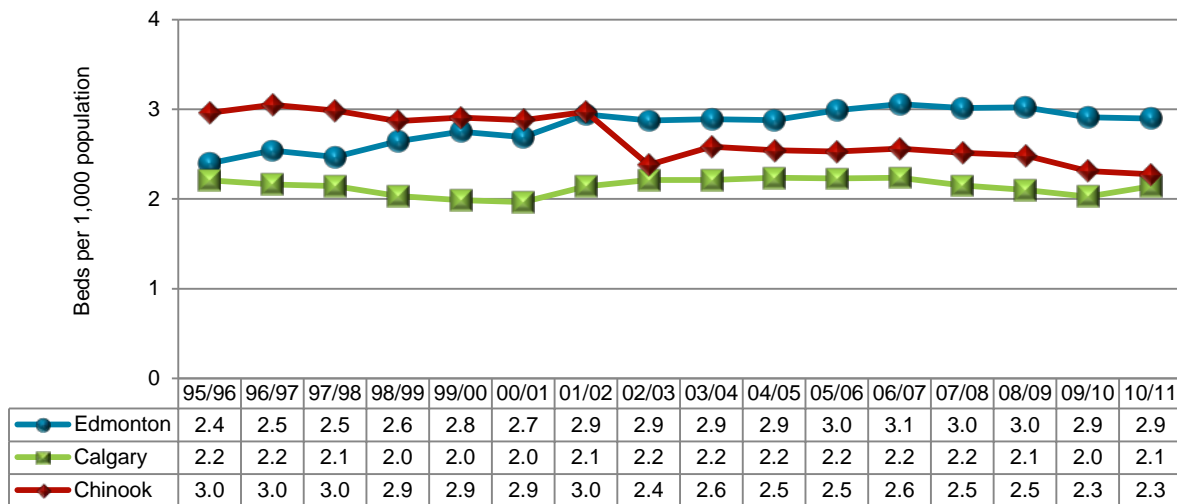
Requirements for acute care bed capacity are primarily related to the population of patients that a region or zone serves; however, some of the acute care beds in Calgary and Edmonton are used for patients from outside that region or zone. Edmonton provides this service to a larger population of 'out-of-region' patients than does Calgary. In contrast, Chinook Health Region sends more of its patients to other regions for specialized care and therefore, on the basis of the population served (actual numbers of local patients to whom care is provided locally), Chinook Health Region requires fewer beds than Edmonton or Calgary. The data in Figure 23 are adjusted to the number of people in the local population. Similar data are shown in Figure 24, although those data are also adjusted for the number of 'out-of-region' patients (imports) looked after and the number of people sent to another region (exports) for care. The data are also adjusted for age since an older population requires more beds. The latter calculation is achieved by reviewing yearly the number of acute care beds that a fixed number of patients of a certain age would require. The data from Figure 24 shows that, once adjusted for import/export patients and age, Edmonton used more acute care capacity when compared to Calgary or Chinook Health Region.
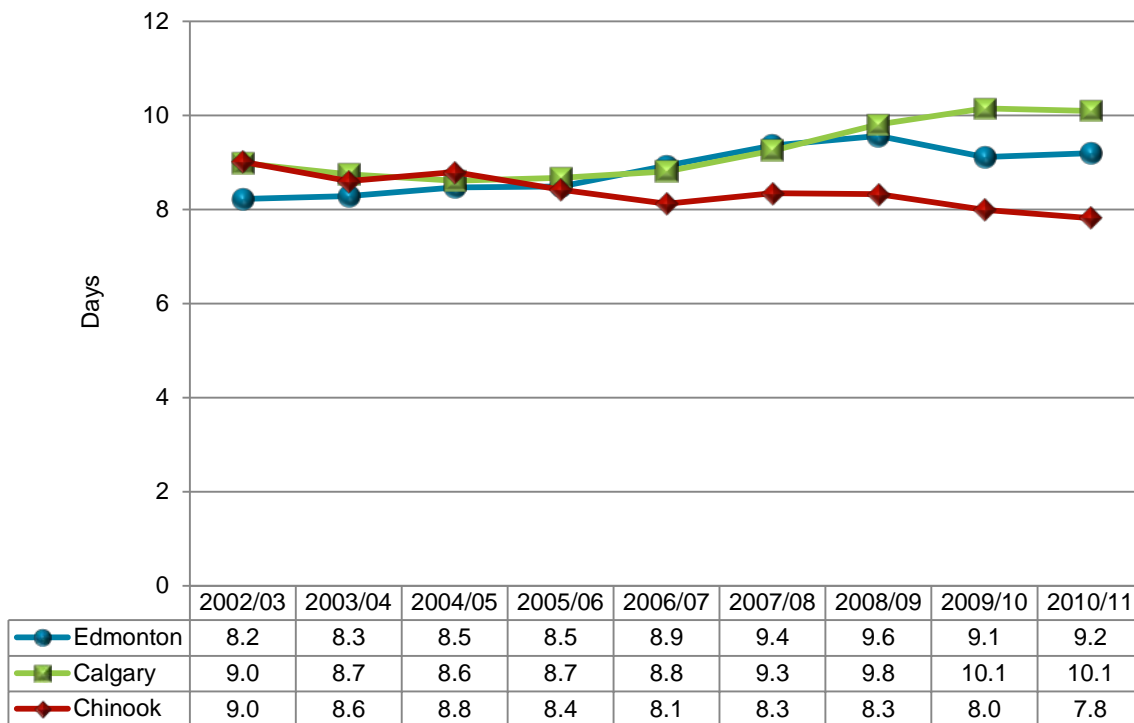

[iii] 'Lethbridge' refers to the Lethbridge hospital only. 'Chinook' refers to the former Chinook Health Region or its geographical equivalent under today's organizational structure.

Figure 24. Number of acute care beds used per 1,000 populations, adjusted for age, gender, and for import / export patients by fiscal year and region/zone

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	1.9	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1
Calgary	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.0
Chinook	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.7	1.7

Chinook was able to maintain its lower occupancy rates because of lower average length of stay (ALOS) when compared Calgary and Edmonton (Figure 25). Chinook was also able to reduce its ALOS over the past eight years, unlike Calgary or Edmonton where ALOS steadily increased (which functionally reduces inpatient bed capacity).

Figure 25. Average length of stay for patients admitted to city adult hospitals by fiscal year and region/zone (excluding maternal/newborn)
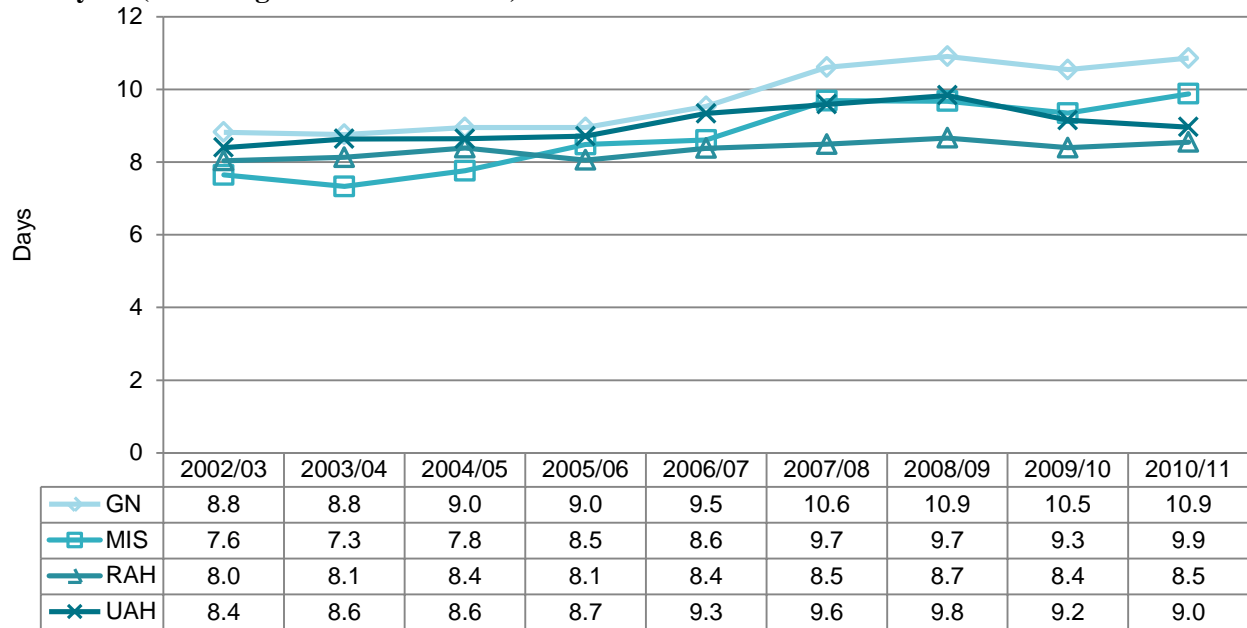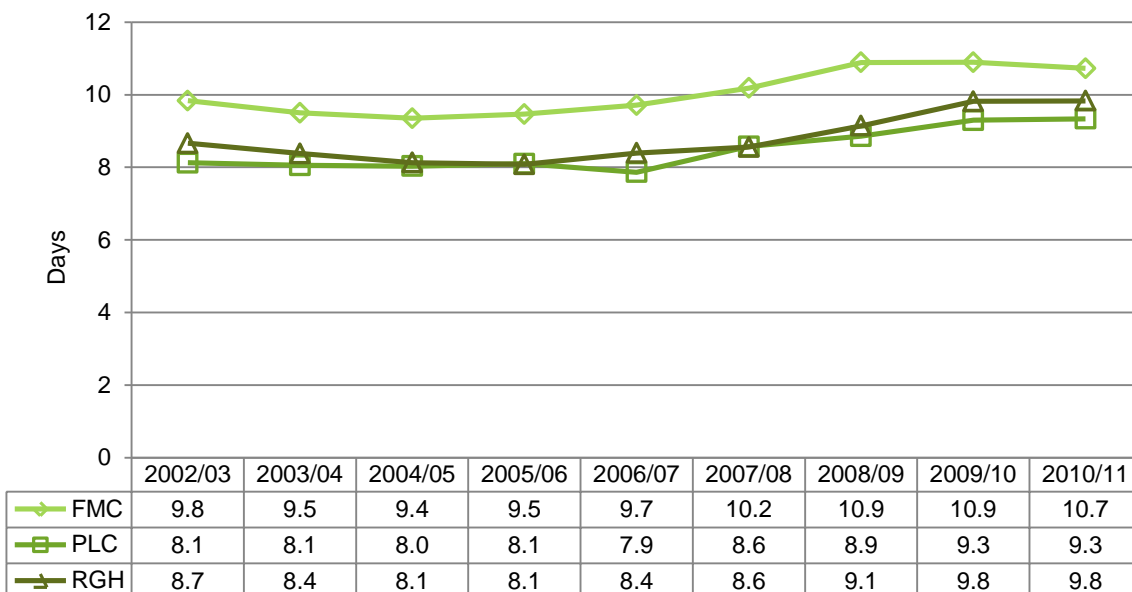

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	8.2	8.3	8.5	8.5	8.9	9.4	9.6	9.1	9.2
Calgary	9.0	8.7	8.6	8.7	8.8	9.3	9.8	10.1	10.1
Chinook	9.0	8.6	8.8	8.4	8.1	8.3	8.3	8.0	7.8

ALOS was calculated after excluding maternal/newborn cases because the UAH does not have an obstetrics unit. Calgary and Edmonton have had similar ALOS over most of the past eight years although there has been a decline in Edmonton's in the past two years. When the ALOS in Calgary and Edmonton

is corrected for patients transferred from a major urban hospital to a sub-acute care facility or rural hospital the ALOS for the two cities was the same.

In the 2010/11 fiscal year there is variability in ALOS among Edmonton and Calgary hospitals (Figures 26a and 26b). The UAH has shown a decline in ALOS in the past two years compared to other Edmonton hospitals, coincident with the implementation of its Care Transformation project. Although the UAH has more complex patients, its ALOS is lower than the community hospitals. In Calgary, as expected, the Foothills Medical Centre has the highest ALOS, which in part reflects the more complex patient population at that facility.

Figure 26a. Average length of stay for patients admitted to city adult hospitals in Edmonton by fiscal year (excluding maternal/newborn)

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
GN	8.8	8.8	9.0	9.0	9.5	10.6	10.9	10.5	10.9
MIS	7.6	7.3	7.8	8.5	8.6	9.7	9.7	9.3	9.9
RAH	8.0	8.1	8.4	8.1	8.4	8.5	8.7	8.4	8.5
UAH	8.4	8.6	8.6	8.7	9.3	9.6	9.8	9.2	9.0

Figure 26b. Average length of stay for patients admitted to city adult hospitals in Calgary by fiscal year (excluding maternal/newborn)

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
FMC	9.8	9.5	9.4	9.5	9.7	10.2	10.9	10.9	10.7
PLC	8.1	8.1	8.0	8.1	7.9	8.6	8.9	9.3	9.3
RGH	8.7	8.4	8.1	8.1	8.4	8.6	9.1	9.8	9.8

When the ALOS data are analyzed in more detail by looking at four common medical conditions for which patients are treated, Lethbridge has notably lower ALOS for all four (Table 7).

Table 7a. Average length of stay in 2008/2009 fiscal year for patients with common medical conditions

Condition	Edmonton			Calgary			Lethbridge		
	No. of cases	Average Age (years)	ALOS (days)	No. of cases	Average Age (years)	ALOS (days)	No. of cases	Average Age (years)	ALOS (days)
Chronic Obstructive Lung Disease (COPD)	1,453	72	13.1	1,379	74	12.1	231	72	10.2
Pneumonia	1,152	61	12.7	1,303	66	12.2	349	56	9.0
Heart failure	888	77	14.4	896	78	14.3	179	79	14.2
Enteritis (bowel inflammation)	506	48	5.2	563	60	7.5	157	43	4.9

Table 7b. Average length of stay in 2010/2011 fiscal year for patients with common medical conditions

Condition	Edmonton			Calgary			Lethbridge		
	No. of cases	Average Age (years)	ALOS (days)	No. of cases	Average Age (years)	ALOS (days)	No. of cases	Average Age (years)	ALOS (days)
COPD	1,582	71	11.5	1,422	73	10.8	246	73	8.7
Pneumonia	1,306	60	11.4	1,414	67	12.9	348	54	7.6
Heart failure	1,032	79	14.4	1,043	78	15.9	181	80	9.5
Enteritis	537	52	5.7	639	59	6.2	205	32	3.4

If Edmonton or Calgary reduced the ALOS by half a day for patients with these four conditions only, then both cities would add an additional six beds. If they were able to do this for all patients with common medical conditions, or if they were able to reduce the number of ALC days, then they might be able to 'create' more than 100 additional acute care beds in each region/zone at no additional cost to the system.

How much acute care capacity is taken up by patients requiring an alternate level of care (ALC)? How has the number of ALC beds changed over time?

Patients who need an alternate level of care at another facility stay in hospital until a bed is available at the facility they need. ALC patients take up the critical percentage of beds that would allow lower occupancy rates and the ability of hospitals to better manage the variability in their demand. Over the past decade, Edmonton, Calgary, and Chinook Health Region have taken different approaches to building long term care and supportive living facilities. These different approaches in part explain the disparity in the

number of ALC patients in each respective region's acute care beds. Figure 27 shows the percentage of acute care bed days that are taken up by ALC patients in Edmonton, Calgary, and Chinook. The reduction of ALC bed days in Chinook starting in 2002/03 represents a planned strategy to convert acute care beds to supportive living and long term care beds. Edmonton, more consistently and to a larger degree, opened more long term care, supportive living and other types of ALC beds than did Calgary. Although Calgary did open some of these beds, it wasn't enough to match the demands based on the growth in the population aged 65 years and older (Figure 28). While Edmonton started with more of these beds and has opened more over the past six to seven years compared to Calgary, Edmonton has consistently had more ALC bed days (when adjusted for the population aged 65 years and older) except for 2009/10.

Figure 27. Per cent of city adult hospital bed days that are used by patients requiring an alternate level of care (ALC) by fiscal year and region/zone

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Edmonton	6.8	6.8	6.9	5.1	5.1	7.1	7.3	7.0	8.3
Calgary	3.8	2.4	1.8	2.2	2.3	4.5	5.8	7.6	5.8
Chinook	11.4	7.7	6.5	4.8	4.5	6.1	5.8	7.2	6.5
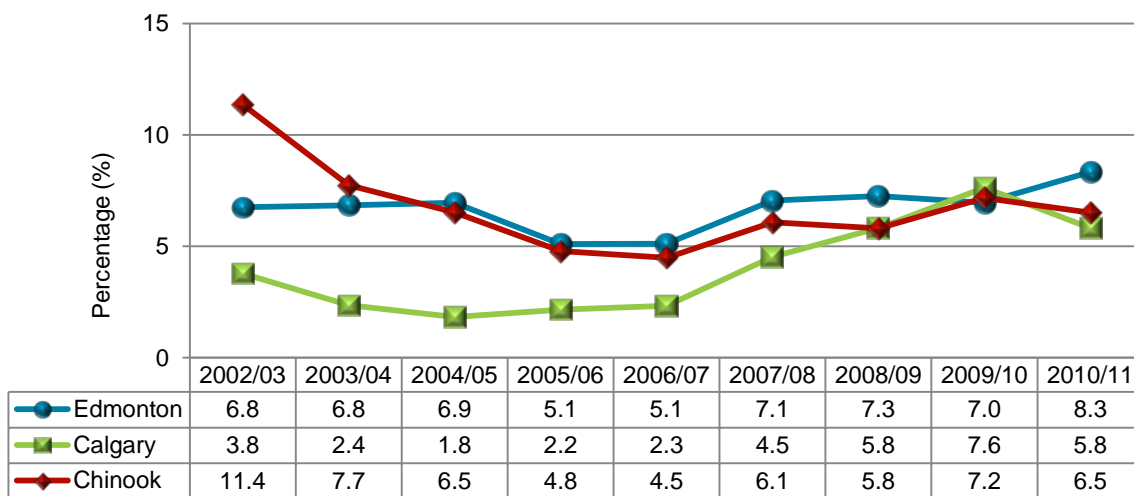
Figure 28. Long term care, supportive living, residential mental health, hospice and community support beds per 100,000 population aged 65 and older by fiscal year and region/zone
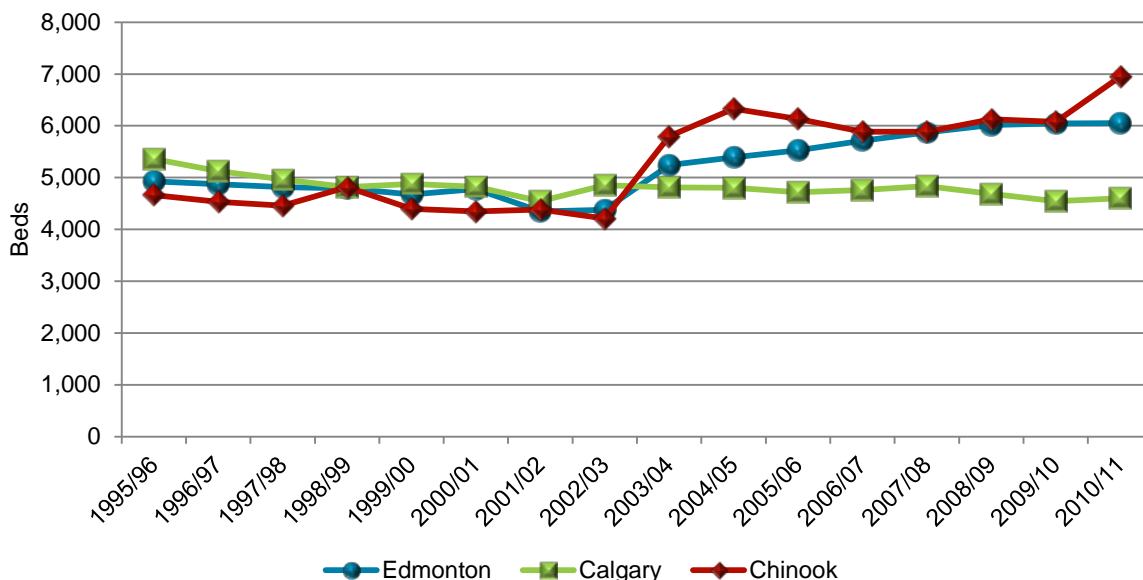
What is the source of demand for inpatient beds and how well do the regions manage variability in demand and variability in creating capacity?

When inpatient occupancy rates are very high (above 90 per cent) as in Edmonton and Calgary, managing variations in demand for services or resources is difficult, which then increases queue time and LOS. Another challenge with high occupancy rates is that the number of admissions (demand) has to closely align with discharges (capacity). Demand for inpatient beds comes from three major sources: patients admitted from the ED; patients admitted for scheduled procedures/treatment or investigations; and unscheduled patients transferred from another facility or outpatient clinics.

The pattern and sources of demand for hospital inpatient beds in Edmonton and Calgary is shown in Figures 29a and 29b. These figures, in which variability is depicted by the vertical lines, show two important features: (1) ED demand is much greater on weekend days than scheduled demand but they are almost equal during the week; and (2) more importantly, from the perspective of managing waiting, the variability in demand is much greater for scheduled admissions than for ED admissions. This is particularly evident on Mondays. In fact, this finding is a well-described paradox in many acute care institutions – the source of demand over which an organization has the most control (scheduled admissions) shows the greatest variability. The conclusion from this is that healthcare institutions in Calgary and Edmonton are not managing this variability for some reason. A key strategy for managing queues is to reduce (smooth) the variability in demand for a service.

Figure 29a. Average number of admissions at city adult hospitals by weekday and admission entry group in fiscal year 2010/11 – Edmonton
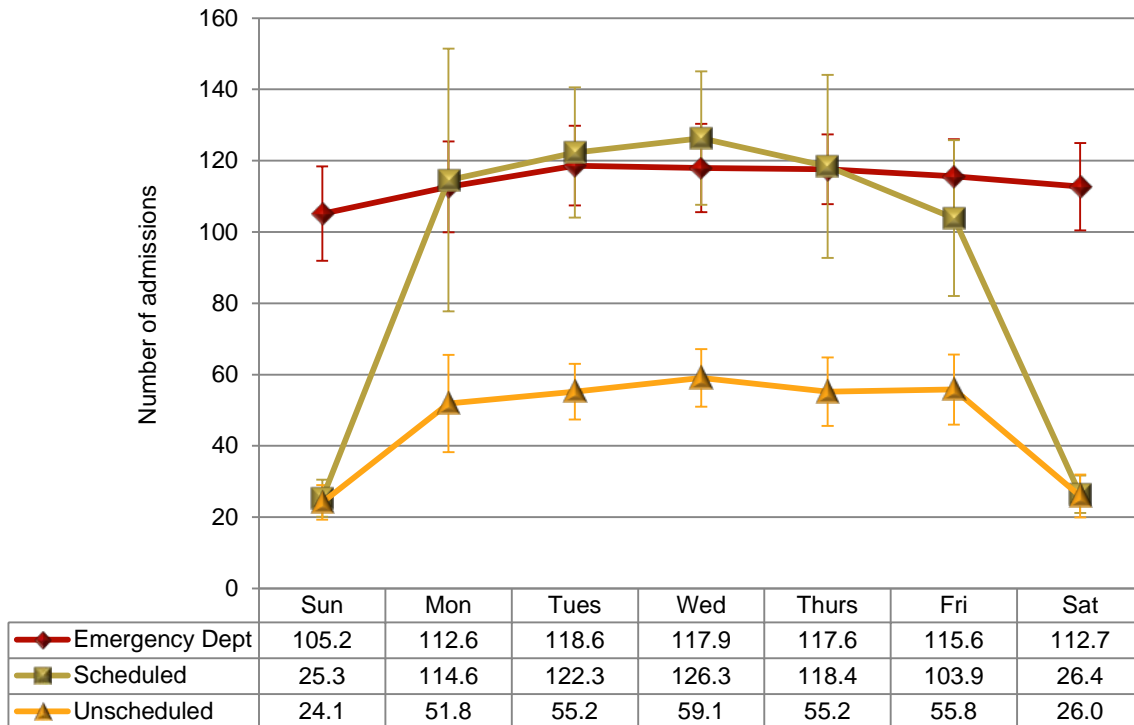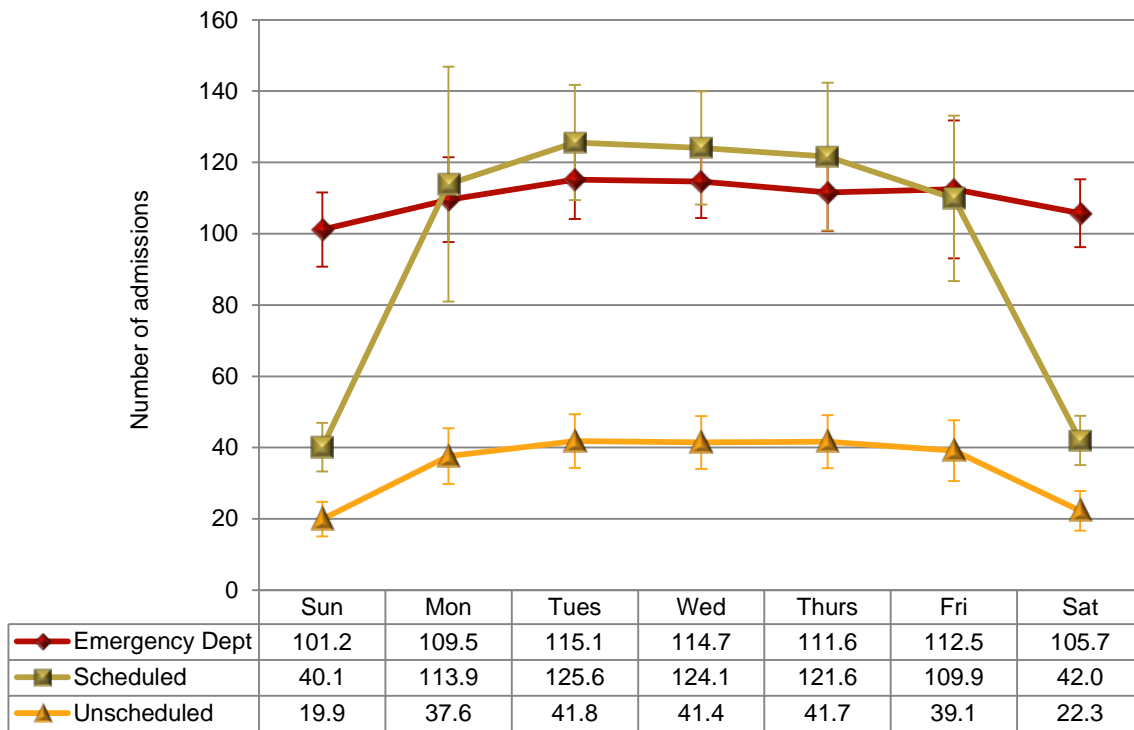

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Emergency Dept	105.2	112.6	118.6	117.9	117.6	115.6	112.7
Scheduled	25.3	114.6	122.3	126.3	118.4	103.9	26.4
Unscheduled	24.1	51.8	55.2	59.1	55.2	55.8	26.0

Figure 29b. Average number of admissions at city adult hospitals by weekday and admission entry group in fiscal year 2010/11 – Calgary

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Emergency Dept	101.2	109.5	115.1	114.7	111.6	112.5	105.7
Scheduled	40.1	113.9	125.6	124.1	121.6	109.9	42.0
Unscheduled	19.9	37.6	41.8	41.4	41.7	39.1	22.3

Another source of variability is that of matching demand and capacity. Average demand (number of admissions) exceeds number of discharges predictably on certain days. The daily difference (number of patients) between admissions and discharges is shown in Figure 30; more admissions than discharges are represented by bars on the positive side or upper area of the figure, while fewer admissions than discharges are represented by bars on the negative side or lower area. The pattern of admissions exceeding discharges on Mondays and Tuesdays and the reverse pattern on Fridays and Saturdays are seen in all three regions; however, this pattern is amplified in Edmonton and Calgary. The Chinook Health Region's lower occupancy rates would have allowed it to cope with this variability without it necessarily translating into longer waiting times for admitted ED patients. In Calgary and Edmonton, though, with their much higher occupancy rates, the scenario of admissions surpassing discharges would more than likely have led to a worsening of EIP length of stay and ED crowding.

> *Variability in demand is much greater for scheduled admissions than for ED admissions, particularly on Mondays. This is a well-described paradox in many acute care institutions—the source of demand over which an organization has the most control (scheduled admissions) shows the greatest variability. Healthcare institutions in Calgary and Edmonton are not managing this variability.*

Figure 30. Average difference in the daily number of admissions/discharges at city adult hospitals by day of week and region/zone in fiscal year 2010/11
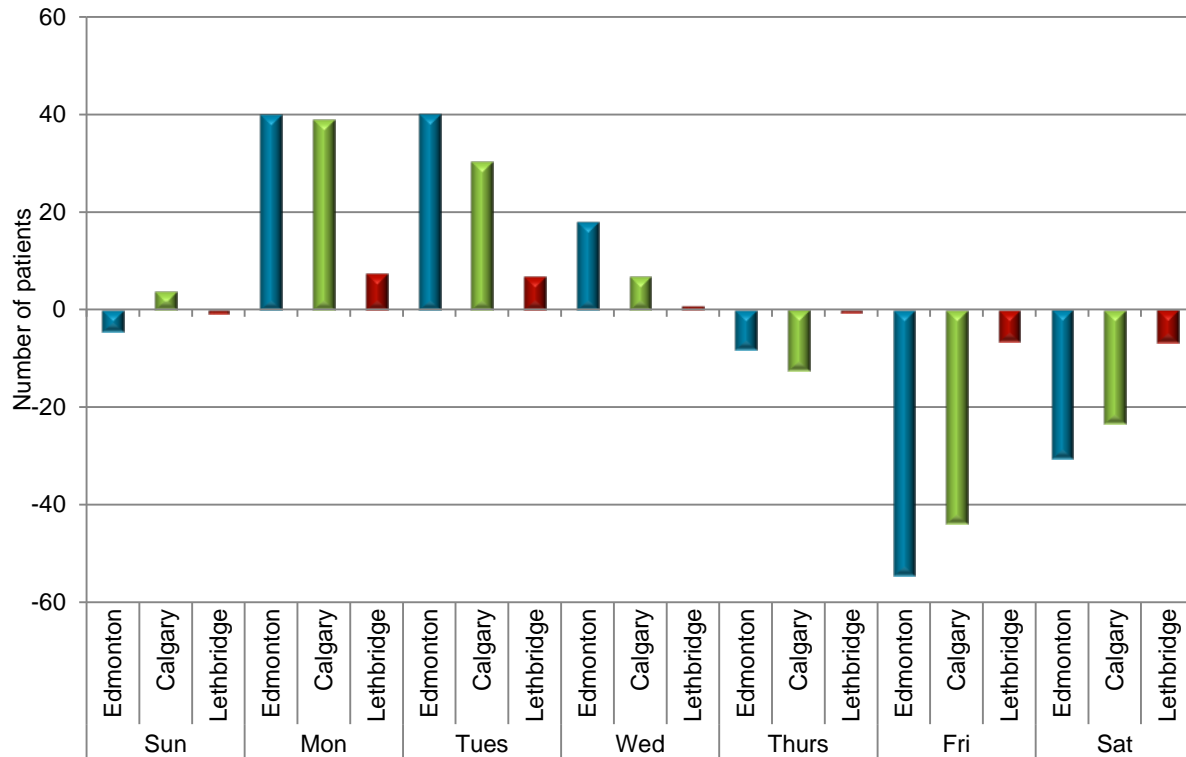
Best practice review

From its inception as a regional health authority in June of 1994 to its dissolution in 2009, the Chinook Health Region (Chinook) articulated a clear vision for a regional healthcare delivery model in which care was 'integrated' to meet the needs of its residents. That is, there was an explicit understanding that each of the individual components of the healthcare delivery system would be more effective, and greater health benefits would accrue to residents, if each component operated as part of an integrated system instead of independent silos of care delivery. Informed by the successes of the Veterans Administration (United States) in achieving exemplary levels of quality and patient safety, Chinook leadership sought to reduce costs and improve quality and safety. In so doing, Chinook serves as a model for the effective regional delivery of healthcare.

Chinook served a population of approximately 150,000 residents in southwestern Alberta. In late 2011, Chinook had 274 beds distributed through nine service areas: 64 medical, 64 surgical, 41 psychiatric, 25 postpartum/gynecology, 11 pediatric, 14 ICU, 20 NICU, 20 sub-acute, and 25 specialized geriatric.

In 2005, long waits in the ED (for assessment of patients by ED physicians) and subsequent queues were prevalent in Chinook. While some regional health authorities may have seen and addressed these as ED issues alone, Chinook saw these problems as symptomatic of an integrated system of care delivery that was not functioning effectively. Every morning there would be "sleep-overs" in the ED: patients attending the ED at night and needing inpatient care but for whom no inpatient bed was available. Chinook understood that, while changes could be made to the way care was delivered in the ED – and

indeed had been – if the changes were undertaken in isolation then any benefits would likely be short lived and, worse, might result in problems elsewhere in the system.

> *Chinook Health Region leadership sought to reduce costs and improve quality and safety. In so doing, Chinook serves as a model for the effective regional delivery of healthcare.*

ED congestion was not an isolated phenomenon in Chinook.[54] The acute care system was stressed and the staff were dissatisfied. There was unacceptably high occupancy on the inpatient units (90 per cent in surgery and 98 per cent in medicine); this constrained admissions, including patients from the ED. Inpatient beds were 'blocked', with ALC patients accounting for nearly seven per cent of patient days at one point. Additionally, 15 per cent of patient days were defined as 'off-service' (not on an inpatient unit that specialized in the clinical service the patients required).

The targets for improvement

Recognizing early on that improving ED patient flow and reducing ED LOS was dependent on addressing pressures in other parts of their healthcare system, the leadership of Chinook began evaluating opportunities for relieving pressure points across their system rather than focusing initially on the ED. To quote one of the leaders involved:

> **"You can measure how well your system is doing with the ED and inpatient performance metrics but that's the last place you would start to fix things."[iv]**

Community Care Services

Taking a system-wide approach to resolving its problems of ED crowding and inappropriate bed use, Chinook leadership sought to address what it determined to be the major factor: the lack of an appropriate mix of beds and services in the community to which patients could be discharged. If this was addressed, the backlog of (and future) ALC patients on the surgical and medical wards could be discharged sooner to an appropriate level of care. As documented by McIntosh-Murray and colleagues[41] Chinook leadership identified early on the need to increase the capacity and type of care available in the community. This being done, patients could be discharged from the acute care hospital into the right care at the right place and at the right time.

This strategy had the potential to remove or at least minimize 'blocked' beds, making them available for new admissions. This initiative was successful; in fact enough acute care beds were freed up in the region that some could be closed. In part, Chinook's approach was to close relatively costly long term care

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[iv] A corollary to this might be that by focusing on one element of a system—the ED for example—may have negative effects elsewhere in the system.

(LTC) beds and to increase the level of nursing care provided in lodges to reflect what was actually needed by patients. Chinook executive had determined that many of the region's LTC beds were not being appropriately used; in one review only 20 per cent of LTC patients were deemed suitably placed. Chinook made enhancements to its supportive living and assisted living arrangements to complement LTC beds.

Addressing patient flow within the hospital

A second element of the system-wide approach to performance improvement was Chinook's Hospital Flow Initiative. Initiated in 2006,[55] this project has been judged successful in improving the patient's journey into, through, and out of the Chinook Regional Hospital. Seven teams made up of frontline staff and managers, along with a leadership committee, examined every aspect of a patient's hospital experience. The teams identified problems with flow, safety, and quality and tested initiatives to make improvements. All areas of the hospital were engaged in this work. Importantly, this initiative became an integral part of everyone's job.

Chinook's operational improvement teams focused on intensive care, emergency, surgical services, inpatient beds, diagnostic imaging, laboratory, and patient outflow. Each group charted the patient journey through the hospital focusing on input, throughput, and output. The teams participated in learning sessions inspired by the Institute for Healthcare Improvement. The leadership committee developed the infrastructure needed to complete the work and reviewed proposals for quality improvement before they were implemented.

McIntosh-Murray and colleagues describe some of the flow initiative's interventions.[41]

- The ED team reviewed the data describing patient arrivals, identified predictable patterns, and adjusted physician shifts accordingly. As a result, the average waiting time for low acuity/urgency (CTAS IV and V) patients decreased by approximately 30 per cent.

- The surgery team reviewed operating room (OR) times for procedures and made changes, generating an additional 13.7 hours of OR time each week.

- The laboratory team looked at how it provided service to the nursing units; an extra courier was added to transport such items as blood samples and delivery time improved by approximately 50 per cent.

- The diagnostic imaging team reworked access to CT scanning and reduced waiting times from 32 days to four days for outpatients and achieved same-day access for inpatients.[55]

An overview of the results of the flow initiative shows a number of significant improvements,[54] most of which are sustained today:

- With regard to bed use, occupancy on the two surgical wards declined from 90 per cent in 2006/07 to 83 per cent in 2010/11. On the two medical floors, occupancy declined from 96 per cent to 91 per cent. In that same period the percentage of off-service patient days decreased from 11 per cent to six per cent, and the percent of ALC patient days was reduced from seven per cent to less than one per cent.

> *At Chinook Regional Hospital, seven teams made up of frontline staff and managers, along with a leadership committee, examined every aspect of a patient's hospital experience. The teams identified problems with flow, safety, and quality, and tested initiatives to make improvements. All areas of the hospital were engaged in this work. Importantly, this initiative became an integral part of everyone's job.*

As described above, the gains in ED and acute care performance were achieved through a system-wide integrated approach indicative of what has been labelled a high-performing healthcare delivery system.[46] This is characterized by a corporate vision for a continuous and comprehensive approach to improving quality and effective leadership from governance and management within a culture that engages all staff in achieving that vision. Chinook, since its inception in 1994 through to its assimilation into AHS in 2009, maintained its integrated region-wide focus on quality improvement. Chinook leadership sustained this vision over time and built trust between clinicians and managers at all levels, thus allowing and facilitating change to take place.

What set Chinook apart from other hospitals and regional health authorities facing acute problems with crowding and congestion is that Chinook sustained a belief that changes in the way care was delivered in the ED, while necessary to improve performance and safety, by themselves would not deliver the sought-after improvement in the quality of care across the region and across the continuum of care.

A second characteristic of a high-performing system that Chinook exhibited through its history is effective leadership, at the board and management levels, in a culture that engaged all staff. This characteristic was further described by Deloitte[56] in its 2007 review. Deloitte found evidence of visible leadership with a focused vision and strategy, a systems-thinking approach, and commitment to standardization and an integrated service delivery model.

Chinook culture – the attitudes and actions of all – was focused on patients' needs across the continuum of care. This is exemplified in the daily bed 'huddle', a short but highly operational meeting of managers from all areas within and outside the hospital, a practice that continues today. Those who cannot attend in person do so by phone. The explicit purpose of these meetings is to discuss patient flow and bed requirements in the hospital and in the community for that particular day. Should the total bed occupancy reach 95 per cent, a second huddle will be held to avoid unnecessary delays in patient care. Previously, each inpatient unit and department addressed, in isolation, its own needs for beds; the bed huddle has made patient flow across the system everybody's responsibility. The bed huddles reinforce Chinook's commitment to an integrated approach to care – key component of its culture.

Summary

While the literature on emergency department congestion and overcrowding describes many ED-specific interventions to improve quality, safety, and flow, this case study identified an alternative approach taken by a regional health authority in rural, southwestern Alberta that looked at each element of its delivery system in the context of the whole region. The approach and the successes enjoyed by Chinook are possible to achieve in larger urban or academic centres because the key elements of Chinook's success –

vision and leadership – can flourish in any environment as long as there is the will to do so. Chinook took its role as a health authority seriously and has been praised for its results. Others can learn from Chinook's success.

Postscript

With the disbanding of the Chinook Health Region in 2009 some staff engaged in the improvement initiatives left the system. Many remain and continue the work. At an AHS Board meeting in October 2010[55] the CEO reported that the performance improvements started in Chinook in 2006 had been sustained and that the quality processes remain in place in the AHS environment. The lesson is that system-wide quality improvement is possible; while making changes are not easy, the longer the problems are ignored then the harder the changes are to initiate.

> *What set Chinook apart from other hospitals and regional health authorities facing problems with crowding is that Chinook sustained a belief that changes in the way care was delivered in the ED, while necessary to improve performance and safety, by themselves would not deliver the sought-after improvement in the quality of care across the region and across the continuum of care.*

Literature review

The literature review covered different types of interventions and strategies over four broad areas: input, throughput, output, and system-wide. A brief summary of the findings is presented below; details of the findings can be found in Appendix VI. Brief descriptions of the intervention are italicized and enclosed in square brackets.

Input interventions

- Media campaigns/diversions: [*an effort by a health region to inform the public about the appropriate use of EDs.*] There is no evidence that media campaigns reduce visits to (or demand on) the ED.

- Telephone health line: [*a process whereby calls from people in the community are streamed through a central telephone service and are received, assessed, and managed by nurses following standardized protocols for advice or referrals to appropriate services*]. A systematic review published in 2009 and a study from Quebec were both reviewed; conclusions were similar: There is some evidence that this intervention reduces primary care visits but there is little evidence that it reduces the number of ED visits and some evidence that it actually increases the number of ED visits.

- Ambulance diversions: [*the practice of rerouting ambulances away from the closest ED; it is commonly used when an ED and/or hospital has exceeded its capacity to care for additional patients*]. A comprehensive, systematic review was published in 2006. This strategy appears to be a commonly used tool in the management of ED crowding but its effects are unclear; the strategy has been found to delay time to treatment for some time-sensitive conditions, such as myocardial infarction.

- Walk-in clinics: [*internal or external ambulatory clinics dealing with minor illnesses and injuries, where services in an ED may not be required*]. Research on this topic was difficult to identify; the notion that opening walk-in clinics represents a solution for ED crowding seems tenuous at best.

Throughtput interventions

- ED navigators*: [*non-healthcare professionals who assist patients coming into the ED before their assessment in an ED bed*]. There is no formal research evidence that could be identified that evaluated the impact of this intervention on lengths of stay (LOS) in the ED.

- Triage activities: [*triage staff, who are usually nurses, attempt to prioritize patients according to their urgency for medical care by assessing chef complaint, vital signs, and other details such as nature and duration of pain*]. The 2006 CADTH report[57] identified six studies examing the use of triage to address ED crowding. Two studies reported triage activities reduced waiting times; three studies reported that they increased them. Two studies reported a decrease in the number of patients who left without being seen and one study reported no change. The triage results are inconclusive.

- Triage nurse ordering: [*triage nurses initate laboratory and radiology tests for patients who have specific medical and injury presentations*]. In 2011 a comprehensive systematic review was published; a total of 14 studies were summarized. Methodologically all studies were judged as weak. The review concluded that there was some evidence that this intervention could reduce ED LOS, especially in cases of injury or suspected injury.

- Triage liaison physicians: [*physicians who work with triage staff to expedite the care of patients, based on medical need*]. A comprehensive systematic review was published in 2011 that synthesized 28 studies; 23 of these were judged to suffer from weak methodology. Based on two randomized controlled trials, physician triage reduced LOS in the ED, on average by 36 minutes compared with nurse-led triage, and one study showed a reduced time for initial physician assessment. While there is evidence that a TLP is an effective mechanism to mitigate the effects of ED crowding, more research is required before there is widespread implementation of this strategy as a mechism to reduce LOS in the ED.

- Rapid assessment zones (RAZ): [*units within existing ED space adapted for clinician assessment and procedure; patients can have their investigations started, wait for results, and/or receive treatment in a chair or a stretcher*]. In 2011 a comprehensive systematic review was published. Of the four studies that met predefined criteria for inclusion in the review, and only one whose methods were rated as moderately high quality, the conclusions were that low acuity patients (CTAS V) benefit (with reduced LOS) the most from an RAZ strategy; there is limited available evidence to support its implementation.

- Fast track areas for minor injuries/illnesses: [*a system that assesses and treats both acutely and minimally ill or injured ambulatory patients within an ED*]. A 2003 systematic review concluded that fast tracks were safe, did not compromise quality of care and were cost effective; however, it was acknowedged that the published literature was methodologically weak. For this report a literature search was conducted and no additional studies or information was found on this intervention. The conclusion was that there is some support (albeit the research is not robust) for a fast-track system in most high-volume urban EDs; however, the data are not applicable to rural EDs.

- Computerized physician order entry (CPOE): [*physicians directly entering orders (e.g. lab, imaging, medications, and consultations directly into a computer rather than giving verbal or written orders to other ED staff*]. No systematic reviews of this strategy were uncovered but there were several individual studies found via a search of the literature. Most of the studies focus on the barriers to the implementation of the CPOE (and change-management strategies to deal with these) but do not tend to focus on the benefits for ED patients. Only two studies were found that documented the impact of CPOE on LOS in the ED. To date there is sparse evidence that CPOE reduces LOS.

- Improving laboratory testing access: [*improving access/decreasing turnaround time for ED patients to laboratory testing*]. This element of care has been included in previous systematic reviews and additional studies were uncovered as part of this review. Point-of-care testing (lab tests performed in a lab set up in EDs rather than in a centralized lab) have been shown to reduce the turnaround time for obtaining lab results; however, there is limited evidence that such a service reduces LOS.

- Improving imaging access: [*improving access/decreasing turnaround time for ED patients to imaging studies, including timely radiologist reporting*]. No systematic reviews were uncovered that addressed this intervention; however, the concept has been included as part of a series of interventions. One study documented that having dedicated radiology staff and re-engineering the diagnostic imaging service reduced the time for patients to undergo these investigations. Still, the evidence that this approach leads to an overall reduction in LOS in the ED is lacking, though there is some evidence to support using this stategy to manage specific time-sensitive conditions (e.g., chest pain or stroke).

- Bedside ultrasound in the ED: [*small diagnostic units that can aid an ED physician in detecting fluid or blood in trauma victims or in patients with suspected aneurysms or fluid around the heart*]. There is reasonably robust evidence documenting the benefits of bedside ultrasounds for certain conditions and they do reduce LOS; however, it was thought that the significance of the findings may be controversial. On consideration, using bedside ultrasound more often was justified provided that issues of appropriate training and the monitoring of costs were undertaken.

- Nurse practitioners (NPs) in the ED: [*nurses with advanced training who participate with physicians in the care of patients*]. An American systematic review published in 2007 reported that several studies demonstrated reduced waiting times for patients that could be attributed to the presence of NPs. However, it was difficult to compare the studies directly or to combine results because of the mixed roles that NPs had in the different types of study designs. None of these reviewed studies had taken place in a Canadian setting. There have been isolated studies published in Canada that report reduced LOS for lower-acuity patients when NPs are involved and lower rates of patients leaving without being treated. The impact of NPs is likely context-specific and as a result the relevant literature remains limited.

- Physician/staffing models: [*strategies that attempt to adjust physician and nurse schedules to accommodate changes in volume of patients during a 24-hour period or day of the week*]. Studies of staffing changes have approached this question in unique ways, making it difficult to generalize results. In general these strategies have been found to reduce LOS in the ED, waiting times and patients who left without being seen. While there is support for volume-based staffing models, there are concerns about availability of well-trained and experienced emergency staff in North America, and without addressing other constraints (e.g., space to see patients) the benefit from increased staffing may not be realized. There is no high-quality evidence in support of this approach.

- Discharge facilitators*: [staff (usually nurses) who assist clinicians with details regarding discharge patient planning*]. There were only three limited studies that addressed this intervention; each used a different approach with different periods of follow-up. The specific nature of the study population makes it difficult to generalize about the effectiveness of discharge facilitators.

- Allied healthcare professionals*: [social workers who work in the ED and assist clinicians with details regarding discharge patient planning and social services on an as-needed basis*]. There were only a few quantitative studies on the role or impact of social workers in the ED, highlighting the lack of robust evidence about its effectiveness. As with other interventions, the use of social workers is very likely context-specific.

- Clinical practice guidelines/care maps: [*recommendations for patient management that are based on systematic reviews of research evidence and designed to help clinicians with clinical decision making*]. There is evidence of effectiveness in the acute care inpatient setting, but limited evidence that this approach reduces complications or LOS in the ED. Overall, topic-specific clinical practice guidelines, especially those with bedside tools such as care maps, may be most applicable and effective in an ED.

- Clinical decision rules: [*a decision-making rule, designed from original research, that incorporates three or more variables from the patient history, physical examination, or simple tests that help clinicians with diagnostic or therapeutic decisions at the bedside*]. These are unique components of clinical practice guidelines, often focusing on a specific diagnostic test or work up. The evidence for effective implementation of clinical decision rules is complex and the results are variable.

- Medical consultants in the ED: [*many consultations in the ED are with general medical specialists to assist in decision-making and/or to admit a patient to hospital*]. There has been limited research on consultations. A systematic review was published in 2008. Given the delays associated with consultation requests that have been identified in the literature, it would be expected that interventions to reduce consultation delays would greatly reduce LOS in the ED; however, based on available evidence, there is limited support for this type of intervention to date. A promising area appears to be that of increasing the interaction between ED physicians and hospitalists/general internists.

- Computerization: [*an information system dedicated to the ED that enables physicians to sign up for patients and track them through the ED journey*]. No systematic reviews dealing with ED information systems (EDIS) were identified; however, the literature search identified several qualitative studies and two relevant quantitative studies. Overall, EDIS appear to be effective in reducing LOS and the number of patients leaving without being seen, but the evidence is limited by the small number of studies and the variability in approaches; further research is required.

Output interventions

- Clinical decision units (CDUs)/observation units (OUs): [*specialized units designed to manage patients who require prolonged ED observation, investigation, and/or treatment*]. The available evidence on CDUs/OUs is limited by the small number of studies, poor study methodologies, and incomplete reporting. It is unclear if the efforts required to establish a CDU/OU will affect patient flow and LOS.

- Medical admission units (MAUs): [*short-stay unit in the hosptial that functions in coordination with the ED for admitted patients; patient stay is usually less than 48 hours*]. This type of intervention for improving patient flow is relatively new and therefore research evidence is scarce. What has been reported to date suggests MAUs may be effective for reducing ED and inpatient LOS; however, further research is required to determine if they are truly effective and economically feasibile.

- Full-capacity/over-capacity protocols (FCP/OCP): [*protocols that are implemented to transport admitted ED patients to temporary care spaces thereby freeing up some ED capacity; the protocols are implemented when predefined critieria for ED crowding are met*]. A comprehensive review was published in 2011 examing the effectivenes of FCP/OCP on ED crowding. One primary study and four studies of system-wide interventions that contained an FCP component have been reviewed. While some reports on FCP implementation are encouraging, there is limited available evidence to date to support FCP implementation.

- Inpatient bed capacity: [*the number of beds within a hospital, often reported as the percentage of beds occupied*]. There is consensus in the available literature that inpatient bed capacity is a significant factor in ED crowding. There does not appear to be any research published on interventions that increase inpatient bed capacity and its impact on LOS in the ED.

- Bed coordination: [*the daily allocation of inpatient beds and balancing the supply of beds with multiple sources of demand; often involves team meetings, dedicated bed coordinators, and/or electronic bed-tracking tools*]. Evidence is limited; what is currently available suggests that bed coordination and appropriate training may be effective in reducing ED crowding.

- Care maps/clinical practice guidelines (CPGs): [*recommendations for patient management that are based on systematic reviews of research evidence and that are designed to help clinicians with clinical decision- making*]. Although there is evidence that CPGs improve patient outcomes, their influence on hospital LOS is less understood. Current research is inconsistent regarding the effect of introducing CPGs within different hospital settings. The lack of adherence by physicians to CPGs, due to several internal and external barriers, has limited the effectiveness of these guidelines.

- Specialized inpatient teams responding to the ED: [*a specific inpatient service that provides a dedicated service to the ED*]. A single study of an acute care emergency surgery service being implemented in an Ontario teaching hospital (with before and after comparisons) showed reduced LOS for patients requiring general surgery consultation and improved overall ED crowding. Additional research is required about this promising approach.

- Increased long term care (LTC) beds: [*LTC beds provide secure settings with 24-hour nursing care and supervision*]. Since ALC (alternate level of care) patients use a lot of acute care beds (16 per cent in Ontario) they need to be considered when attempting to increase acute care inpatient bed capacity. No research studies were quoted that addressed the effect that increasing LTC/supportive-living facilities has on ED LOS; however, a positive effect is likely given that the two issues are tightly coupled.

- Inpatient discharge planning: [*discharge plans that are tailored to individual patients, the goal of which is to reduce LOS and unplanned readmissions to hospital*]. A systematic review was published in 2010 that included 21 studies (all randomized controlled trials) that compared individualized discharge plans to those with routine, non-individualized discharge care. Hospital LOS and

readmissions were significantly reduced in the group with individualized discharge plans, demonstrating that inpatient discharge planning is effective.

- Discharge lounges: [*areas within hospitals where admitted patients can be sent to wait on their day of discharge until arrangements (e.g., tranport, home-care interviews) can be made*]. No studies could be found that specifically evaluated the effect of this strategy on reducing LOS in the ED or general admissions.

System-wide interventions

- Multi-faceted interventions: [*a number of different interventions that are bundled together into a strategy that addresses ED crowding*]. A previous comprehensive review evaluated 29 studies, 15 of which originated from the United States. Only one study was rated as high quality. The available evidence is limited by variability of interventions, poor methodologies, and incomplete reporting.

- Pay-for-performance incentive models: [*an intervention in which providers (or their institutions) are rewarded for achieving a certain level of healthcare service*]. Despite the widespread implementation of 'pay for performance' in some healthcare systems, evidence from the limited research into its impact shows mixed results. Concern has been generated that such approaches may change the focus from the quality of healthcare delivered to the volume of services supplied.

- Accountability frameworks: [*a written document that articulates responsibilities and establishes clear expectations against which activities and productivity can be measured and results evaluated*]. There are no studies of this intervention used alone. As part of the rule in the UK of the 'four-hour LOS', an accountability framework was introduced for hospital administrators and staff. Physician remuneration in the UK and Canada are different, however, and in the UK accountability was part of a wider, multi-faceted intervention.

- Benchmarking/reporting: [*a process by which the performance of a unit is compared to similar metrics from similar units or to best practices from the healthcare field*]. No systematic reviews of ED benchmarking exist and no primary studies of the intervention were identified. It seems unlikely that benchmarking without accountability or consequences can be evaluated in isolation. The evidence for the effectiveness of public reporting is lacking.

CONCLUSIONS

There were two objectives specified in the Terms of Reference for the emergency department (ED) part of the HQCA review:

- To determine whether the quality of care provided to, and the safety of the group of patients who accessed services at the UAH and were identified by the ED physicians at the UAH, was significantly compromised due to extended lengths of stay awaiting diagnosis and treatment in the ED.

- Based on the findings and analysis of the investigation and an analysis of current practices, make recommendations for system-level improvements in access and wait times for ED care.

Conclusions regarding the group of UAH ED patients

- The waiting times to see an ED physician experienced by a significant percentage of ill patients (CTAS II and CTAS III) identified by the UAH ED physicians in 2008, 2009, and 2010, and those patients identified by the QAC, far exceeded (by 10 to 20 times) Canadian guidelines (Table 3a) and expectations previously identified by ED patients as being reasonable.

- Once patients were able to access care in the UAH ED the QAC, overall, had no concerns about the quality of care provided by physicians and nurses, other than the crowded and at times, inappropriate physical space in which the care had to be provided.

> *The crowded space, the excessive waiting times for care, and at times the suboptimal space available to provide necessary care compromised patients' margins of safety.*

- The crowded space, the excessive waiting times for care, and at times the suboptimal space available to provide necessary care compromised patients' margins of safety. The example of a patient – who was in the ED several days after being discharged from hospital (after cardiac surgery), left the ED after five hours without being seen because of the long waiting time and returned to the ED the next day just before suffering a cardiac arrest – illustrates how seriously safety margins had been compromised. In the list of patients identified by UAH ED physicians approximately one-third had time-sensitive conditions. These patients had similar waits for an ED bed and assessment by an ED physician as did the rest of the patients on the list, demonstrating that the system was incapable of responding faster for patients whose well-being was at more risk. This is additional evidence that the safety margins for these patients were substantially compromised.

- Although safety margins had been jeopardized, none of the patients identified by the UAH physicians or by the QAC died as a result of prolonged waiting in the ED. One patient, however, (as described above) met the QAC's definition of suffering serious harm due to excessive waiting.

- Patients who were suffering with pain waited unacceptably long times for medication due to the severe system crowding. Half of the patients with pain (which had been noted by the ED physicians) waited to receive analgesia for more than 4.5 hours and 20 per cent of these patients waited more than 7.5 hours from the time they first presented to the triage nurse.

- There were many unfortunate cases of patients whose goals of care were clearly palliative who had to accept care in the ED, some of whom died there. The needs of these patients, in the last few hours of

their lives, had to be met in a setting that was never designed to provide this type of care. It diminished them and only further burdened the ED.

> *Patients with time-sensitive conditions had similar waits for an ED bed and assessment by a physician as other patients on the list, meaning the system was incapable of responding faster for patients whose well-being was at more risk. This further shows how the safety margins for patients were seriously compromised.*

Conclusions regarding the findings about factors contributing to ED crowding

Conclusions are grouped into four major areas: (1) ED output factors; (2) ED throughput factors; (3) ED input factors; (4) research evidence. The areas are listed according to the most important factors related to ED crowding.

ED output factors

- The most serious constraint to patient flow in 2008 at the UAH hospital ED was emergency department inpatients (EIPs), as evidenced by their extremely long waits for an inpatient bed. Half of the admitted patients identified by the UAH ED physicians waited at least 10 hours and 20 per cent waited longer than 33 hours for an inpatient bed. This situation was not unique to the UAH; the other three Edmonton hospitals had similar (Misericordia Community Hospital) or much longer (Grey Nuns Community Hospital and Royal Alexandra Hospital) waiting times for an inpatient bed (Figure 9a).

- Over the past six years the average time that admitted ED patients spent waiting for an inpatient bed correlated closely with inpatient bed occupancy rates (Figure 19 and 22 respectively). This is strong evidence for the close relationship between ED waiting (and ED crowding) and inpatient bed occupancy. Although median wait times for an inpatient bed and numbers of EIP patients have declined in the past year (Figures 9 and 21 respectively), the waits are still unacceptably long. Until this most critical constraint (bottleneck) has been adequately dealt with, targets for ED wait times and crowding will not be met and patients will continue to wait much too long in the ED.

- The delay for ED patients in being moved to an acute care bed after a decision has been made to admit them is the greatest constraint and therefore the issue that needs to be addressed first. Until it is, all other efforts to improve efficiency and reduce waiting times and lengths of stay in the ED will have limited benefit. Thus, the focus of efforts to address ED waits and delays is dependent on how a healthcare system manages its hospital inpatient beds.

- High inpatient occupancy rates can be the result of too few beds, high demand, or inefficient use of the resource.

  - The number of required inpatient beds should be based on the sum of bed numbers for the different inpatient services in a hospital. This information was unavailable so it is impossible to comment on whether total bed numbers, or how they are apportioned between inpatient services in Edmonton and Calgary hospitals, are appropriate.

- The number of patients seen in Edmonton and Calgary EDs and the percentage of patients who are admitted to hospital has increased only slightly; therefore, the demand for inpatient beds from ED patients has been reasonably stable over the past six years.

- Previous reports suggested that the average length of stay (ALOS) in Edmonton hospitals was too high. This would effectively reduce hospital bed capacity. The analysis in this report found that the ALOS in Edmonton and Calgary was similar (Figures 25 and 26) and has been increasing over time (with the exception of the UAH over the past two years). In contrast, ALOS in Lethbridge decreased over the same time period.

- The number of inpatient beds that are used by patients queuing for supportive living and long term care facilities (alternative levels of care (ALC)) is approximately six to eight per cent (Figure 27), which represents an inefficient use of a critically limited resource that further contributes to high inpatient bed occupancy rates.

- Inefficient use of an important resource can result when there are no clear lines of accountability for managing it. There is no current accountability model for inpatient bed use that is structured around clinical inpatient services. Beds are managed at an organizational level but this is not the centre of control. A proper accountability model requires accurate, valid information by which to manage. Current information systems do not routinely capture or report performance such as inpatient occupancy rates by admitting service or LOS.

- The high degree of variability in the number of scheduled inpatient admissions in both Edmonton and Calgary contributes to overcapacity situations. Since scheduled admissions can be controlled by hospital administration, this variability suggests a lack of planning and/or information and models of patient flow that would allow more responsive management. There are three levels of planning and management required that do not appear to exist currently:

  - Long-term planning (months to years) that would specify the amount of resources required to meet certain levels of demand and performance. This planning would require a detailed 'bed map' (numbers of beds for each service in the hospital to meet the needs of their particular patient population).

  - Short-term planning (days) that would reduce variability and improve matching of demand and capacity. This planning would require detailed system models and information systems that would support such an activity.

  - Near-real-time management (minutes to hours) to foresee crises developing and allow quick implementation of strategies at the level of clinical services to avoid system gridlock. This management strategy would require a real-time information system that provides information on scheduled demand; non-scheduled (and non-ED) demand, ED demand, wait times, EIP numbers, wait times for inpatient beds, occupancy rates by inpatient service and unit, pending discharges, ALC patients, patients who do not require acute care treatment, and cycle (turnaround) times for key services, such as diagnostic imaging, for example.

- The full-capacity protocol (admitting ED patients to an extra bed on an inpatient unit when regular inpatient bed occupancy rates are at 100 per cent) was part of Capital Health's strategic ED crowding plan, first developed in 2006 and implemented in 2007. This is best thought of as a surge-

capacity plan to handle unexpected increases in demand for inpatient beds. If used in this way it should rarely be required. Although many people who were interviewed believed that implementing a more effective full-capacity protocol in the past 12 to 18 months has helped improve ED performance indicators, this protocol puts additional strain on an already over-burdened acute care system and should not be viewed as a long-term effective strategy. Although some measures have improved, such as ED LOS for admitted patients, the current results are similar to those from 2006, which at the time were deemed to be unacceptable.

- The promising practice at the UAH, the Care Transformation project, was found to be a good example of how improving efficiencies of medical services at the UAH can improve ED waiting times.

ED – throughput factors

- Notwithstanding the many bottlenecks that limit patient flow in the ED, one of the critical waiting times in the ED is the initial wait by a patient to be assessed by an ED physician; this is especially critical for patients with time-sensitive conditions. Sometimes it is unclear that a patient has a time-sensitive condition until a physician assesses the patient or until the patient has undergone some diagnostic imaging, laboratory, or other types of testing ordered by the physician. Before seeing a physician, a patient first waits to get a bed and then waits for the physician to come to the bed. If an ED is properly staffed with physicians who are not busy doing extraneous tasks, then the time from bed to assessment should be a few minutes. Yet, the data from chart reviews and administrative data from Calgary (the data from Edmonton were not available) suggest that patients wait in a bed for a physician often longer than 30 minutes and at times more than an hour. This indicates problems with proper staffing models that match physician supply with the predictable fluctuations in arrival rate of patients. The current reimbursement model (fee for service) for ED physicians provides incentives for them to be as busy as possible (100 per cent occupied), which does not allow the ED to cope with large variations in demand.

- There are currently different roles and models of care in place at the large metropolitan EDs in Alberta. Edmonton, before the creation of Alberta Health Services, implemented a triage liaison physician (TLP) role. Many EDs have created rapid assessment zones (RAZs); some EDs are trialling clinical decision units or medical assessment units. To date, the evidence for the effectiveness of most of these strategies is weak. Triage is an inefficient use of valued resources (physician or nursing): it uses experts to sort – rather than manage – patients. In a high-functioning ED system, triage would be unnecessary. Given the limited resources available for managing ED crowding AHS has an opportunity to determine value for investment and standardize the way that EDs function in Alberta.

- There is little or no accountability for the amount of time a consulting or admitting service (i.e., a specialist unit in the hospital) takes to respond to an ED's request for consultation/admission and there is no accountability for creating enough inpatient space for anticipated demand. For the ED-MD identified patients whose charts were reviewed, the median time from being assessed by an ED physician until being seen by a consultant was 3.5 to over five hours; the median time until a decision was made for admission was an additional three hours (with 20 per cent of patients waiting nearly seven hours). It is important to note that admitting/consulting services have many demands on their time so that the ED may not always be top priority. In addition, teaching hospitals usually have several

levels of trainees who come to the ED to assess a patient before final decisions are made regarding his or her needs.

> *There is little or no accountability for the amount of time a consulting or admitting service (i.e., a specialist unit in the hospital) takes to respond to an ED's request for consultation/admission and there is no accountability for creating enough inpatient space for anticipated demand.*

ED – input factors

- Increasing ED crowding and patient LOS in Edmonton and Calgary in the years evaluated for this report cannot be attributed to increases in numbers of patients presenting to the EDs. That is, input does not appear to be an important factor contributing to the ED crowding crisis over the past six years (Figure 14). A review completed by the Canadian Health Services Research Foundation reached similar conclusions.[58]

ED – research evidence

- The research evidence for the effectiveness of various interventions to improve ED crowding is weak. In many cases where there may be a promising intervention published in peer-reviewed literature, it is challenging to understand how results from other organizations (quite often from different countries with dissimilar healthcare systems) can be applied locally in Alberta. This reality highlights the need for cycles of continuous tests of change to inform improvement initiatives and to support this with robust evaluation and measurement. Alberta has the capability to make important contributions to the understanding of ED crowding and the successful implementation of effective interventions.

RECOMMENDATIONS

Recommendations related to the chart reviews of the UAH ED patients

Analysis

An extensive review of charts was completed. The QAC's concerns about quality-of-care issues were all related to the excessive waits and delays caused by factors leading to ED crowding; these factors are covered in the following recommendations.

1. RECOMMENDATION

No further action is required regarding the patient charts reviewed by the HQCA's quality assurance committee and the lists of patients identified by the University of Alberta Hospital emergency department physicians for the years 2008 to 2010.

Recommendations to reduce ED crowding and address high inpatient occupancy rates

Recommendations are listed together with required actions; these are actions the QAC believes are necessary so that the recommendation is implemented effectively.

Analysis

In both Edmonton and Calgary the biggest constraint to ED patient flow, and therefore the most important factor that contributes to extended lengths of stay (LOS) for patients in the ED, is the lack of available inpatient beds or high inpatient occupancy rates. To relieve this critical constraint, targets for inpatient occupancy rates should be established that take into account the known variability in demand for the resource. Recommended targets for average inpatient occupancy rates are 85 to 90 per cent. Until this constraint is adequately corrected there will be little chance of reducing ED crowding. Three approaches can be taken to reduce inpatient occupancy rates: (1) increase the number of inpatient beds; (2) improve the efficiency of resource use (reduce LOS); or (3) reduce the variability of demand for inpatient beds.

Effective management of any critical resource like inpatient beds requires detailed, timely information combined with accountability for decisions that are made. Because physicians make decisions that affect patient LOS and administrators make decisions about expenditures and resource use, there has to be a joint accountability for inpatient bed management. This accountability should be at an operational level in a structure that reflects services that patients require. This is not how inpatient beds are currently managed. The accountability for managing beds needs to be extended to accountability for response times to the ED. Physicians who provide a consulting service for the ED and/or admit patients from the ED should be structured to function in such a way that they can be responsible to the ED for seeing patients quickly and expedite the decision to admit a patient.

A key factor that contributes to increases in hospital LOS (and therefore increased bed occupancy rates) is the extra time spent in acute care beds by patients who are waiting for a supportive living or long term care space (alternate level of care) in the community.

Reducing inpatient occupancy rates begins with accurately estimating the number of acute care and long term care beds that are required in order to have enough resources available for the demand that exists now and over the next few decades. This estimate should include detailed human resource planning. Detailed mathematical modelling of Alberta's healthcare system is required so that wise investments are made in healthcare infrastructure.

2. RECOMMENDATION

Alberta Health Services takes steps to reduce inpatient occupancy to target levels of 85 to 90 per cent for each of its key admitting services in each acute care institution.

REQUIRED ACTIONS

- Structure inpatient services in acute care institutions around key patient population care needs rather than historical professional organizational structures.

- Empower inpatient services with the appropriate administrative and clinical structure and authority to manage required resources. In addition to being accountable for inpatient length of stay, these services should also be held accountable for their level of responsiveness to the emergency department for consult and decision-to-admit times. Services should be required to develop surge-capacity plans and target average or median occupancy rates below 90 per cent.

- Gain an accurate estimate of the number of beds required for each inpatient service based on appropriate statistical modelling of demand using historical case-mix-group data and population-age-growth data (see recommendation 4).

- Implement an information system that provides clinicians and administrators with long-term, short-to-medium-term, and near-real-time data about the demand for inpatient beds and capacity at the system, program, and service levels. Such an information system would contribute to the dynamic management of inpatient bed capacity and support an accountability model for inpatient services.

- Take steps to reduce the variability of scheduled patient admissions by developing and implementing – for those inpatient services with large volumes of scheduled admissions – dynamic models of patient flow that more accurately predict LOS and hence inpatient bed capacity based on the characteristics of current patient populations and projected patient admissions.

- Review length of stay data on common case mix groups across institutions to understand where efficiencies could be gained from reducing length of stay.

- Expand use of information systems that identify patients who meet standard 'readiness for discharge' criteria in an effort to reduce inpatient length of stay.

3. RECOMMENDATION

Alberta Health and Wellness and Alberta Health Services review the current need for long term care and supportive living facilities based on detailed forecasting created by appropriate models (see recommendation 4) to further reduce the percentage of alternate level of care bed days – preferably below three per cent of all acute care inpatient days.

4. RECOMMENDATION

Alberta Health Services and Alberta Health and Wellness develop long-term partnerships with Alberta universities to advise on the use and implementation of operations management tools and methods that would assist with medium- and long-term health system capacity projections.

REQUIRED ACTIONS

- Further develop system dynamic and discrete-event simulation models of patient flow through Alberta's healthcare systems that would provide more accurate predictions of capacity requirements for long term care, supportive living, rehabilitation, and acute care inpatient beds and human resources.

- Ensure that predictions for inpatient beds are specific at the service level rather than at the institution level.

5. RECOMMENDATION

Alberta Health and Wellness and Alberta Health Services take steps to shorten emergency department throughput including physician response times.

REQUIRED ACTIONS

- Alberta Health and Wellness with Alberta Health Services and the Alberta Medical Association strongly consider implementing an alternate reimbursement model for emergency department physicians.

- Alberta Health Services continues with its innovative approaches for reducing emergency department throughput for discharged patients, implementing best practices throughout the province to develop a common emergency department delivery model.

- Alberta Health Services continues to promote ongoing evaluation of emergency department interventions designed to reduce patient waiting by partnering with the faculties of medicine at the University of Alberta and University of Calgary to increase the emergency department clinical outcomes research capacity in the province.

- Alberta Health Services incorporate its diagnostic imaging and laboratory information systems into an overall performance measurement model of emergency department waiting such that it

can continuously monitor lapsed time from test ordering to test completion and to test interpretation and use this as a basis to drive improvements.

6. RECOMMENDATION

Alberta Health Services continue with innovative solutions to support palliative care patients in their community setting and prevent, wherever feasible, the transfer of these patients to emergency departments.

REQUIRED ACTIONS

- Alberta Health Services standardize its palliative care terminology across all healthcare sectors such as "goals of care" and "allow natural death" and dissuade the use of descriptors such as "do not resuscitate".

- Alberta Health Services strive to support palliative patients who have a sudden, unexpected symptom crisis so these patients have options for immediate care at home that can obviate the need to go to an emergency department and support the patient and family's decision to remain at home.

- Alberta Health Services explore options to admit patients with symptom crises directly to an intensive palliative care unit or medical unit, depending on their needs, rather than to the emergency department.

PART A

II. REVIEW OF THE QUALITY OF CARE AND SAFETY OF PATIENTS REQUIRING ACCESS TO LUNG CANCER SURGERY

BACKGROUND

On March 12, 2011, the Minister of Health and Wellness directed the Health Quality Council of Alberta (HQCA) to "conduct an independent review that closely examined wait times for cancer care services in the Province of Alberta pursuant to Section 13 of the *Health Quality Council of Alberta Regulation*". The Minister also directed the HQCA to establish its own terms of reference.

The review was initiated as a result of statements made and a question raised in the Alberta legislature on February 28, 2011 by the MLA for Edmonton-Meadowlark:[59]

> *"Thank you, Mr. Speaker. It has been brought to my attention that due to fierce competition for finite operating time between surgeons about 1,200 Albertans are on a wait list for lung surgery, and 250 died waiting on that list, many with lung cancer. I've also been told by others that this happened under Minister Mar and the Hon. Member for Sherwood Park and that Dr. Trevor Theman of the College of Physicians & Surgeons of Alberta, and Capital Health and Sheila Weatherill knew about this. Is the Minister of Health and Wellness aware of this, and will he call the Health Quality Council of Alberta and carry out a fatality review?"*

> *"Thank you, Mr. Speaker, and thank you, Minister. Given that it has also come to my attention that physicians who raised these issues were either punished or driven out of the province or paid out in millions to buy their silence and the costs buried in the books under the former Capital Health Region, I'm not surprised that this was never made public. Will the Hon. Minister commit to investigating and auditing these payouts in addition to the deaths and delays in cancer care?"*

The Minister of Health and Wellness specifically directed the HQCA to determine, to the extent possible, if a group of patients waiting to receive cancer care, and who were alleged to have died while waiting for care, could be identified.

The quality assurance committee (QAC) undertook this part of its review with the following goals: address the allegations that had been made, and based on the findings and analysis of the investigation of current practices, make recommendations for system-level improvements in access and waiting times for cancer surgery. The QAC planned its review with the intention of using what was learned about the management of waiting lists for lung cancer surgery to generate recommendations for the best management of cancer surgery in general.

To appreciate the results of this review about lung cancer surgery, some basic understanding of lung cancer, its diagnosis, and its management is required.

Lung Cancer

Statistics

Lung cancer is the most common cause of cancer deaths in Canadians, killing more men than does prostate cancer, and more women than does breast cancer.[60] In 2009, there were 1,857 new cases of lung cancer in Alberta and by the end of 2012 this number is expected to reach 2,000 new cases. In 2011 it was estimated that 25,300 Canadians would be diagnosed with lung cancer and 20,600 would die of it.[61] One in 11 Canadian men and one in 15 Canadian women are expected to develop lung cancer during his/her lifetime; one in 13 men and one in 17 women are expected to die of the condition.[60] The fact that almost as many people who develop the disease will die from it indicates that the overall prognosis for lung cancer is poor, but like many cancers prognosis is dependent on the type of cancer and the stage of disease at the time of diagnosis.

There are two common forms of lung cancer: small cell and non-small cell.[62] About 15 per cent of lung cancers are small cell[62] that are treated with radiation and chemotherapy; except in rare cases, surgery is not an option for treatment. The prognosis depends on whether the cancer is limited or extensive (metastatic disease outside of the chest). The median survival for patients with limited-stage disease is approximately 17 months if they undergo treatment.[63] The prognosis for patients with non-small-cell lung cancer (NSCLC) depends very much on the stage of the disease when a patient first presents. Staging is based on size and location of the tumour, degree of involvement of lymph nodes in the chest, and the presence or absence of metastatic disease (meaning the cancer has spread within the body). The best chance for survival is with surgical resection of a localized tumour (stage I or II). Patients with stage IV disease (metastatic) are not candidates for curative surgical resection. Most patients with stage III disease have too much cancer in the lymph nodes to undergo surgical resection. Overall, the prognosis for patients with NSCLC is poor: overall five-year survival rates are 10 to 15 per cent but range from approximately 65 per cent for patients with stage I disease to one per cent for patients with stage IV disease.[64] Unfortunately, when most patients finally develop symptoms that indicate the possibility of lung cancer, their disease is too far advanced for surgery and the cancer cannot be cured with chemotherapy and/or radiation therapy. Only a small number of patients (15 to 20 per cent) with lung cancer are candidates for curative surgical resection, which in part explains the overall poor prognosis.

Diagnosis

The process of diagnosing lung cancer starts when a patient has symptoms such as hoarseness or shortness of breath; or signs such as coughing up blood (hemoptysis); or, more commonly, has a chest X-ray for another reason that shows a mass. The patient sees a physician, such as his or her family doctor, to obtain a chest X-ray. If a 'suspicious lesion' is shown then the patient requires extensive evaluation or a 'work up' to determine the most appropriate type of care. This work up may be undertaken by one or more physicians, including family practitioners, specialists in respiratory medicine (respirologists), and lung cancer (thoracic) surgeons. Patients must be referred by their family practitioner to see a respirologist and/or a surgeon.

Patients with possible lung cancer need to undergo CT scans of the chest and abdomen and often of the head to estimate the extent of lung cancer in the chest and the likelihood of metastatic disease. Patients may require a positron emission tomography (PET) scan, which helps detect tumours. Almost all patients

will require bronchoscopy (or passage of a special scope down into the lungs). During bronchoscopy, samples of tissues can be taken to confirm a diagnosis and to document the type of cancer (small cell versus non-small cell). In general, a patient with small-cell lung cancer is referred to an oncologist for assessment of her or his suitability for chemotherapy and/or radiotherapy. A patient with non-small-cell lung cancer also needs further evaluation to determine if the lung cancer can be surgically resected. For example, tissue samples of the lymph nodes in the chest are obtained to make sure that the lung cancer has not spread outside the lung. By the end of this diagnostic phase, the patient and his or her physicians will have reached a point known as the 'decision to treat'. For some patients, the decision will be made that his or her case merits surgical resection of the cancer.

Lung cancer surgery

Surgery for lung cancer is performed in Edmonton and Calgary by physicians who have successfully passed special training (a fellowship) in thoracic surgery under the direction of the Royal College of Physicians and Surgeons of Canada (RCPSC). To do this, physicians must have first attained their Royal College certification in general surgery. Previously, surgeons qualified in both cardiac and thoracic surgery as a combined specialty; training also commonly involved vascular surgery. Thoracic surgery was therefore often undertaken by surgeons who also performed cardiac and vascular surgery. In some centres, general surgeons who had undertaken additional training in thoracic surgery might also perform lung surgery on a part-time basis. In 1994, the RCPSC accepted a recommendation to separate training for cardiac surgery and thoracic surgery.[65] Eventually this change in training was also reflected in a shift in the organization of doctors in hospitals, with different sections or divisions of cardiac (or cardiovascular) surgery and thoracic surgery. Thoracic surgeons diagnose and treat many conditions of the lung, pleural space (chest cavity), chest wall, the esophagus, and the mediastinum (the middle part of the chest where blood vessels, lymph nodes, esophagus, and trachea reside).

The management of patients who may require surgery has evolved over many years. Since many surgeons practise independently, they usually maintain a list of patients who they have seen and who may require additional diagnostic tests and/or procedures, including surgery. The point in time when a surgeon decides that a patient requires surgery and is a candidate for the operation being considered is variable and depends on several factors. These factors include those related to the lung cancer itself, as described above. In addition, patients usually undergo preoperative consultation and evaluation by a general internist, anesthesiologist, and/or respirologist to ensure that the patient's underlying cardiac or lung disease is properly diagnosed and managed so as to reduce the risk of death or complications as a result of the operation. The risk of dying from surgical removal of a lung cancer is quite dependent on the extent of the resection and the surgical approach used. The risk of surgical mortality is quoted as 4.6 per cent for removal of an entire lung for non-small-cell lung cancer.[66] Mortality is much lower for patients only requiring the removal of one lobe of a lung.[67]

All of these investigations and consultations help a surgeon make a two-fold decision:

- About the type of tumour and the extent of disease, which determines if the patient has lung cancer that *could* be resected; in other words, is an operation *feasible*? and

- About whether or not the patient has sufficient lung function and cardiac reserve to withstand an operation; that is, if the patient has lung cancer that *should* be resected or, is an operation *advisable*?

A decision that an operation is feasible and advisable helps determine a patient's 'operability'. But there is no standard provincial definition of 'operability' for (lung) cancer patients. Historically operability has been defined by the thoracic surgeon. Yet many patients who are assessed by a respirologist are found to have inoperable disease and are never referred to a surgeon. Thus a respirologist or a thoracic surgeon could direct a patient to a non-surgical or surgical care pathway; only a thoracic surgeon commits a patient (with their consent) to a surgical pathway.

Surgeons make and maintain their own list ('surgeon's waiting list') of patients whom they have seen while collecting information about them to determine operability. Once a decision is made to operate, then the patient is considered 'ready to treat' and the surgeon's office contacts the hospital admitting department and operating room to schedule a patient for an operation and start to establish the date and time for one. At this point the patient is considered to be on a hospital's surgical waiting list.

The distinction between 'decision to treat' and 'ready to treat' is important. The former indicates that the patient is a candidate for a surgical procedure that has the potential to be effective and deliver a good outcome. The latter indicates that the patient is physically and mentally able to undergo the procedure; that the appropriate diagnostic workup is complete; and that post-operative recovery, convalescence, and discharge issues have been planned (and ideally are in place).

The point at which a surgeon decides to book a patient during a workup is variable. Some surgeons will book patients shortly after they first see them, before any diagnostic tests are completed; some surgeons will book a patient when most of the testing has been completed and nothing has been found that precludes an operation and there are only a few final tests, the results of which are still pending; other surgeons will only book patients when all of the tests are completed indicating that an operation is feasible *and* the patient has signed a consent form.

Thus the experiences of patients can be highly variable with respect to when they are considered to be on a 'surgical waiting list' and if it is a surgeon's private list or the hospital's list. Over the past five to 10 years surgeons more commonly have worked in groups and 'shared' the patients who are referred to them. This sharing may or may not involve having a common surgical waiting list. In some groups, once a patient is assigned to a surgeon, that physician will still maintain an independent list of patients waiting for surgery. There may also be variable practices within a group about when to register a patient with the hospital for an operating room date and time. Hospitals and health regions have evolved over time as well and many now try to keep a central registry of patients waiting for surgery, so that waiting times for patients can be tracked and reported.

Geographical and historical context

It is important to put this review into proper geographical and historical context. Although surgical waiting times have been an issue for years in Canada and elsewhere, there were particular challenges following the initial stage of regionalization in Alberta in 1994/95. In those years, substantial cutbacks to healthcare funding were made and most healthcare programs were struggling to maintain a reasonable level of service and access to that service.

Edmonton and the former Capital Health have had a stable thoracic surgery program for several years; however, this was not always the case. The allegations that the MLA for Edmonton–Meadowlark made refer to a time that goes back many years. It was challenging for the QAC to review events from so many

years ago because of the many changes that have occurred since then, lack of access to patient charts, and fading recollections of people who were involved. The QAC believed it was important to examine the past as thoroughly as possible to address the allegations; to learn lessons from the management of surgical waiting lists that could inform recommendations for future improvements; and to gain insight into the management of Capital Health's thoracic surgery program in the past to determine if this could inform recommendations for the management of such programs today and in the future.

METHODOLOGY

At the outset of this quality assurance review, it was understood that some individuals with information that was pertinent to the review would need assurances that they would not be 'punished' for participating. The quality assurance committee (QAC) put four levels of protection in place to reassure anyone who participated that he or she would not personally be disadvantaged:

- A QAC constituted under Section 9 of the *Alberta Evidence Act*[68] conducted the review. The relevant subsections of Section 9 of the act that affords protection to witnesses who come forward to provide information are:

  a. Subsection 2 – A witness in an action, whether party to it or not,

     i. is not liable to be asked, and shall not be permitted to answer, any question as to any proceedings before a quality assurance committee, and
     ii. is not liable to be asked to produce and shall not be permitted to produce any quality assurance record in that person's or the committee's possession or under that person's or the committee's control.

  b. Subsection 5 – Neither

     i. the disclosure of any information or of any document or anything contained in a document, or the submission of any report, statement, memorandum or recommendation, to a quality assurance committee for the purpose of its quality assurance activities

              nor
     ii. the disclosure of any information, or of any document or anything contained in a document, that arises out of the quality assurance activities of a quality assurance committee,

     creates any liability on the part of the person making the disclosure or submission.

- Written assurances were obtained from the CEO of Alberta Health Services; the Dean of the Faculty of Medicine, University of Calgary; and the Dean of the Faculty of Medicine, University of Alberta that no individual would face disciplinary action or any other consequence if it was learned that he or she participated in the QAC review.

- Written assurances were obtained from the CEO of Alberta Health Services and the Dean of the Faculty of Medicine, University of Calgary that any individual who had signed a non-disclosure agreement with the organization or a predecessor organization would be exempt from that agreement as it pertained to the QAC review.

- The QAC would keep confidential the list of people that it did or intended to call as witnesses before its QAC and keep confidential whether an individual chose to appear or not appear before the QAC. Individuals were informed that they were free to reveal that they had participated in the review and were told that if they chose to disclose publicly what they had discussed before the QAC, then the protection that they would have had under Section 9 could be compromised.

To investigate the claims of the MLA for Edmonton-Meadowlark that "*physicians who raised these issues were either punished or driven out of the province or paid out in millions to buy their silence*", the QAC undertook extensive interviews and an evaluation of submitted documents. The QAC constructed a

detailed chronology of events, pertinent to the thoracic surgery program at the UAH, from the information obtained through interviews and documents that were supplied to the QAC as part of this review. Information had to be confirmed from multiple sources before it could be considered factual enough to be mentioned in this report. Although in most quality assurance reviews extensive details are not usually included in a final report, because of the nature of the allegations underlying this review the QAC thought that it was important to include sufficient detail so that there could be ready recognition of what the basis was for its conclusions and recommendations.

The QAC was able to recover several lists of patients, which were thought to be relevant to the concerns raised about possible waiting lists for lung surgery. These lists, which dated back to early 2000, had limited information that could be used to identify any specific patient. A first and last name only was supplied. There were no corresponding birthdates, hospital or health region numbers, or healthcare numbers. This lack of detail precluded access to individual patient hospital charts or to patient-specific electronic information.

The allegations that "250 patients died on a wait list for surgery, many of whom had lung cancer" strongly implied that patients who required curative surgery for lung cancer did not receive it. If these allegations were true, then the magnitude of that number of patients should be reflected in reduced rates of diagnosis and surgical resections, as well as in higher mortality rates (the number of deaths attributed to this type of cancer during a specific period of time). The reference that was made to the former CEO of Capital Health in relation to this specific allegation suggested that, if there was a problem with lung cancer surgery, then the problem was most likely relevant to Edmonton. The reference to a former Health and Wellness Minister suggested a time frame of 2000 to 2004.

Using administrative data from large provincial databases, the QAC initially sought to examine the claims about lung surgery, rather than undertake a more focused examination of lung cancer. Data from physician billings ('claims for fee for service payment'), Vital Statistics, and the provincial cancer registry were requested from Alberta Health Services and Alberta Health and Wellness. The data sources could not, with a high degree of confidence, be used to identify lung operations nor could the data sets be adequately linked to determine mortality rates for thoracic-surgery-related procedures. The QAC therefore focused its investigation on the alleged deaths of lung cancer patients during their wait for care. Mortality rates for patients with lung/bronchus cancer and incidence rates (the number of new cancer cases diagnosed during a specific time period) were analyzed over the period of 1997 to 2002 and comparing Alberta with the rest of Canada and comparing Edmonton with Calgary.

To address the second major objective of the review, ("based on the findings and analysis of the investigation of current practices make recommendations for system-level improvements in access and wait times for cancer treatment"), the QAC undertook further interviews with practising physicians and clinical administrators. The purpose of the interviews was to understand current and future plans for improving access of patients with possible or known lung cancer to AHS resources for diagnosis and treatment.

Information was sought about management practices for lung cancer patients, including:

- Assessment of patients with possible lung cancer

- Management of waiting lists for (thoracic) surgery

- Allocation of operating room time

- Evaluation of current initiatives to improve the quality of care for patients in Alberta with (possible) lung cancer

- Description of future directions for the improvement of care of patients in Alberta with (possible) lung cancer

- Explanation of the Alberta Health Services policy for the care of patients with (possible) lung cancer.

Interviewees were also asked to provide a copy of any documents describing lung cancer care in Alberta that might be helpful to the QAC in making recommendations for improving cancer care. This process was protected under Section 9 confidentiality described above.

FINDINGS

Capital Health's thoracic surgery program chronology

Currently, thoracic surgery in Edmonton is based at the Royal Alexandra Hospital (RAH) only but over the years some thoracic surgery has been performed at most of the hospitals in the city, including the Edmonton General, the RAH, the University of Alberta Hospital (UAH), and the Misericordia Community Hospital. The major programs were located at the UAH and the RAH.

By the late 1990s Capital Health had evolved varying models of organizing doctors in hospitals and in this era surgical programs were established within a regional structure. In 1999 the surgical programs, along with some other large regional programs, were returned to a site-based model for organizing physicians, and thoracic surgery at the UAH was realigned within the cardiac sciences program.

In 1999 a second thoracic surgeon joined the sole thoracic surgeon at UAH; however, that individual decided to leave less than a year later. In early 2000, Capital Health and the UAH recognized that the workload for a single thoracic surgeon was high and continued their efforts to recruit a second surgeon. Also around that same time, concerns surfaced about the management of patients waiting for possible thoracic surgery. Patient lists, for the most part, were managed by surgeons' offices and usually consisted of a paper-based or an electronic spreadsheet on a single office computer; the latter was the case for thoracic surgery at the UAH. In the second half of 2000 a second thoracic surgeon was again recruited to a position at the UAH. A review of patient charts was undertaken around that time to determine if any patients with potentially resectable tumours had been waiting extended lengths of time for an operation. The original surgeon left on sabbatical and was not available to participate in that review of patients. During that review additional concerns were raised about quality of patient care. This led to a more focused analysis of patient outcomes and included a request for an external expert reviewer to participate. Although a plan had been made and communicated in 2001 to reintegrate the original surgeon into the UAH thoracic surgery program upon returning from sabbatical leave, for several reasons this plan never materialized. Details and findings from the Capital Health chart reviews are described in the following section of the report.

In 2001 Capital Health undertook a review of its lung transplant program, in part to address some issues of different surgical approaches used to perform the operation by surgeons with different training. A lung transplant expert from the United States completed the review and recommended that one of the surgeons stop performing lung transplants and that there should be a change in the program's leadership.

Between 2001 and 2003 the two surgeons performing thoracic surgery at the RAH retired and two additional surgeons were recruited to the UAH; however, operating room time at the RAH was retained and some thoracic surgery continued to be performed at this site. Later in 2003 Capital Health committed to a two-site thoracic surgery model when two of the three surgeons at the UAH moved their offices and their surgical practices full time to the RAH; once again this left a single thoracic surgeon at the UAH.

In 2004 the thoracic surgeon who had left in 2000 filed a statement of claim in a lawsuit against Capital Health and two Capital Health medical administrators; allegations in the claim were never proven or disproven. A settlement was reached without going to trial; part of the settlement involved this surgeon signing a non-disclosure agreement about the details and circumstances surrounding the statement of claim and the settlement. Such an agreement under these circumstances is common practice.

In 2005 an additional thoracic surgeon was recruited initially to the UAH but later moved to the RAH. The following year Capital Health decided to review the quality of thoracic surgery care at the UAH; an internal review was supplemented with the opinions of two experts from outside the province. The external reviewers recommended that Capital Health consolidate thoracic surgery at a single site so as not to have any surgeon practising alone. The reviewers also recommended that one of the surgeons undergo a period of retraining. The surgeon voluntarily withdrew from clinical practice and ultimately reached an agreement with Capital Health about this change. The parties agreed to financial compensation for lost clinical income and to not disclose the details or the circumstances leading up to the agreement. This surgeon does not currently have a medical staff appointment with AHS.

Thus over many years quality-of-care issues about thoracic surgery arose several times and were the subject of a number of reviews, some of which included external experts. The College of Physicians & Surgeons of Alberta (CPSA) was appropriately involved to fulfill its legislated mandate. The medical staff bylaws of Capital Health were not used to govern how the quality assurance reviews were undertaken and the privileges of the surgeons were never officially revoked. These reviews had two major recurring themes: first, the impact that practising thoracic surgery in isolation has on the surgeon and on patients, as well as on the organization; and second, the challenge of creating a high-functioning team of professionals who collaborate effectively.

Waiting lists of thoracic surgery patients

In 2000, in response to concerns about possible patients not gaining timely access to thoracic surgery, Capital Health undertook a detailed review to locate patients who might have been on a 'list' and waiting for additional testing or surgery. The QAC has been able to determine that several lists were generated – all of which pertained to a single surgeon at the UAH. There were two lists of patient names, generated approximately two months apart, on the surgeon's office computer. One list contained 141 names, the other 133; 110 patient names appeared on both lists. Between the two lists there were 164 unique patient names, half of whom were described as having a 'lung malignancy' (Table 8).

Table 8. Numbers of patients with different diagnoses on a surgical 'wait list'

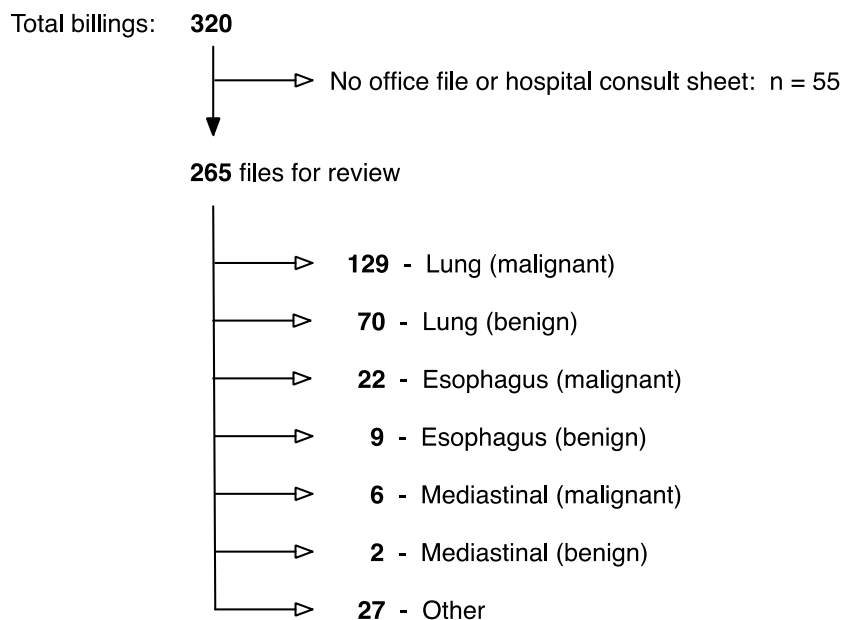| Condition	Numbers of patients
Lung – malignancy	82
Lung – benign	49
Pleural disease	10
Esophageal – malignant	6
Esophageal – benign	17
Total	**164**

At the time, the reviewers determined for the list of 133 patients how many of them had undergone surgery; nine patients had had minor procedures while 20 patients had had major operations (e.g., tumour resections). Another 23 patients, who had been listed for pulmonary resection of presumed malignant nodules, were ultimately found to have benign disease, not requiring surgery, and arrangements were made to follow those patients clinically. A substantial number of patients with lung malignancy (25) 'awaiting surgery' were found to have metastatic disease (i.e., they had inoperable conditions). Some of

the details about patients included on these wait lists would clearly indicate that most of them were never candidates for surgery and hence should not have been on a 'surgical wait list'. A small number of the listed patients had 'operable' non-small-cell lung cancer (NSCLC) and these patients appeared to have been looked after appropriately, although it was not possible to determine the length of time the patients waited from diagnosis to resection of the tumour nor what the ultimate outcome was for these patients.

To find additional patients who may not have been on the surgeon's office computer, Capital Health undertook a search of billing records (claims submitted to the Alberta Healthcare Insurance Plan) to be analyzed for two time periods: the first search included billings from June to September 2000 and subsequently a second search was performed of billings from March to June 2000.

In the first search an office chart and/or a hospital chart with what's called a 'consult sheet' were sought to identify important patient information. A total of 320 patient names were identified from the billing records during that time period and the breakdown of what was found is shown in Figure 31. There were no office files or consult sheets for 55 of the patients.

Figure 31. Patient files uncovered as a result of a review of physician billings from June to September 2000

Total billings: **320**

No office file or hospital consult sheet: n = 55

265 files for review

129 - Lung (malignant)

70 - Lung (benign)

22 - Esophagus (malignant)

9 - Esophagus (benign)

6 - Mediastinal (malignant)

2 - Mediastinal (benign)

27 - Other

Of the 265 files available for review, nearly all patients who were identified had previously also been found on the office-generated waiting lists. There were 23 additional patients identified for whom it was thought there might be a need for surgery. After detailed chart reviews it was determined that 14 of these patients had already been assessed and found to have advanced disease, were therefore not surgical candidates, and had been appropriately referred to the Cross Cancer Institute. Seven patients were noted to have benign, stable disease and two other patients had been referred to a thoracic surgeon at the Royal Alexandra Hospital.

When Capital Health undertook its second review of billing records, this time from March to June 2000 a total of 258 patients were identified, 83 of whom had been identified in the first billing record review,

leaving an additional 175 patients for review. The breakdown of diagnoses for these 175 patients is shown in Figure 32.

Figure 32. Patient files uncovered as a result of a review of billings from March to June 2000

Total billings: **258**

⊳ Patients identified in the first billing review: n = 83

Total files sought: **175**

⊳ No office record (but hospital chart reviewed): n = 44

131 files for review

⊳ **41** - Lung (malignant)

⊳ **30** - Lung (benign)

⊳ **5** - Esophagus (malignant)

⊳ **6** - Esophagus (benign)

⊳ **7** - Mediastinal (malignant)

⊳ **5** - Mediastinal (benign)

⊳ **7** - Deceased

⊳ **30** - Other

A total of 36 patients were thought to require some form of surgical followup or other form of treatment. Of these, only five patients required surgery for a lung malignancy and all of them received it. None of the information suggested that patients with resectable lung tumours had died as a result of waiting too long for surgery. For its own review that is the focus of this report, the QAC was unable to track long-term survival rates for any of the patients who were listed as having a lung malignancy.

Another review of patient charts that Capital Health performed was based on examining the files of patients who had been wait listed with the UAH admitting department between March 1998 and August 2000. There were 174 patient names on this list, with 117 of them having been previously identified through the processes described above. Of the remaining 57 patients, records were available for 51; the other six patients could not be tracked and remained unaccounted for. No additional action was required, in the opinion of the Capital Health review team, for any of the 51 patients identified though this approach presumably because the patients had received appropriate evaluation and treatment.

In summary, the QAC is satisfied that:

- The former Capital Health did an extensive search for patients who may not have been offered timely surgery for serious underlying lung, esophageal, pleural, or mediastinal disease.

- There is no evidence that a surgical wait list of 1,200 patients ever existed.

- There is no evidence that there was a 'true surgical wait list'; i.e., a list of patients who had completed diagnostic and preoperative work ups that showed conclusively that the patients had disease appropriate for surgical resection and they had been evaluated as medically fit for surgery.

- There were multiple lists generated of patients who had been seen; a substantial proportion of these patients did not have cancer and a larger percentage did not require surgery.

- Legitimate concerns were raised about proper management of surgical wait lists; these concerns were investigated and managed by the former Capital Health.

- Allegations that patients died who were on a surgical wait list and, where it was implied that such patients had curable disease, are unfounded.

Lung cancer – incidence, mortality, surgery, and disease-stage rates in Alberta (1997- 2002) (2003-2008)

Detailed information on patients with cancer is maintained in Alberta's cancer registry and this information can be used to investigate unexplained changes in treatments and outcomes for cancer patients. The QAC analyzed the provincial registry database to look for unexplained lung cancer outcome or treatment results. In Alberta approximately 1,400 patients are diagnosed with lung cancer every year and about 17 per cent of them undergo surgery. The allegation that "250 patients died who were on a waiting list" implies that the patients had potentially curable cancers. The QAC hypothesized that, if this number of patients failed to receive surgical treatment, then anomalies would show up in incidence rates,[v] mortality rates,[vi] surgical rates, and/or the proportion of patients who were diagnosed with earlier-stage (I or II) cancers for that time. Incidence and mortality rates were standardized (adjusted) for the age of patients[vii] since this known to be a determinant for both of these measurements. Comparisons were made between Alberta and national data over time to determine if there had been any substantive changes in age-standardized incidence rates (ASIR) or age-standardized mortality rates (ASMRs).

The main time frame for which data were analyzed was 1997 to 2002, because the QAC found that thoracic surgery wait lists seemed to be an important issue at the UAH in 1999 and 2000. If there had been a major lapse in patients obtaining curative surgery for lung cancer then it would be expected that this breakdown would be reflected in either a lower ASIR (fewer cases diagnosed) or higher ASMRs (more patients dying). The QAC calculated that a decrease of approximately 38 patients each year in Edmonton diagnosed with lung cancer would be detectable statistically comparing one year to another or comparing Edmonton with Calgary. The QAC also predicted, based on the lack of variability in the data,

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[v] Incidence rate –the number of new cases per population, over a given time period; for cancer the incidence rate per 100,000 members of the population in a single year is commonly used

[vi] Mortality rate – the number of patents who die per population, over a given time period; cancer mortality rates are often quoted as the number of people who died as a result of disease per 100,000 population in a single year

[vii] Incidence or mortality rates for a given population are mathematically adjusted for the age of the population so that rates can be compared between different populations of different ages

that a change of 10 fewer cases in Edmonton in any given year would be detectable, even though the finding would not be statistically significant.

> *The allegation that "250 patients died who were on a waiting list" implies that the patients had potentially curable cancers. The QAC hypothesized that, if 250 patients failed to receive surgery, then anomalies would show up in statistics for that time that show how many people had lung cancer, died from it, received surgery for it, or were diagnosed with earlier-stage (I or II) cancers. In other words, those patients would show up somewhere else in the statistics. No such anomalies were found.*

Figures 33a and 33b show the ASIRs and ASMRs for Alberta and Canada, respectively. Figures 34a and 34b show the same data for Calgary and Edmonton. Figures 33 and 34 show:

- That Alberta's ASIR and ASMR for lung cancer was consistently below that of the national average.

- There were no changes in Alberta's ASIR and ASMR between 1997 and 2002. (Also, the QAC data analysis shows no change in the years 2003 to 2008.)

- There were no substantive changes in Edmonton's or Calgary's ASIR and ASMR over the same time period.

- Although Edmonton's ASIR and ASMR were slightly higher than Calgary, the differences between the two cities are not statistically significant.

In 2008 Alberta Health Services released a report that examined ASIR and ASMR over a 20-year period (1988 to 2008) and concluded that Alberta rates had not significantly changed over that time period.[69]

Figure 33a. Age-standardized incidence rates (ASIRs) of lung/bronchus cancer (Statistics Canada)

per 100,000	1997	1998	1999	2000	2001	2002
Canada	58	59.4	59	58.8	57.8	57
Alberta	50.1	50.7	54.6	48.9	50.5	51.6
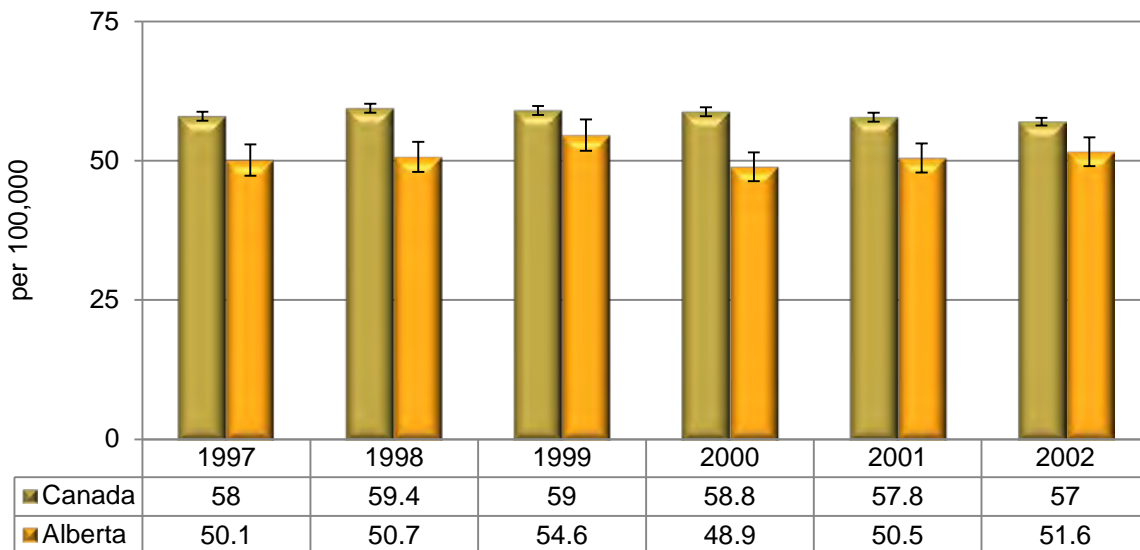
Figure 33b. Age-standardized mortality rates (ASMRs) of lung/bronchus cancer (Statistics Canada)

	Canada	Alberta	Calgary Health Region	Capital Health Region
◼ 1997	49.3	41.2	40	40.8
◼ 2001	47.3	40.6	40	41.2
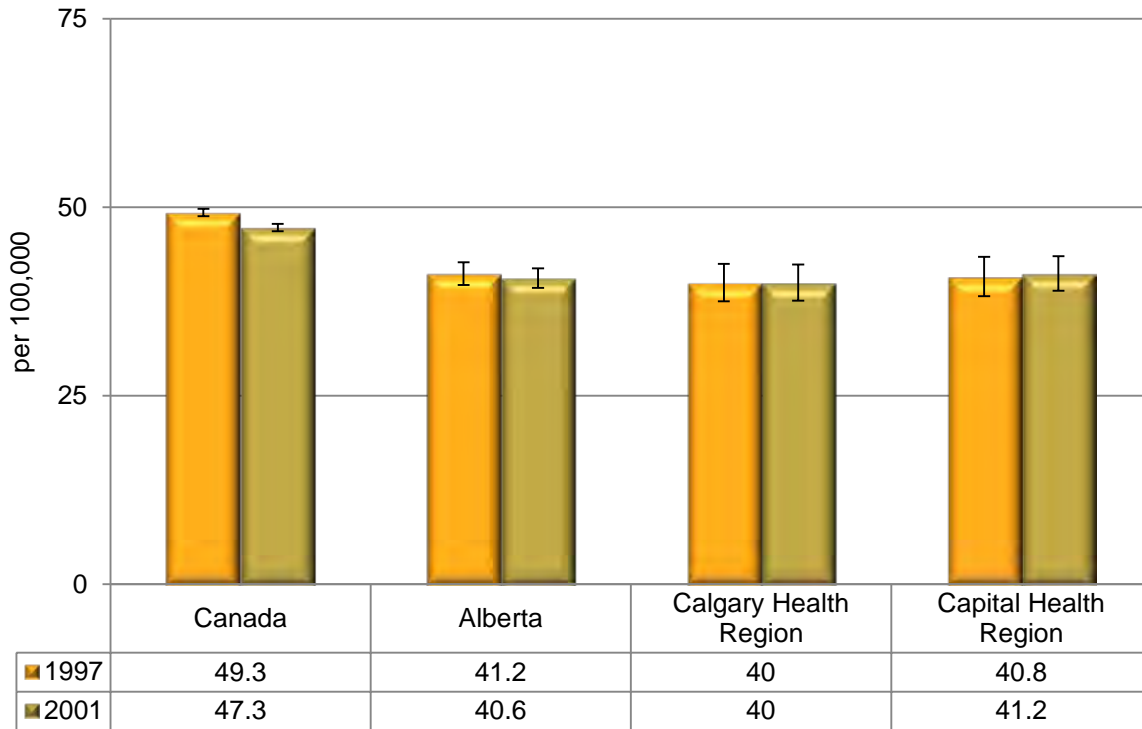
Figure 34a. Age-standardized incidence rates (ASIRs) of lung/bronchus cancer for Calgary and Edmonton

	1997	1998	1999	2000	2001	2002
Edmonton	50.2	56.7	55.8	52.2	52.0	56.1
Calgary	48.0	48.4	53.6	46.2	50.2	48.7
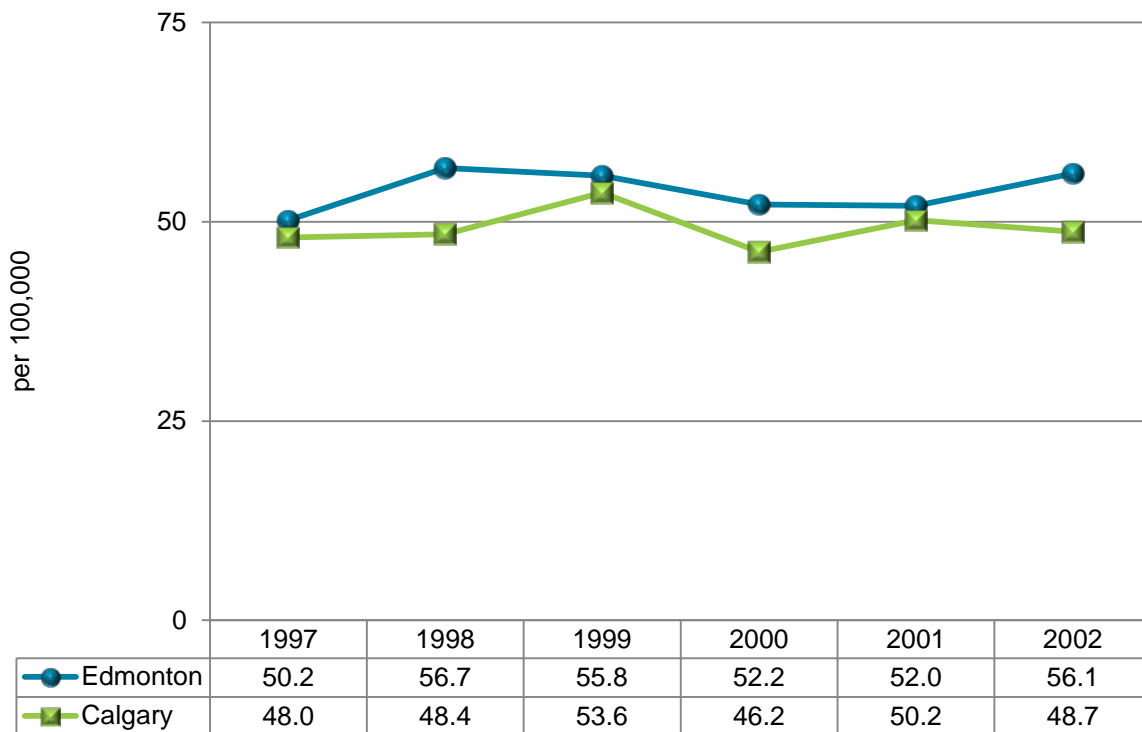
Figure 34b. Age-standardized mortality rates (ASMRs) of lung/bronchus cancer for Calgary and Edmonton

	1997	1998	1999	2000	2001	2002
Edmonton	38.6	41	46.3	45.2	40.4	45.4
Calgary	41.5	37.6	41.8	41.6	38.8	40.3
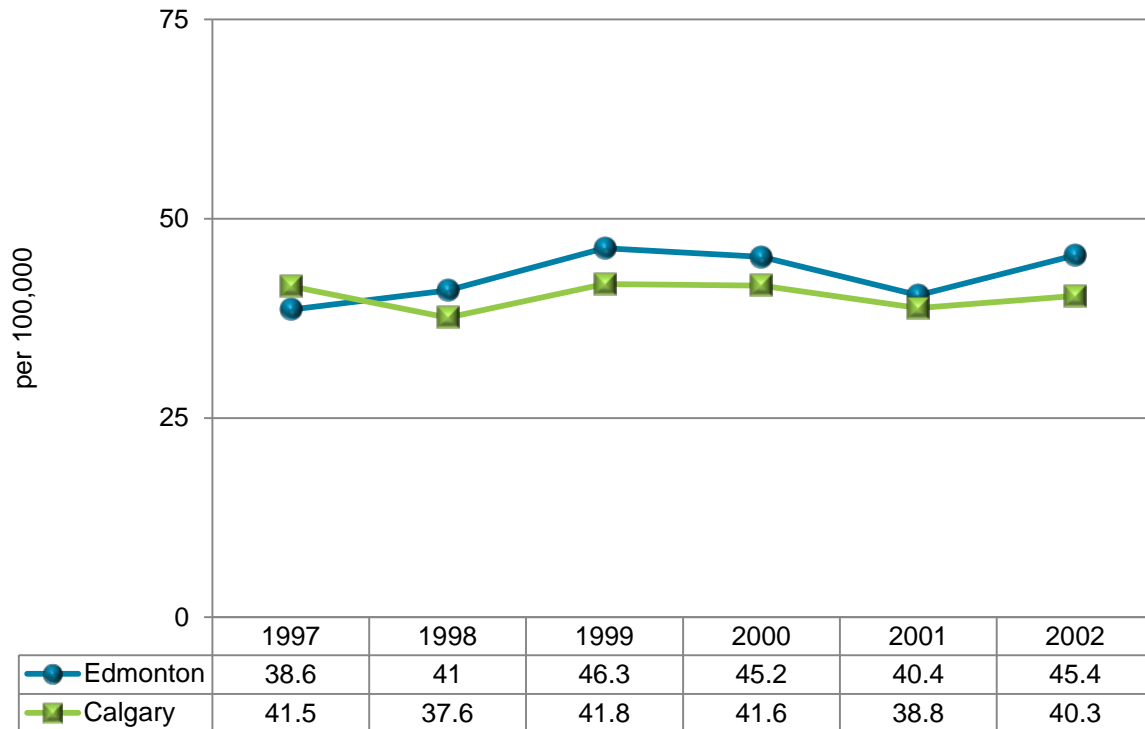
Based on the national and provincial ASIR data, the QAC did not find any non-statistically or statistically significant change in the incidence of lung cancer in Alberta, Edmonton, or Calgary.

Using Alberta cancer registry information the QAC identified 6,901 Albertans with lung/bronchus cancer over the five-year period April 1, 1997 to March 31, 2002. Of these 6,901 patients, 2,328 were from Edmonton, 2,127 from Calgary, and 2,446 from elsewhere in the province. Surgery for cancer can be appropriate for either diagnosis or treatment, but as a diagnostic method surgery is rare. For instance, in Calgary and Edmonton surgery for diagnosis was conducted only 0.5 per cent and 0.4 per cent of the time, respectively, between 1997 and 2002. In Alberta during those years, 17 per cent of patients with lung/bronchus cancer (1,199 patients) underwent surgery. As shown in Figure 35, for all years except 2000, there was a higher – not lower – rate of surgery among Edmonton patients (21.7 per cent) compared with Calgary (15.4 per cent). The decreased proportion of patients in Edmonton undergoing surgery in 2000 reflects a trend downwards over several years and parallels slight decreases over the same time period in the incidence of lung cancer. The only year in which the results are statistically different between years or between Edmonton and Calgary is 1997/98. The proportion of patients from Edmonton undergoing surgery in 1999/2000 is not statistically different from the year preceding or the year following and is not different from the rate in Calgary.

Figure 35. Proportion of patients with lung cancer undergoing surgery in Calgary and Edmonton

	1997-98	1998-99	1999-00	2000-01	2001-02
Edmonton	27.0	23.9	19.4	18.6	20.3
Calgary	12.8	16.4	18.7	15.1	13.6
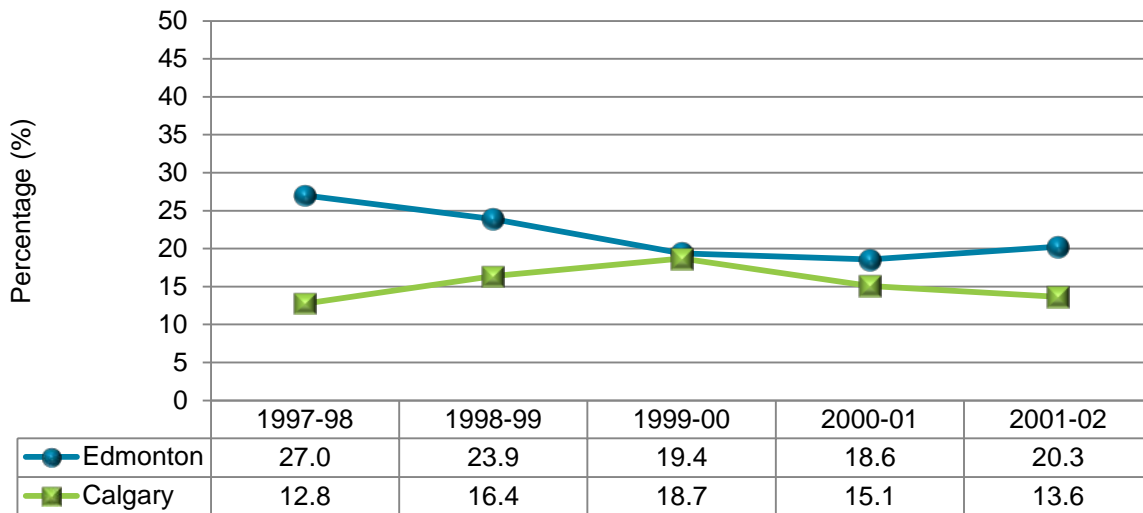
Further, a systematic study of the Alberta cancer registry showed no regional discrepancies for lung cancer patients in sex ratio (male or female), age, or percentage of patients with early stage disease.

Physician advocacy and thoracic surgery

There is little question that thoracic surgeons at the UAH, like many physicians, were active advocates for additional resources to try to improve access for patients with lung cancer and other conditions in which thoracic surgery is needed. Allegations have been made that "physicians who raised these issues were either punished or driven out of the province or paid out in millions to buy their silence".[59] The QAC interviewed many knowledgeable people about the thoracic surgery issues at the UAH and developed a thorough understanding of the concerns regarding patient management, how physicians' performance was assessed including the use of external reviews, as well as the decisions that were ultimately reached about the stopping of surgical practice. The QAC is confident that physician advocacy was not the reason Capital Health decided to review physician practices and their patients' outcomes. Furthermore, the QAC had no reason to believe that any thoracic surgeon was "punished or driven out of the province" because of advocacy efforts. The former Capital Health reached financial settlements with the affected surgeons to reimburse them for lost income. In such situations it is standard practice that the parties to such a settlement agree not to disclose the details about it or the issues that led up to it. The characterization of these settlements as 'money to buy silence' is not supported by the facts.

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Examination of current plans for managing lung cancer surgery patients

On December 16, 2011 Alberta Health Services (AHS) announced that lung cancer patients would have faster access to treatment through the new Expedited Management of Lung Cancer (EMLC) program.[70] This program is based on work undertaken over the past year by clinicians who provide care to patients with confirmed or suspected lung cancer; these are respirologists, lung surgeons, and oncologists. The EMLC program was established through the work of the AHS Cancer Care Clinical Network, a team of cancer physicians, surgeons, and managers working with a range of experts. The EMLC is considered to be the "first coordinated, province-wide initiative of its kind for lung cancer in Canada".[70]

The EMLC program will establish two specialized clinics to provide 'rapid access' for patients in Calgary and Edmonton and increase the number of operations performed annually for lung cancer. By March 2013 the EMLC program should decrease the time that three-quarters of patients with suspected lung cancer have to wait for a decision to treat (to 30 days) and (if eligible) for surgery (to 60 days).

Patients will be streamed through the clinics, which will be staffed by "specially trained nurses and nurse practitioners, with physician support".[70] Patients will be assessed and triaged in these clinics, which will also provide patients with the assistance of 'navigators', whose role is to help patients make their way through the various investigations and consultations required to make a decision about treatment options. To assist with decision-making, standardized provincial guidelines, which define which patients should be referred to which kinds of specialists (and when), as well investigations and treatment, will be available by July 2012.

By 2013 the two clinics are expected to handle about 4,000 patients in total, eventually providing a "single point of entry for all patients".[70] Up to now, primary-care physicians (and other doctors) could refer patients anywhere in the province to a range of specialists, such as internists, respirologists, and thoracic surgeons. As a result the waiting times for treatment for some patients were prolonged by the highly variable process of undergoing investigations, consultations, and decision-making.

The EMLC program is budgeted to cost $15.4 million for the first three years of operation. Funding will also provide for:

- A 70 per cent yearly increase in the number of diagnostic bronchoscopies (lung examination and biopsy) to a total of 3,150.

- A 46 per cent yearly increase in the number of CT-guided biopsies for lung cancer, for a total of 1,582.

- A 13 per cent yearly increase in the number of lung cancer operations performed in Calgary and Edmonton, for a total of about 1,600.

Even before the announcement last December, additional resources had been made available in Calgary and Edmonton for lung cancer patients, under the provision of extra funding for "Tier 1 Measures", as part of the AHS plan for performance (or improvement) measurement. This funding covered the purchase of a PET scanner for Calgary as well as increased operating room (OR) time in Edmonton and Calgary for lung cancer operations. Tier 1 funding, however, covers not only lung cancer care but also such procedures as heart bypass, cataract extraction, and hip/knee joint replacement. Deciding which procedures should be carried out – for which group of patients (young, old, male, female) and in what time frame – is one that governments, AHS, and the public all need to discuss.

Other problems in the system that have yet to be dealt with include:

- Patients do not have any standardized methods of communication with their providers that would allow them to determine how their journey of care is progressing. For example, patients have to rely on phoning their referring family doctor, their surgeon, or another physician to learn if they are on a 'surgical waiting list' and how long their wait will be.

- Physicians are working at or over their capacity to deal with the increased numbers of cancer patients requiring care in clinics, in the OR, on the inpatient units, and in the oncology centres. While such efforts can be maintained in the short term, doing so in the longer term could be harmful to both physicians and patients. Sustainability has not been discussed or planned.

- Alberta Health Services does not have a province-wide surgical patient registry that would allow the tracking of referral of patients from a family doctor to a respirologist or thoracic surgeon, nor any way of determining how many patients are waiting for assessment or surgery.

- While there are provincial and zonal data or information systems about patients (Alberta NetCare and Picture Archiving and Communications System (PACS)), these systems do not always allow access by physicians across zones who may be providing care to patients with (suspected) lung cancer. Because the results of investigations are not always accessible, some patients must undergo repeated investigations – or face longer waits. Such unnecessary repetition wastes time, effort, investigative resources, and financial resources. With respect to information systems about ORs, the Calgary Zone has the most advanced, with an OR Information System (ORIS) that allows patients to be classified as 'urgent' versus 'scheduled' and to generate reports on times for 'waiting for an operation' for both groups. In contrast, in Edmonton, each of the hospitals uses different operating management systems and so acquiring zone-level information would require linking quite different hospital-based systems. There should be one system across all AHS surgical services.

- In any hospital, the number of operations that can be undertaken is limited by the number of ORs, surgeons, anesthesiologists, nurses, intensive care unit (ICU) beds, and inpatient beds. Restrictions in any one of these can mean that operations are postponed.

> *Physicians are working at or over their capacity to deal with the increased numbers of cancer patients requiring care in clinics, in the operating room, on the inpatient units, and in the oncology centres. Over the longer term this could be harmful to both physicians and patients. Sustainability has not been discussed or planned.*

CONCLUSIONS

There were two objectives specified in the Terms of Reference for the cancer surgery part of the HQCA review:

- To determine whether the quality of care and the safety of a group of 250 patients on a surgical wait list of 1,200 were seriously compromised due to delayed access to surgery as alleged in a question raised in the Alberta legislature on February 28, 2011.

- Based on the findings and analysis of the investigation and an analysis of current practices, make recommendations for system-level improvements in access and wait times for cancer treatment.

During the course of the review the QAC gained insight into the challenges that were encountered with managing the thoracic surgery program in the former Capital Health.

Conclusions regarding the question of a group of 250 patients on a surgical wait list of 1,200

- The allegation that about 1,200 patients are (*sic*) (were) on a waiting list for lung surgery is unfounded.

- The allegation that 250 patients died waiting on a lung surgery waiting list is unfounded.

- The inference that physicians who raised these issues were punished, driven out of the province, or paid out in millions because of advocating on behalf of patients is not supported by the facts.

- There is no basis for suggesting that former Ministers of Health and Wellness, the former CEO of Capital Health, or the Registrar of the College of Physicians & Surgeons of Alberta suppressed knowledge of illegal or unethical behaviour or actions.

- The QAC is satisfied that when the issue of the waiting list first surfaced, the former Capital Health launched an appropriate investigation and took actions to ensure that patients were appropriately followed and had an opportunity to receive testing and treatment.

- The QAC cannot, with 100 per cent certainty, conclude that no patients experienced a delay in surgery such that the delay compromised their chances for long-term survival because the QAC did not have sufficient information to identify patients that would have allowed an independent investigation of patient outcomes. Nevertheless, based on extensive interviews and analysis of data from Alberta, Edmonton and Calgary for incidence and mortality rates, surgical resection rates and proportion of patients presenting with early stage lung cancer, no evidence could be found of a systematic worsening of patient outcomes for Edmonton patients.

- There were issues and concerns with how a former surgeon at the UAH was managing a surgical waiting list; concerns included:

  - Appropriateness of patients on a 'surgical wait list'; many patients who were on the list were not candidates for the operation that appeared to have been proposed for them.

  - Appropriate prioritization of patients; that is, which patient would go next to the operating room.

  - Appropriate and timely follow-up of patients who required additional diagnostic testing.

Conclusions regarding the management of lung cancer surgery waiting lists

- The management of cancer surgery waiting lists has been and continues to be problematic. This is the result of:

  - Variability in the use of the standard approach for disease and procedure classification (e.g., the International Classification of Disease).

  - Non-standardized criteria/definitions for:

    - Indications for surgery

    - Clinical staging of disease

    - Overall (medical) fitness of the patient for surgery.

  - Variability in the workup of patients who may require surgery, with respect to type and timing of investigations and consultations.

  - Variability in the criteria used by surgeons to determine that an operation should proceed; that is, the definition of 'operability'. Future refinements in this definition may lie in developing standardized care pathways, which will also establish definitions and thresholds for surgical and non-surgical treatments.

  - Variability as to when patients are registered (listed) with a specific AHS hospital for an operation.

- Current efforts by Alberta Health Services to standardize and streamline the diagnosis for patients with suspected lung cancer and reduce waiting times for surgery are steps in the right direction. It is possible, however, that current efforts will not help patients or their primary-care physicians know when a patient has been placed on a waiting list or learn (without phoning the surgeon) the estimated date of an operation.

Conclusions regarding the management of thoracic surgery and physician performance in the former Capital Health

- While there was a small group of physicians advocating for additional resources, these efforts had no bearing on what finally transpired between Capital Health and the surgeons. The key findings from this review centred on whether appropriate procedures, including appeal processes, were followed to ensure administrative fairness in evaluating the performance of the physicians involved.

- There were factual issues of physician behaviour and questions about the quality of patient care that required intervention and review by the UAH and Capital Health senior medical and administrative leaders. Senior leaders' lines of authority were blurred and at times undermined by others who intervened because they had the power to do so. The Capital Health Board of Directors, which had delegated the authority to handle physician performance and privileging issues to senior management, was not involved. There were and remain strong opinions about the appropriateness of the way the issues were handled by those involved. The lessons learned from that time focus on the need to have very clear physician performance review-and-appeal procedures based on medical staff bylaws and administrative contract management. These are characteristics of a 'just culture' in an environment that must be focused on safety, where individuals are encouraged to raise concerns without fear of reprisal – a common concept in healthcare. While the handling of physician performance issues

frequently requires leadership judgment, ignoring procedures – or, worse, having no procedures – can result in multi-faceted human resource management problems that will and do have a devastating effect on the individuals involved (both those making the decisions and those on the receiving end). When there are no clear rules, or the clear rules are not followed, disagreements invariably arise that can lead to ad hoc involvement of the College of Physicians & Surgeons of Alberta (CPSA).

- There was considerable confusion among the parties as to the manner and timing of CPSA's involvement. Generally there is a pervasive fear among physicians of even the appearance of the CPSA's involvement, given that the CPSA has ultimate control over a physician's right to practise medicine. Involving the CPSA must always be handled in the most appropriate manner.

- The focus of Capital Health reviews into quality-of-patient-care issues in thoracic surgery appeared to rest primarily on individual physician performance with little emphasis on important system issues that no doubt contributed to patient outcomes. Some of these issues would include:

  - Surgeons practising in isolation without the ability to review cases with similarly trained colleagues or having access to highly skilled surgical assistance for complicated cases.

  - Excessive night and weekend 'call'.

  - Excessive workload.

  - Excessive fatigue (contributed to by call and workload).

  - Lack of leadership training among physicians.

> *There were factual issues of physician behaviour and questions about the quality of patient care that required the UAH and Capital Health senior medical and administrative leaders to intervene. Senior leaders' lines of authority were blurred and at times undermined by others who intervened because they had the power to do so. There were and remain strong opinions about the appropriateness of the way the issues were handled by those involved.*

RECOMMENDATIONS

Recommendations related to the alleged list of 1,200 patients

Analysis

The following allegations were made by the MLA for Edmonton-Meadowlark on February 28, 2011 in the Alberta legislature that: (1) "*about 1,200 Albertans are on a wait list for lung surgery, and 250 died waiting on that list, many with lung cancer*"; (2) "*this happened under Minister Mar and the Hon. Member for Sherwood Park and that Dr. Trevor Theman of the College of Physicians & Surgeons of Alberta, and Capital Health and Sheila Weatherill knew about this*"; and (3)"*physicians who raised these issues were either punished or driven out of the province or paid out in millions to buy their silence and the costs buried in the books under the former Capital Health Region.*"

The allegations implied that physician advocacy for patients, physician intimidation, and muzzling associated with financial payments played a part in the 1,200-patient waiting list and the involved thoracic surgeons.

These allegations were examined very thoroughly through extensive, semi-structured interviews protected by the Quality Assurance Provisions of Section 9 of the *Alberta Evidence Act*, informal confidential conversations, extensive documentary reviews, and careful analysis of patient wait lists.

7. RECOMMENDATIONS

The Government of Alberta take no further action, and not establish a judicial or health inquiry, to examine:

- **The allegation of a list of 1,200 patients on a lung surgery wait list or patients who may have died who were on such a list.**

- **The allegation regarding the roles and actions of former Health Ministers, the former CEO of Capital Health, and the Registrar of the College of Physicians & Surgeons of Alberta.**

- **The allegation that the physicians who raised the issues regarding a 1,200-patient waiting list were either punished or driven out of the province or paid millions to buy their silence and the costs buried in the books under the former regional health authority.**

Recommendations to improve the management of (lung) cancer surgical waiting lists

8. RECOMMENDATION

Alberta Health Services develop standardized approaches for the creation of surgical waiting lists making surgical oncology waiting lists a priority.

REQUIRED ACTIONS

- Alberta Health Services develop a patient care and patient flow map for common oncology operations that documents work up and clinical decision-making up to the point that a patient meets criteria for requiring a surgical operation and hence placement on a wait list.

- Alberta Health Services develop standard criteria for when patients are officially placed on a wait list.

9. RECOMMENDATION

Alberta Health Services invite key stakeholders (e.g., patients and non-surgical healthcare providers) to participate in the Lung Cancer Surgery project so that stakeholder needs are considered.

REQUIRED ACTION

- Alberta Health Services ensures that stakeholders contribute to all phases of the project, including the design of a public portal to an information system that would allow them to determine when they are on an 'official' surgical waiting list and what their current status on that list is.

10. RECOMMENDATION

Alberta Health Services develop a comprehensive physician staffing plan (that at a minimum would include respirologists, thoracic surgeons, radiation oncologists, and medical oncologists) to ensure long-term viability of its Lung Cancer Surgery project.

CONCLUSIONS AND RECOMMENDATIONS CONCERNING THE OVERALL HEALTHCARE SYSTEM

During Part A of the review the QAC found evidence of, and reached conclusions about, the overall functioning of Alberta's healthcare system that pertain to more than just emergency department (ED) or cancer surgery. A brief analysis is followed by the QAC's conclusions and recommendations.

Issue: The impact of restructuring the healthcare system

Analysis

It is widely accepted that ED performance (waiting times, number of patients waiting) is the 'canary in the coalmine' indicator of overall healthcare system performance because EDs serve as the healthcare safety net for a population.[71] Following the formation of Alberta Health Services, several key indicators of ED and hospital crowding became substantially worse:

- Median length of stay for admitted patients (Figure 9a).

- Waiting time for an inpatient bed following a decision to admit (Figure 19a and 19b).

- ED beds occupied by emergency inpatients (Figure 21).

- Inpatient bed occupancy rates (Figure 22a and 22b).

After some stability in leadership over the past year, noticeable improvements have occurred, but results have only now reached the levels of 2006/07.

Conclusion

Health system performance deteriorated for several years following major restructuring in 2008 and only now are the performance measures starting to show a return to 'pre-AHS' levels. This conclusion supports recommendation 1 in Part B of this report.

Issue: Healthcare administrative structure and organization

Analysis

In comparison to Calgary, on a per-population basis, Edmonton has more acute care inpatient bed capacity (Figures 23 and 24), long term care/supportive living spaces (Figure 28) and slightly lower hospital occupancy rates (Figure 22) yet has had substantially worse ED lengths of stay for patients requiring admission to hospital (Figure 19). These results suggest fundamental differences in how these two healthcare systems previously functioned (and in many respects continue to function). Based on many interviews the QAC concluded that the differences between Edmonton and Calgary are likely best explained by the historical differences in how they were structured and organized. In Calgary, programs and departments used to be, and mostly still are, regional in structure; that is, there are single departments of emergency medicine, surgery, medicine, obstetrics and gynecology, anesthesiology, etc. In contrast, departments and programs in Edmonton are mostly site-based, meaning each acute care facility has its own departments and programs and two of the hospitals (Grey Nuns Community Hospital and Misericordia Community Hospital) are under a separate governance structure.

In the review of thoracic surgery, one of the important issues that surfaced was the two-site model for the delivery of thoracic surgery that evolved in a region that did not have the population base or surgical volume to justify it. Competition between acute care institutions leads to duplication of services and missed opportunities to develop strong regional (zonal) programs of care delivery.

Conclusion

Historically the performance of Edmonton's healthcare system has been hampered by having strong site-based programs at its two largest acute care sites and having an independent healthcare system governing its two smaller acute care sites.

11. RECOMMENDATION

Alberta Health Services implement a clinical program management model within its geographical zones that fully integrates all hospitals and urgent care facilities under single-program or service-based leadership.

Issue: Organizational learning regarding strategic planning and leadership

Analysis

Capital Health's strategic plan to address ED crowding, the Emergency Services and System Capacity (ESSC) project, was not clearly articulated to key stakeholders, such as the ED physicians, despite a sizeable investment in the project. The plan to address crowding was by necessity a broad, system-wide approach rather than a quick fix. The ESSC project was not on the agenda of the region's Board of Directors or its Regional Medical Advisory Committee. The QAC concluded from this that ED crowding was not a high priority in the former Capital Health. In an evaluation of the ESSC project done in spring of 2009 it was determined that the project did not deliver the anticipated improvements in ED crowding. One of the deficiencies of the project would have to be that it did not have a clear strategy to address the fundamental causes of severe ED crowding: high inpatient occupancy. Although longer-than-average length of stay for key case mix groups was highlighted as an important issue, there were no fundamental changes to how inpatient care was structured or delivered; average length of stay did not change. In contrast to the lack of results in Edmonton, the former Chinook Health Region developed a strong strategic plan, consistent top-level leadership with an excellent understanding of quality improvement and change management, successful engagement of frontline clinicians, and transformation of acute care beds to long term care/supportive living beds while still maintaining workable inpatient occupancy rates. This was accomplished by shortening inpatient length of stay at a time when it continued to lengthen in both Calgary and Edmonton. The former Chinook Health Region, albeit less complex than the two larger centres, exemplifies what has been described as common habits of high-value healthcare systems:[72]

- Specification and planning: Both operational decisions (e.g., patient flow through an ED) and core clinical decisions are based on explicit criteria.

- Infrastructure design: A deliberate design of clinical microsystems (the core units that deliver care to populations of patients), including staff, information, and clinical technology, physical space, business processes, and policies and procedures that support patient care.

- Measurement and oversight for internal process control: Measurement is integrated with other organizational priorities so that it is an integral part of accountability and performance management.

- Self study: Organizations study positive and negative deviances in their processes and outcomes of care, which allows them to make improvements.

Conclusion

There is an opportunity for Alberta Health Services and other healthcare organizations to broaden their knowledge of organizational leadership and strategy. Developing case studies would help develop 'corporate memory' and provide clinical and administrative leaders with key lessons about organizational planning, accountability, engagement of frontline providers, and the importance of developing and following key performance metrics and change management protocols.

12. RECOMMENDATION

Alberta Health Services develop and use case studies about: (1) the strategic planning and implementation of system-wide interventions that the former Chinook Health Region undertook; and (2) the former Capital Health's Emergency Services and System Capacity project.

Issue: Empowering clinical programs and services to conduct quality assurance reviews

Analysis

The QAC found no evidence that the ED physicians in the former Capital Health were supported in leading their own formal quality assurance reviews. Rather, the QAC was provided with examples of quality assurance reviews that were led by one or more individuals from outside of the department or by an administrator with authority for the department. This approach to quality assurance can be, and was, perceived as potentially punitive, which does not support the development of a just culture that is a fundamental underpinning of a safety culture.

Conclusion

A complete understanding of how quality assurance reviews can and should be used in a manner that supports a safety culture was not evident in the former Capital Health's EDs.

13. RECOMMENDATION

Alberta Health Services ensure that its departments or services develop the expertise and the accountability for conducting their own quality assurance reviews with the sole purpose of the review being to improve the reliability and safety of the patient-care delivery system.

PART B

THE ROLE AND PROCESS OF PHYSICIAN ADVOCACY
(including physician intimidation)

BACKGROUND

On March 12, 2011 the Honourable Gene Zwozdesky, Minister of Health and Wellness, directed the Health Quality Council of Alberta (HQCA) to conduct an independent review that closely examines wait times for emergency department (ED) services and for cancer care services in the Province of Alberta pursuant to Section 13 of the *Health Quality Council of Alberta Regulation*. Linked to the issue of wait times for cancer care services (lung surgery) were allegations that physicians had been intimidated after advocating for more resources.

Following the Minister's request for the review, there continued to be ongoing pressure from opposition party politicians and the Alberta Medical Association (AMA) for a judicial inquiry into the issue of physician advocacy. The Minister and then Premier Ed Stelmach upheld the decision to have the HQCA conduct a review.

Through March and into April 2011 political pressure mounted. On April 15, the AMA called on the provincial government to launch a full judicial inquiry into growing concerns over allegations of physician intimidation in the health system. The Minister reiterated his decision to have the HQCA conduct a review. During this time, some physicians came forward with alleged cases of intimidation and the calls for a judicial inquiry intensified. As a result, the scope of the physician advocacy component was revised to include a review of the allegations of physician intimidation and muzzling.

METHODOLOGY

This review was conducted by an appointed quality assurance subcommittee (QAC) of the Health Quality Council of Alberta QAC and was conducted in accordance with Section 9 of the *Alberta Evidence Act*.[68]

Any reports issued by the QAC contain only findings and recommendations aimed at system-level improvements for healthcare delivery in Alberta.

There were four major sources of information used for this review:

- A comprehensive review of the healthcare literature on physician advocacy and intimidation.

- A province-wide survey, *Role and Process of Physician Advocacy*, to Alberta physicians to gain an understanding of physician knowledge and experience related to advocacy in Alberta, and the extent to which their advocacy for patient care was supported or obstructed by healthcare provider organizations, government, professional colleges, and others. (see Appendix VIII)

- Interviews to gain perspective on historical and current practices related to physician advocacy.

- Documentation review.

A comprehensive review of the healthcare literature

The University of Calgary's Institute for Public Health was commissioned to conduct a literature review on physician advocacy and intimidation. (Appendix VII) A search to retrieve potentially relevant papers from appropriate databases included the following key terms: 'physician', 'advocate', 'physician advocacy', 'patient(s)', 'intimidation', 'government', 'consumer advocacy', 'health policy', 'policy reform', 'Canada', 'healthcare reform', and 'patient rights'. These databases covered the broad topics of healthcare, psychology, sociology, philosophy (for ethics papers) and the law. The review also encompassed a variety of grey literature[viii] databases and websites for professional associations and research reports. The grey literature databases and sources were also searched.

A province-wide survey to Alberta physicians

Prairie Research Associates Inc. (PRA) was contracted to coordinate the logistics of the survey. A public mail contact list for 7,964 registered physicians was obtained from the College of Physicians & Surgeons of Alberta (CPSA). The names of seven physicians were removed from the database because their mailing addresses could not be verified.

The process for mailing and follow-up is outlined below:

[viii] Refers to material that might not be peer reviewed, indexed on major databases, or published commercially; examples would include publications of government or non-profit organizations and conference proceedings.

- The 7,957 invitation letters and surveys were mailed to physicians on October 20 and 21, 2011.

- The names of physicians who had completed the survey, withdrawn from the study, or whose invitation letter had been returned to the HQCA as undeliverable, were removed from the contact list. On November 15, 2011, 6,948 physicians were mailed reminder postcards to encourage them to complete the survey.

- A second survey package, including a letter and another copy of the survey, was mailed to 6,523 physicians November 29 and 30, 2011, again removing 'completes', 'withdrawns' and 'undeliverables'.

Consistent with privacy regulations, private mail and email addresses were not provided. Given the expectation this public contact list would miss some potential respondents; that physician survey response rates are generally low; and that some breakdown was required for the analysis by physician type and location, the HQCA chose to use a census rather than a sampling approach, meaning an attempt was made to reach all physicians in Alberta.

A modified Dillman[73] mail survey protocol was used with an initial mailing of the survey and supporting material, a reminder postcard and a repeat mailing of the full survey package. The protocol was modified in that physicians were able to complete their individual survey via a secure web address if they chose to do so.

Overall, 7,957 survey packages were mailed, 212 (2.7 per cent) were returned as invalid addresses, 36 (0.5 per cent) declined, 2,046 were completed (1,589 by mail and 457 by web form) resulting in a response rate of 25.7 per cent. Returned paper surveys were scanned and validated using Teleform and Web forms were filled and submitted directly by physicians. Data were cleaned and merged into an SPSS (Statistical Package for the Social Sciences) data file, which is software for statistical analysis. Open-ended "other" responses were coded and multiple-mention "choose all that apply" items were formatted as multiple response sets. Univariate (one variable), bivariate (the connection between two variables), and multivariate analysis was undertaken in both SPSS and STATA (portmanteau of the words *statistics* and *data)* software.

A total of 478 responses to the final question of the survey, an open-ended question that asked respondents to identify "any additional comments, concerns, or suggestions regarding physician advocacy issues as you have experienced them in your practice", were analyzed. All the comments were collated and a thematic analysis was completed. This resulted in subjective descriptors to provide a sense of the frequency of times the QAC read comments that seemed to reflect similar ideas. Individual quotes reflect the specific language and tone of interviews, and were used to build the shared themes. In the analysis, only quotes that were not identifiable or attributable to a specific individual were used to exemplify the breadth of experiences within themes. These comments should be considered together with the quantitative analysis to get a comprehensive perspective of survey respondents' views.

Interviews to gain perspective on historical and current practices related to physician advocacy

Interview participant selection

Participation in the quality assurance review was voluntary. The QAC invited those who were believed to have insights on historical and current practices related to physician advocacy to be interviewed. Subsequently, interviewees were asked to suggest others whom they thought should be interviewed. Physicians were encouraged to come forward on their own initiative.

As well, the (former) Premier, Ed Stelmach, made an open invitation during question period in the legislature on April 27, 2011, stating, "This government does not ignore any healthcare worker. They are all free to come forward, before the Health Quality Council and deliver evidence, ways of improving cancer treatment, reducing emergency waiting times, ensuring that the good healthcare system is sustainable (and) is here well into the future. The opportunity is there. We welcome all of them to come forward."[74] AHS encouraged anyone associated with the organization to participate in the review. The CPSA and the AMA both supported physician participation in the review.

In 106 separate interviews, the QAC spoke with 99 people; five people who were invited declined to participate.

Interview process

A semi-structured process was used for each interview. At the beginning of each interview, an overview of Section 9 of the *Alberta Evidence Act*[68] was provided and any questions about the interview process were answered. All interviewees who had an association with Alberta Health Services (AHS), the University of Calgary Faculty of Medicine, or the University of Alberta Faculty of Medicine were provided with letters assuring interviewees that there would be no repercussions to them, from these organizations, for participating in this review. (Appendix III) All interviewees were asked for verbal consent to record their conversation; if they preferred not to be recorded, only typed and written notes were taken. The interview recordings, notes, and relevant documentation provided by interviewees were used to assure accuracy and for the qualitative thematic analysis. Interviewees were reassured that all recordings and notes would be kept confidential and would be destroyed at the end of the review.

All interviews were conducted under Section 9 of the *Alberta Evidence Act*.[68] The names of people who either initiated an interview with the QAC or were invited to participate, and whether or not they participated, will be kept confidential by the QAC.

All interviewees were asked about their perceptions of physicians advocating for their individual patients, groups of patients and communities, and where appropriate, for their insights into advocacy associated with the (ED) and/or lung cancer surgery in the former Capital Health.

Qualitative data analysis

An exploratory descriptive methodology[ix] was used to analyze the interview data. A working group of three members of the QAC developed the methodology for and conducted the qualitative analysis of the interviews.

The first 10 interviews were used to establish inter-rater reliability, to confirm that all working group members were using the same focus when examining the interview data. While independently listening to the taped interviews and/or reviewing the notes from the interviews, the working group members documented key expressions, which were then grouped as preliminary common perspectives or emerging themes. These themes were validated through the analysis of the next 20 interviews and were then used to analyze the remaining interviews. These themes were validated with all members of the QAC.

It is important to remember that the interview data reflect subjective perspectives shared by the individuals interviewed by the QAC. Individual quotes reflect the specific language and tone of interviews and were used to build the shared themes. In the analysis, only quotes that were not identifiable or attributable to a specific individual were used to exemplify the breadth of experiences within themes. As this analysis used an exploratory descriptive methodology, every attempt was made to provide a comprehensive picture of the diversity of the comments received.

The objective of the review was not to test specific hypotheses, which could then be generalized to all physicians, but rather to explore and describe the current state of understanding related to physicians in Alberta advocating for their patients as experienced by the 99 interviewees. Consequently, there are no references to the frequency with which any one theme emerged. Instead, subjective descriptors are included to provide an order of magnitude of the number of times comments were made that seemed to the QAC to reflect similar themes. Ideas expressed by one individual were included to limit interpretation bias and to reflect the range of perspectives and opinions that currently exist about physicians advocating for patients.

Documentation review

Documents relevant to organizational factors and processes that may influence physician advocacy were obtained through several sources. These included documents provided by interviewees, additional literature sourced and reviewed by the QAC, and multiple documents requested from and provided by Alberta Health Services. Relevant documentation was reviewed and analyzed by the QAC and referenced during the analysis and report writing process.

[ix] Approach used when there is limited knowledge in the topic: presents a picture focusing on the "what", "how", and "who"

FINDINGS

Literature review

The University of Calgary's Institute for Public Health completed a comprehensive review of both the scholarly and grey literature on physician advocacy, with a focus on the issue of intimidation of physicians when advocating for patient populations. The review highlighted evidence for effective strategies that address the issue of physician advocacy on matters of health policy and public policy, with emphasis on articles relevant in the context of Alberta and Canada. (Appendix VII)

The comprehensive literature review specific to physician advocacy and additional literature obtained by the QAC were used.

Defining and describing advocacy

The literature review highlighted the problem of the lack of a clear definition of advocacy. Earnest et al (2010) defined physician advocacy as "action by a physician to promote those social, economic, educational and political changes that ameliorate the suffering and threats to human health and well-being that he or she identifies through his or her professional work and expertise".[75] Other authors identify principles of advocacy, which included "must be structured to be as free from conflict of interest as possible, requires competence and vehemence on the part of the advocate guided by a clear understanding of the social situation, and not undertaken from a neutral position". Hurley (2007) specifically identified the qualities of knowledge, passion, skilled communication, vigilance, and perseverance as needed for successful advocacy.[76]

The Royal College of Physicians and Surgeons of Canada's' (RCPSC) work on CanMEDS (2005) is often referenced as a key source of direction on physician advocacy.[77] This work describes seven interconnected roles that are embodied by competent physicians. The central role, medical expert, is supported by six other roles: communicator, collaborator, manager, scholar, professional, and health advocate. The health advocate role emphasizes concepts of advocacy for individual patients, recognizing determinants of health in populations served, and identification of larger public health issues. As health advocates, "physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities and populations".

The literature review included numerous references affirming physicians should advocate, most often in the role of care provider to individual patients, and less often for populations or society. Interestingly Huddle (2011) makes a case as to why physicians should not be *obligated* to advocate, arguing that "there are compelling reasons why physicians ought not to regard the achievement of societal health through the political process as necessary … professional morality must not demand that physicians always favour spending more resources on health and less on, say, pensions or police".[78] There are, however, examples provided from the literature, where physician advocacy has made significant changes to the health of the public, such as safety measures to stop preventable traumatic events.

Furthermore, health advocacy is appropriately expressed by individual and collective actions of physicians in influencing public health and policy. The CanMEDS work describes the elements of advocacy (e.g., fiduciary duty to care, responsible use of authority and influence, patient safety, and

mobilizing resources as needed), key competencies (e.g., responding to individual patient health needs and issues, responding to the health needs of the communities they serve, identifying the determinants of health of the populations they serve, and promoting the health of individual patients, communities, and populations), enabling competencies (e.g., describing the ethical and professional issues inherent in health advocacy including altruism, social justice, autonomy, integrity, and idealism, and appreciating the possibility of conflict inherent in their role as health advocate with that of manager or gatekeeper and appreciating the possibility of competing interests between the communities served and other populations), and emphasizes the interdependence between and among the other roles.

Earnest (2010) identified the unique status or position physicians enjoyed that allowed them to advocate more directly with key decision makers, such as politicians and administrators.[75]

Organizational culture: the impact on behaviour

Current literature contains a broad range of dissertations on organizational culture with the basic premise that culture represents the shared values and beliefs that guide behaviour in the organization. It is the road map for how members of the organization relate to each other and get their work done. Development and recognition of culture requires organizational stability, usually of key leaders, to allow the organization to recognize, with consistency, what is valued and rewarded.

Ron Westrum in his article on organizational cultures states that there is a widespread belief that organizational culture shapes many aspects of performance. He defines culture as the "organization's pattern of response to the problems and opportunities it encounters".[79] Culture therefore reflects the basic values of the organization and will most often define its response to internal and external events. While these intrinsic values can be responsive to significant events such as change in leadership or a change in organizational strategy, it often takes a significant period of time for new values and beliefs to become engrained in the mainstream culture. How an organization views internal advocacy activities and how it reacts to a perceived transgression of its values or beliefs can be interpreted as a reflection of the culture of the organization. Using this frame of reference it is possible to view individual perceptions and organizational behaviour in these terms.

Daft and Armstrong identify that a critical function of culture in organizations is to integrate members so that they know how to relate to one another. It defines the behaviours that are required to work in that environment and the latitude that will be accepted. The strength of a culture, in their view, "is related to uniformity (no antagonistic subcultures), organizational age (strong culture takes time to form), and turnover (culture requires stable relationships)".[80]

Just culture and trust

James Reason's work on accident management in high-risk industries such as aviation and nuclear science describes the high value that is placed on developing an organizational culture of safety.[81] Foundational to this is a 'just culture', where people are seen to be, and are, treated appropriately and fairly and there is an element of trust underlying relationships in the organization. In this environment, individuals are encouraged to speak up without fear of retribution, to bring forward safety concerns for action. Without this psychological safety, issues may linger, corrective solutions can be delayed, or a

preventable adverse event may occur as issues remain hidden. A just culture is therefore critical for safe healthcare organizations.

As early as 1982, Deming wrote about fear-based cultures and the detrimental effect they had in keeping people from speaking up or sharing ideas for fear of punishment.[82] In a culture of fear, there is no trust. Sally Bibb, in her article "Trust: An Organization's Most Valuable Commodity", states that "building and maintaining trust should be high on the agenda of CEOs and Human Resource directors because it underpins a range of issues" in the organization.[83] She describes several elements of a low-trust culture:

- Skepticism about the leader: If people are skeptical about their leader, it means they don't trust him or her.

- Cynicism: "A symptom of mistrust (whereby) it closes off possibilities and is damaging to organizations because its underlying attitude is 'I don't believe this; it will never work'. It drains people's energy, causes them to lose hope and not to even bother".

- Fear: Low-trust cultures are characterized by "fear of the boss and fear of making a mistake because of repercussions".

- Spin: This kind of communication is a sign of lack of openness and transparency. "When messages are managed very carefully people become suspicious of what is really going on."

Organizations with a trusting culture have characteristics such as shared values, including "integrity and honesty" and "open authentic leadership", where the leader is trusted, trusts others in the organization, and values that trust. It is a basis for high employee engagement as open, honest discussions are encouraged and supported.

> *In a 'just culture', people are seen to be treated appropriately and fairly and there is an element of trust underlying relationships in the organization. In this environment individuals are encouraged to speak up without fear of retribution, to bring forward safety concerns for action. Without this psychological safety, issues may linger, corrective solutions can be delayed, or a preventable adverse event may occur as issues remain hidden. A just culture, therefore, is critical for safe healthcare organizations.*

Galford and Seibold Drapeau, in their *Harvard Business Review* article "The Enemies of Trust", describe three distinct but linked types of trust in an organization: strategic trust, which is trust in people running the organization; personal trust, the trust in your manager; and organizational trust, the trust that the organization's processes are consistent and fair.[84] A breach of trust in any one area, can influence trust on the other two levels. These authors also describe the virtues of having a trustworthy organization: "If people trust each other and their leaders, they will be able to work through disagreements. They take smarter risks … if they don't trust the organization, they will disengage from their work." J. Firth-Cozens in his article on organizational trust, notes the "difficulty in building trust in a culture of fierce competition for resources and a general climate of social distrust".[85]

Physician education on advocacy

The literature review identified barriers to physician advocacy, including not feeling prepared, insufficient time for advocacy activities, and evidence of resistance from the medical establishment, public, and governments. Two papers found that medical residents felt inadequately prepared to take on the role of health advocate and a literature search in 2005 found no studies on the curriculum of healthcare advocacy in residency education in Canada. The papers identified barriers to teaching health advocacy, including time pressure with other curriculum requirements, no role modelling of health advocacy among teaching faculty, uncertainty among faculty members about their roles in teaching advocacy (never having learned it in their own training), and lack of remuneration for advocacy activities. These two authors recommended ways to integrate advocacy-related competencies into medical training, identified what the teaching of physician advocacy would ideally include, and provided some current examples where health advocacy has been highlighted in the curriculum in the U.S. and one example from the Toronto Emergency Medical Subspecialty Training program. A recent article by Dharamsi et al (2011) from the University of British Columbia identifies the CanMEDs competencies as a means to operationalize social responsibility in medicine, especially the competencies that deal with professionalism and health advocacy. They point out that advocacy is a "difficult role to teach and evaluate" and identify that "medical schools, future physicians, and the communities they have a mandate to serve will need to work together to identify appropriate advocacy opportunities, what specifically should be learned and why, how it can be best taught, and how learning should be assessed."[86]

Physician advocacy effectiveness

Bergman (1994) provided some pragmatic suggestions on how to effectively advocate, describing his approach as the 'politics of the powerless', explaining how to realize effective advocacy without personally having the power or influence over someone to change laws.[87] Suggestions such as the need to have staying power, focus on the ultimate goal (not on the noise or hype you may be creating), pick the right goal and make it focused, pick a topic relevant to your own practice, observe how role models advocate, try to garner support from different parts of the political spectrum and different occupations, and if necessary get public opinion through the use of the media.[88] He also suggested some things not to do such as "crying with like-minded people about a difficult situation for your patients" or "telling people how morally superior you are as part of your advocacy". Other authors described explicit processes to follow, including the importance of diagnosing the political nature of the health issue, understanding the key political decision makers and determining a specific strategy. A common theme in the literature is that physicians need to engage as constructively as possible by focusing on issues and positive change, rather than on shame and negativity.[88]

> *The Canadian Medical Protective Association writes that conflict can arise when physicians advocate, but this conflict should not always be viewed as negative as "issues may be more fully understood through differences exposed through that conflict".*

In 2006 the CMPA (Canadian Medical Protective Association) wrote about the changing relationship between physicians and hospitals and identified six areas of concern, one being physicians as advocates, which they perceive will take on an increasingly important role in the future.[89] CMPA writings point out that conflict can arise when physicians advocate, but this conflict should not always be viewed as negative as "issues may be more fully understood through differences exposed through that conflict". They also noted increasing efforts to stifle advocacy on behalf of organizations and government.[90] Published accounts of physicians being subject to intimidation are evident in both in the peer-reviewed and grey literature. The CMPA article provides examples of attempts to constrain physicians from advocacy, noting this is contrary to lessons learned in safety-driven organizations where employees are encouraged to speak out. They also identify examples from the National Health Service in the United Kingdom and the U.S. of intimidation of whistleblowers. Consistent with other writings, there is a theme that governments and health system administrators need to embrace physician advocacy and that the physician voice, on behalf of the public, needs to be welcomed. They are also encouraged to use processes based on procedural fairness and fundamentals of natural justice.

This sentiment was echoed by David Saltman (2011) who proposed that physician advocacy activities may result in physicians being in conflict with government healthcare priorities and agendas, but reaffirming that advocacy should be welcomed, not constrained.[91]

Physician intimidation

Intimidation can take many forms; it can be insidious, or overt; it may involve some manner of incivility (deliberate discourtesy), verbal or perceived threats, active bullying, or in the extreme, violence. These disruptive behaviours undermine any attempt to create a just culture where people are free to speak up on issues of concern. In a 2002 publication, the CMPA reported 100 cases of physician intimidation that had been presented to them from across Canada.[90] While not unique to physicians, in a study of healthcare workplaces Felblinger (2008) described the negative consequences of "bullying, incivility and their associated disruptive behaviours" and highlighted the organizational responsibility to develop processes to manage threatening and intimidating actions.[92] Gary Namie, in his article "Workplace Bullying; Escalated Incivility" (2003), puts forward a model of workplace disruption where incivility, bullying, and physical violence lie on a 10-point continuum.[93] Incivilities range from 1 to 3, bullying extends from 4 to 9, which describes the level of interference with work productivity, and finally a score of 10, which defines violence that stops work from taking place. Any of these disruptive behaviours can be perceived as intimidating and, if not addressed, can lead to a culture of fear and mistrust. Namie describes fear as silencing not only those who have been directly affected but also their co-workers who are looking to avoid a similar experience.

Marshall and Robson in their article "Preventing and Managing Conflict: Vital Pieces in the Patient Safety Puzzle" (2005) suggest that fear, in creating anxiety and mistrust, leads to failures in communication and lack of co-operation and teamwork.[94] "The inevitable result is high levels of conflict among and between healthcare professionals" and that this "unacknowledged and unresolved conflict" is a significant contributor to unsafe cultures. Furthermore, in the experience of the authors, there is a reluctance to acknowledge that "unresolved conflict is pervasive in today's healthcare systems" and they cite a number of characteristics of the healthcare system that would suggest that it is almost

inevitable. The article described their recommendations for a multi-faceted approach for organizations to build "conflict management strength". In the course of this review, interviewees did not specifically identify 'conflict' as a source of intimidation but, as these authors indicate, "most of us are loath to admit we are in the middle of conflict" so it is reasonable to consider conflict as the source of some of their experiences of intimidation.

Role and process of physician advocacy survey

A province-wide survey, *Role and Process of Physician Advocacy*, developed by the HQCA was sent to Alberta physicians to allow the QAC to better understand physician knowledge and experience related to advocacy in Alberta, and the extent to which one's advocacy for patient care is supported or obstructed by healthcare provider organizations, government, professional colleges, and others. The survey was supported and participation encouraged by both the Alberta Medical Association (AMA) and the College of Physicians & Surgeons of Alberta (CPSA).

Overall, 7,957 survey packages were mailed, 212 (2.7 per cent) were returned as invalid addresses, 36 (0.5 per cent) declined, 2,046 were completed (1,589 by mail and 457 by web form) resulting in a response rate of 25.7 per cent.

Quantitative results

Advocacy: obstruction or support[x]
(Note: may not add to 100% due to rounding)

- Overall, 51% of responding physicians reported that in the past year, their ability to advocate on behalf of their patients had been limited in some way; 49% reported their ability to advocate on behalf of their patients had not been limited.

- It was reported by 22% that in the last year they usually (19%) or always (2%) stopped themselves from advocating for their patients because they felt that nothing would happen to address the issue; 48% reported they sometimes stopped themselves and 30% never stopped themselves.

  - Specialists and general practitioners (GPs) working in an organization, compared with other care settings, were more likely to stop themselves from advocating because they felt nothing would happen to address the issue.

  - GPs who felt they had the necessary skills to effectively advocate were less likely to stop themselves compared with GPs who felt they lacked the necessary skills.

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[x] Multivariate analysis results, when mentioned, controlled for factors such as years of practice, gender, specialty, work setting, AHS zone, whom they advocated to, and whether they felt they had necessary skills to advocate.

- Male GPs were less likely to stop themselves compared with female GPs.

- It was reported by 9% that they always (2%) or usually (7%) stopped themselves from advocating for fear of negative repercussions for them as a physician; 26% sometimes stopped themselves and 65% never stopped themselves.

- Considering their "professional responsibility for advocacy" in the past year, 30% reported they were somewhat (22%) or greatly (8%) obstructed; 33% reported they were neither supported nor obstructed; and 37% reported they were somewhat supported (31%) or greatly supported (6%).

- 15% of physicians reported in the last year being pressured to withdraw a request, and 15% reported being intimidated. In addition 8% reported being censored, threatened (5%), or punished (3%). Given a list of possible responses (multiple responses allowed), 18% of physicians said they had experienced at least one of these responses in the past year. An open-ended category was selected by an additional 16% of physicians.

  - Specialists who advocate to their organizational department, executives of their healthcare organization, or the AMA (as compared with specialists who advocated elsewhere) are more likely to experience one of the listed negative outcomes. Likewise, GPs who advocated to the executive of their healthcare organization were more likely to experience a negative outcome than were GPs who advocated elsewhere. Male GPs who advocated were less likely to experience a negative outcome than were female GPs. Specialists and GPs who advocated to executives of their healthcare organization were more likely to have been asked to withdraw a request, as compared with others who advocated elsewhere.

- Combining closed and coded open-ended responses, 20% of physicians experienced what the HQCA defined as *active harmful obstruction* including such things as threats, intimidation, censorship, punishment, ridicule, being bullied and, in rare cases, being terminated or perceiving intended negative consequences to their patients. Of the 15% who were pressured to withdraw their request, 10% also experienced *active harmful obstruction* (already counted above); leaving 5% who uniquely reported being pressured to withdraw their request. On the basis of open-ended responses alone, 15% of physicians experienced some form of what was defined as *passive obstruction*: 4% were discouraged, patronized, minimized, or outright refused; 10% were simply ignored and 1% reported being limited by policy, process, or organizational resources. All categories combined, 37% of physicians experienced either active harmful obstruction, pressure to withdraw their request, or some form of passive obstruction. In contrast, 63% did not report these negative experiences.

  - Specialists who advocate to their organizational executive or to MLAs are more likely to experience active harmful obstruction than other specialists who advocate elsewhere. Specialists who work in the emergency department (ED) are less likely to experience active harmful obstruction compared with specialists working in other settings.

  - Likewise, GPs who advocated to their organizational executive were more likely to experience passive obstruction, compared with other GPs who advocated elsewhere. Male GPs were less likely to experience passive obstruction than were female GPs.

- Considering negative advocacy experiences at different times, approximately 13% of physicians reported having a negative experience in each of the following periods: more than 10 years ago, six to 10 years ago and three to six years ago. More notable, 32% reported having a negative experience in the last three years. Nearly half of respondents, 48%, reported not having a negative experience in any time period.[xi]

- For the 88% of physicians who advocated in the past year, 18% reported their suggestions were never acted upon in a meaningful way when they advocated for patients; 64% reported only sometimes; 18% reported their suggestions were usually (17%) or always (1%) acted upon.

- 66% of physicians report their role as an advocate for patients sometimes had a positive outcome for their patients, whereas 10% reported "never". In contrast, 32% of physicians report their role as an advocate for patients never had a positive outcome for them as a physician.

> *Thirty-seven per cent of physicians experienced either active harmful obstruction (threats, intimidation, and so on), pressure to withdraw their request, or some form of passive obstruction, such as being discouraged, patronized, or ignored. In contrast, 63 per cent did not report these negative experiences when they advocated in the past year.*

Factors influencing advocacy

- The 51% of physicians who reported their ability to advocate for their patients had been limited in the last year were asked what restricted their ability to advocate. Multiple responses were permitted:

  - 62% noted lack of resources to provide requested care

  - 60% reported unsupportive organizational policies

  - 56% reported an unclear process for advocacy

  - 51% reported lack of time to advocate

  - 39% reported inadequate communication between providers

  - 31% reported being restricted by their lack of training and education in advocacy

  - 23% identified their inexperience in advocating for their patients

  - 23% reported uncertainty in their role as an advocate

[xi] Note: recall bias may be an issue in considering these earlier periods.

- When asked who restricted their ability to advocate:

  - 55% identified organization administration

  - 37% said Alberta Health Services (AHS)

  - 35% said organization leadership or executive

  - 33% identified department or division administration

  - 27% reported Alberta Health and Wellness (AHW)

  - 20% identified physician peers

  - 8% identified the College of Physicians & Surgeons of Alberta (CPSA)

  - 2% said the Alberta Medical Association (AMA)

- The 49% of physicians reporting that their ability to advocate had *not* been limited in the last year were asked what enhanced their ability to advocate; 42% cited their experience in advocating for their patients, while only 14% cited their training and education. Notably, only 11% of physicians cited supportive organizational polices, 8% 'a clear understanding of physician advocacy where I work' and 5% a clear process for advocacy. Agreement on the best course of care was reported by 23% of physicians and having available resources for requested care by 16%.

- When considering who enhanced their ability to advocate: 50% cited physician peers and 19% cited a mentor. In contrast, 14% cited department or division administration, 7% organization administration, 7% organization leadership or executive, and 2% AHW. In addition, 12% of physicians cited the CPSA as having enhanced physician ability to advocate.

- Considering their usual work context in the past year, 37% of physicians reported not being aware of a process through which they could advocate for their patients to address such issues as quality, safety, or resources. Furthermore, 23% reported they did not know. In contrast, 40% were aware of a process for advocating.

- For those physicians on contract, 69% reported that the contract did not address advocacy, whereas 21% reported it limited their ability to advocate and 10% reported it enhanced their ability.

- For those physicians working in a healthcare delivery organization, 45% reported that organizational policies did not address advocacy directly, whereas 38% reported that policies limited their ability to advocate. Only 17% reported that policies enhanced physician ability to advocate.

Physicians' perspectives on their advocacy role and preparation for it

- Considering the three levels of advocacy roles identified in the CanMEDs competency statement (multiple responses allowed), 82% of physicians believe it is their professional responsibility to advocate for their individual patients, 82% for their clinical population of patients, and 71% for populations within the broader community.

- 69% of physicians report having no formal training in advocacy; 14% report receiving training in medical school, 15% in residency and 16% as continuing medical education (multiple responses allowed).

- 45% believe they have the necessary skills to advocate effectively for their patients, whereas 20% do not and 35% do not know.

- When asked about sources of advocacy information used in the last year, 50% of physicians reported using none; 25% reported using information from medical journals or other literature, 23% from the CPSA, 16% from the Canadian Medical Association (CMA), and 9% from the Royal College of Physicians and Surgeons of Canada (multiple responses allowed).

Discussion

Slightly more than half of physicians (51%) feel their ability to advocate had been limited in the past year; 64% report their suggestions are acted on only "sometimes" and 18% report "never". Twenty per cent (20%) of physicians who advocated experienced "active harmful obstruction" for advocating; and a total of 37% experienced some form of negative outcome, including 10% who reported that their requests were simply ignored. These negative outcomes are much more likely to occur in a healthcare organization. Organization administration, department administration, or executive are identified as the party who restricted advocacy for as many as 50% of respondents.

Fifty-six per cent (56%) of physicians report their ability to advocate is limited by an unclear process for advocacy, 37% were not aware of a process through which they could advocate, and an additional 23% simply didn't know. Many (69%) reported that their contract didn't address advocacy and 45% reported that organization policies did not directly address advocacy. Finally, 69% of physicians report no formal training in advocacy, and physician advocacy remains poorly defined despite an 82% acceptance of its importance as a professional responsibility.

When asked who *enhanced* their ability to advocate, 49% of physicians cite their peers; 13% cite department administration and 7% cite organization administration. Likewise, 55% identify organization administration as having *restricted* their ability to advocate, as opposed to 20% who identify peers.

As the survey was exploratory it does not adequately distinguish between historical and current challenges in physicians' advocating. There are no baseline data for comparison; this is the initial attempt in Alberta to identify factors that influence physicians' advocating.

> *Sixty-nine per cent of physicians report no formal training in advocacy, and physician advocacy remains poorly defined despite an 82% acceptance of its importance as a professional responsibility.*

Qualitative results

Four hundred and seventy-eight (478) comments from the one open-ended question (question 32) (Appendix VIII) that asked if respondents had "any additional comments, concerns, or suggestions regarding physician advocacy issues as you have experienced them in your practice" were analyzed. Words, phrases, or sentences in quotations indicate direct quotes from the narrative survey responses.

Physicians' experiences with advocacy and intimidation

A number of respondents had not experienced intimidation themselves but they described intimidation that happened to colleagues and its impact on those around them; even the rumours of intimidation were enough to stop some doctors from advocating. Some respondents indicated they had "never seen or witnessed any negative issues related to physician advocacy", nor had they ever been "intimidated" or "obstructed in any way". Some described positive advocacy experiences and tended to associate that success with having "legitimate needs". Several responses described an emerging hope within AHS and that AHS, the AMA, and the CPSA were to be commended for their progressive support of advocacy.

Respondents provided many comments of an explicit nature regarding personal experiences with advocacy that are noteworthy:

- Advised to "not continue speaking"; "labelled negative, misinformed, or speaking out of turn"

- "People who push too hard get 'whacked', marginalized, or put in their place"

- "I was never persecuted but was certainly placated, censored, and then ignored"

- Several were threatened with loss of privileges, having their mental competency questioned, and being 'fired' for advocating ("which was traumatic")

- "Intimidation is real but subtle"; "It's extremely difficult to advocate due to undertones of intimidation and being told to stop being so outspoken"

- "No matter what anyone says, a culture of fear, intimidation, apathy, elitism, inequality, and manipulation exists and has existed for some time"

- "Obvious systemic harassment and intimidation that can/does/may have a negative effect on patient safety"

- "The atmosphere in Alberta has been negative in terms of advocating"; "well known but an unwritten rule that in Alberta, physician advocacy is not welcome"

- Perspective of 'newer' graduates was that "attempts to advocate meet with limited interest, minimization, or frank disrespect from organizational or government bodies with the power to enact change"

Challenges identified with advocating

A number of respondents described challenges advocating with or within specific AHS clinical services. One description of a workplace was a "living hell and poor quality" and there were concerns about being "threatened" by their physician leaders while management dismissed their concerns, branding them as "complainers and nuisances".

A number of clinical services external to AHS were described as challenging to advocate with. These included specialists' offices (orthopedics, neurosurgery, neurology, geriatric assessments, psychiatry), Worker's Compensation Board (WCB), Alberta Aids to Daily Living (AADL), and Persons with Developmental Disabilities (PDD). Another issue with many health organizations was described as,

"When I have tried to advocate for change I keep getting referred to another organization to address my concerns. I do not know how best to advocate for my patients anymore."

Some of the challenges with advocacy within AHS were related to a perceived lack of stable leadership for the past four years. The initial AHS Code of Conduct created a "frosty" atmosphere, and though it was retracted and revised, it still lingers as a "sort of warning to keep silent". A prevalent theme was the perception that AHS managers and administrators were "far too removed from patient care issues" and the priority for AHS was "not on patient care but on budget concerns". There was also the sentiment that "administrators who orchestrated pervasive intimidation have simply been promoted" and "trust cannot be rebuilt under these conditions" so the sense that "any disagreement will be handled in much the same way as in the past" still persists.

> *Some of the challenges with advocacy within AHS were related to a perceived lack of stable leadership for the past four years. A prevalent theme was the perception that AHS managers and administrators were "far too removed from patient care issues" and the priority for AHS was "not on patient care but on budget concerns".*

Why physicians chose not to advocate

The CPSA, the AMA, the WCB, hospital legal departments, and AHS are "barriers to effective advocacy" say some respondents; some have "no trust" with health services organizations; "any attempt to advocate for patients that challenges the establishment is met with serious reprisal".

A variety of reasons were mentioned as to why some physicians chose not to advocate, including "not feeling prepared" to advocate (no formal training), thinking "others are better at it", that it "takes an inordinate amount of time (away from family)" to advocate. It was felt that "many colleagues have long since checked out … and remain disengaged". Others reasons for not advocating included:

- "Twenty years of pointless, non-productive advocacy causing advocacy fatigue."

- Physician input is "not wanted nor valued"; input was "trivialized, not taken seriously", "it's not intimidation; it's being ignored and marginalized".

- Contract signed with AHS is "muzzling", "prohibiting them from pursuing advocacy in any manner that may damage the reputation of AHS".

- Putting requests in writing for MLAs was understood to be violating physician agreements.

- Potential ethical issues in advocating for one patient or group of patients at the expense of others.

Physician education on advocacy

Several individuals noted that advocacy is difficult to teach and evaluate while others expressed interest in learning more skills. One respondent expressed the opposite, and couldn't understand why physicians had to be taught as it "was drummed into my head at all stages of my training".

Impact of culture on advocacy

There was mention of "glossy magazine" articles describing how well things are working while it is a totally different story on the front line. Some comments identified that the current culture discourages advocacy and some physicians have developed a 'culture of silence' so as not to experience the negative consequences that may result from speaking out.

Impact of restructuring of healthcare on advocacy

The restructuring of the healthcare system over the past several years, including the creation of AHS, prompted some respondents to identify issues such as:

- Middle management's "inability to be effective leaders and decision makers" and "the inability to balance resources between hospitals and programs". The term 'substandard' care was used several times; "we have learned to accept the unacceptable as routine" and that administrators and managers continued with that standard of care due to the lack of resources.

- Inability to streamline the various silos of care that result in inefficiencies and duplication of services. "We don't necessarily need more resources, we need to be more efficient and effective with the resources we currently have."

Enabling effective advocacy

- Some suggestions for making advocacy more effective included:

- "Developed relationships … that allow me to make a case … arguments are logically and unemotionally presented, which allows for debate and discussion."

- "Putting patients first and communicating effectively with the party that will help."

- "Best done in conjunction with patient-led or disease-specific advocacy organizations … includes the voices of patients (read voters), which resonates more loudly than those of physicians who can be seen as self-interested."

- Frequent comments related to the "need for a system that encourages physicians to tell administration about their problems without losing their jobs, careers, and reputations".

- Access to an "independent body" (one person used the term 'health ombudsman') that physicians "can go to when medical leaders are compromising patient care" and would "have authority to investigate the complaint and if legitimate correct the situation".

- "Online service where advocacy challenges and potential improvements could be recorded with a quarterly report on the most frequent issues pertaining to advocacy could be available".

- AHS needs to "develop a system with the AMA and the CPSA to ensure there was no fallout financially, legally, or professionally for physicians advocating on behalf of their patients, and the CMPA did not have to be the go-to response"; "need for whistleblower protection if we're ever going to risk speaking out".

- A few individuals specifically stated that a judicial inquiry was needed.

Lines of authority and accountability

Elected officials (Minister of Health and Wellness) and the Department of Health and Wellness

Survey respondents commented on "bureaucratic and political interference" with "increasing control among unelected deputy ministers and assistant deputy ministers". Other such comments included:

- "Advocacy has become political".

- "There is clear political interference in the functioning of AHS" which was described as "counter-productive".

- The impact this had on effective use and distribution of healthcare resources was described as "injustice to some and the 'waste' of resources on relatively ineffective strategies for those with a political voice".

- Concerns that politicians were and are using healthcare as an issue for "political gain" or for "pushing personal agendas".

- It was also stated, however, that "physicians have a duty to advocate and government has an electoral duty to listen" and concerns were expressed about the non-responsive approach of AHW.

Alberta Health Services (AHS)

Frustration was expressed with the "bureaucratic challenges" or "indifference to advocating within AHS" and the "non-responsive approach" or "inability to make decisions". Respondents commented on difficulties working through the "behemoth" and "unresponsive organizations" that challenge "healthcare providers' ability to provide quality care" and that "the present structure makes it impossible to find a contact so that you can advocate". One respondent said the "real or at least perceived monopoly power (of one provincial region) is extremely intimidating".

College of Physicians & Surgeons of Alberta (CPSA)

Several respondents spoke to the 'fear' associated with the CPSA. They felt "intimidated" and said that physicians were "afraid to speak out" and that if you spoke out you would "be in trouble and punished". Punishment for speaking out was described as "having charts audited" and then being blamed for not advocating enough when patients had received poor care.

Analysis of Interviews

Introduction

The interviews were conducted in order to answer the following two objectives from the Terms of Reference:

- To investigate the role and ability of physicians to advocate for patients whose quality of care and safety the physicians believe is or could be compromised due to system resources or policies.

- Based on the findings and analysis of the investigation and an analysis of current practices, make recommendations for system-level improvements in the policies and practices relating to physician advocacy intended to serve the best interests of patients.

While there were numerous topics, stories, and perspectives, three key themes emerged from the interview data: advocacy, lines of authority and accountability, and culture. The following reflects the perspectives expressed by the 99 people who were interviewed.

Advocacy

How interviewees described advocacy

Definitions and descriptions of advocacy varied widely among interviewees, ranging from "letting the system know that there may be a need for improvement" to the idea that advocacy is a "process you can follow if you are well connected" (to decision makers or other influential people). Another perspective was that "docs (physicians) and others speaking to patients' needs is not advocacy, rather is part of your responsibility to the patient; we all have responsibility to put patients first".

A generic description of advocacy referenced "putting forth a position when speaking out on behalf of others". Most interviewees believed that physicians have a "responsibility or duty to advocate on behalf of their patients", seeing physician advocacy as a "very legitimate, important contributing factor to the functioning of the healthcare system". Physicians were seen as having a "right and accountability" for standing up when they see a need. Advocating for individual patients was most often identified as the expected form of advocacy, and an obligation and primary responsibility to the individual patient was consistently referenced. This kind of 'advocacy' (though some respondents would not see this as advocacy, but "part of their job") carries "little threat" to the one advocating, although it does take considerable time and effort.

The opinion was expressed that advocating for an individual patient "trumps anything", once you have accepted responsibility for that patient. It was identified that the needs of individual patients and the needs of a population may come into conflict especially in the context of finite resources. Furthermore, "when you take on another person's issue as if it was your own and take responsibility for presenting facts and figures and evidence to substantiate their concerns or their allegations, it's up to the system to respond accordingly when there's sufficient substantiation to do something". Advocating for groups of patients, the entire population, or communities was referenced less often and described as being used less frequently.

Several interviewees saw public health physicians as those who are most often appropriately involved with advocating for populations and communities, in essence advocating for the health of the public. Advocating was seen as one of their core functions as they were often the most involved with politically sensitive issues, such as sour gas well location and water fluoridation and one "couldn't and shouldn't try to stop them". Public health physicians use the media and politicians as legitimate 'tools' in order to create broader awareness of a public health issue. As aptly stated by one interviewee, the "media is to a public health physician as a scalpel is to a surgeon".

It was noted that as professionals, physicians have been given autonomy to self-regulate, but with that right comes a responsibility. "Your responsibility as a profession is to look at the benefit of others including patients, society, and community before your own benefit." This included a responsibility to advocate for system access and system reform if patients' needs are not met because of system inefficiencies or gaps. However, the thought was expressed that not all physicians may believe this is an obligation.

Physicians were seen as playing an essential role in advocating for patients, as they often make the final judgment on healthcare interventions. This made it hard for some interviewees to comprehend that physicians are not able to advocate and be successful in getting the resources they need to look after their patients effectively. It was suggested that one would be more inclined to think other professions (e.g., nurses) could be muzzled; however, this discussion was not pursued as the experience of other professions was beyond the scope of this review.

Occasions when interviewees said advocacy is required

Advocacy was seen to be required in several situations:

- When decisions regarding the allocation of finite resources in healthcare are being considered.
- When a resource allocation decision has been made that appears unfair.
- "If money is being wasted, you have to blow the whistle on that."
- When trying to coordinate care for an individual patient meets with barriers due to "lack of coordination" between various components of the system and individuals "working in silos".

Interviewees said they would feel motivated to advocate in cases related to system challenges that limit patient access, the desire for high-quality care in purpose-built space, or decision making around the allocation of finite resources. Some individuals reflected on how orthopedic surgeons in Alberta were able to achieve significant success "without lying in front of a train" (having concerns about care highlighted in the media). Essentially they "escalated the discussion to a higher level (board and political) so that appropriate attention and resources were put into it". It was noted that this kind of alignment doesn't always happen easily in resource allocation decisions. Several interviewees said that physicians are "obligated to improve the system" by advocating at the system level, but wondered how many physicians believed they had an obligation to system improvement.

The development of purpose-built space for cardiac services at the Mazankowski Alberta Heart Institute was described by some interviewees as an outcome of physicians advocating for patients. It was acknowledged by some interviewees that the cardiac surgeons deserved credit for being "better at politics than physicians in other areas".

Some interviewees indicated that advocacy for illness prevention and determinants of health is a legitimate motivation for advocacy and physicians need to "speak to public policy". One challenge in doing so, however, was reflected in the comment that "unfortunately all too often the urgent trumps the important".

Interviewees' perceptions of internal versus external advocacy

Some interviewees differentiated between advocacy activities occurring *within* the organization, (such as attempting to influence internal resource allocation), and activities and comments that were *external* to the organization, such as contacting politicians, writing in the local newspaper, or contacting the media. One individual characterized a physician holding a press conference as the "ultimate expression of democracy".

Views on appropriate and responsible advocacy

Interviewees often referenced two descriptors that were associated with advocacy: *appropriate* and *responsible*. Appropriate and responsible advocacy were not necessarily seen as equivalent to *effective* advocacy, which referred to the successful outcome of advocacy efforts. While the interpretation of appropriate or responsible advocacy varied, there was general agreement that *appropriate* advocacy involves an onus to raise concerns with those who are able to make decisions *within the organization* before advocating externally (such as approaching the media or politicians). Advocating *responsibly* was seen by some individuals as "needing to keep the needs of others and the 'bigger picture' in mind rather than just your own issues and your individual patients' needs". Many individuals emphasized that there are "limited or finite resources and they need to be used for the best of society". Consequently, there is a need to "understand the multiple needs in the system, cooperate with others, advocate in light of everything else going on, and recognize you work within a system where there are competing pressures". Several interviewees mentioned that many physicians perceived that healthcare funding is 'never ending', with limited awareness of the implications of funding decisions. If advocacy efforts are successful for a particular population group, there is "little appreciation that there may be a negative impact on another group".

Some interviewees felt strongly that the "rules of the game" were not known by all physicians, with some believing strongly that advocacy should be based on evidence, not based on "lobbying and who you know", which was seen as wrong even if it had been identified by others as how "decisions are made in the real world". Similarly, when one group of physicians was particularly successful with advocacy, it was described as "breeding cynicism when it appeared that one group had a more direct channel to decision makers" and those contacts resulted in significant funding decisions. While cardiac and orthopedic surgeons were identified as appearing particularly successful in their advocacy efforts, one physician commented that there are no 'have not' groups in the system.

Irresponsible advocacy was described by some as the use of frightening or emotional stories that were half -truths, or "sort of true", with "an agenda embedded in it that is more about you". Several interviewees spoke about what advocacy is not. "I don't think it (physician advocacy) is indiscriminate pleading or demanding through the media or any available channel for changes in the health system".

How interviewees described the process of advocating

How advocacy was carried out was seen as a significant issue and a source of frequent frustration. Interviewees contemplated how one goes about making change if it is seen to be needed. Some highlighted the importance of maintaining an atmosphere of mutual respect in any advocacy activity. Many identified the need to find out the organizational structures and processes in place to advocate

effectively and respectfully start with the 'chain of command' in an organization, "assuming people will act in good faith". "People take responsibility for presenting facts and figures and evidence to substantiate their concerns or their allegations. It's up to the system to respond accordingly when there's sufficient substantiation to do something about whatever the question is." "In a proper way advocacy begins at the lowest level in the organization and works its way up and if you're not listened to then you go a different route but you don't start at the top." Interviewees emphasized the importance of building alliances at the local level in order to "have many voices speaking to the issue" (seen as more powerful) and ensuring "bottom-up and top-down coordination". "A big flaw of our profession is trying to work too much alone." Others highlighted the importance of "understanding the political system and identifying who is making decisions and allocating resources".

Some interviewees described the importance of the process of advocating, and using "factual or true information, having a point of view that was well thought out, not being unreasonable or doing anything rash or irrelevant, and using a means of communication that is appropriate". These individuals anticipated that even if people disagreed with their point of view, if one has a well-thought-out, solid case, they would not feel constrained. "I would pick my spots and be very careful, and would always take into consideration the political ramifications of taking action."

It was proposed that to advocate *effectively* and achieve the desired outcome, one needed a "planned problem-solving process" including a clear statement of the issues or problems needing to be addressed; options to resolve the problem ("we need to be solution providers"); a business case including "indisputable data and delineating benefit"; and support from key individuals such as department heads. Other perspectives on the process of advocacy recommended a "specific goal, purpose and advocate to that end" and "the best way to get helpful response is identify a problem along with options for dealing with it". The observation was made that while this kind of problem-solving process was often used in dealing with a patient's medical concerns, "physicians didn't necessarily use the same process in advocating for patients". A few individuals mentioned the onus was on the person doing the advocating to get his or her message across. "If you are not able to make administration hear your case, you are at fault; it's how you present your case. While you may not always agree with the decision, you have to find a way to try to influence it."

In responding to advocacy it was seen as the leaders' responsibility to deal openly and honestly with the problem or issue as identified and ensure that the person who advocated has all the facts. It was understood that there may need to be some "give and take" but ultimately both parties need to know whether the proposed change is going to happen or not. If necessary, the issues may need to be taken to the next level (of decision maker), and ultimately one "may need to blow the whistle and initiate external communication" if the issue is not addressed. Following the chain of command is important to "ensure issues are addressed in a constructive and congenial manner". Approaching politicians was identified by many as a last resort, although politicians can help "blow the whistle more loudly".

Some individuals mentioned that advocacy required an investment of time and energy and the following quote reflects one person's tenacity: "I would start by speaking with one person, and if they're not prepared to listen, I may go to a second person; and depending on the response, I may decide to go to anyone who will listen."

Views on ethical considerations

Interviewees frequently mentioned the need for physicians, in their advocacy efforts, to balance responsibility towards individual patients with their obligation to society (labelled as 'civic professionalism' by one interviewee). The dual commitments to safeguarding the best interests of their patients and protecting the resources of the health system/society were often in conflict and placed physicians in a difficult position. This predicament was not seen to be limited to questions of allocating resources at a larger level, but also applied to everyday decisions that cumulatively drive up the cost of healthcare delivery.

Several individuals identified an inherent conflict of interest that arises when physicians advocate: "are they advocating for themselves, their personal interest, the patient(s), or the system?" The concern was that in advocating for patient well-being or system improvements, it may sometimes be unclear to physicians and others that such advocacy efforts may benefit the physicians themselves. Because these lines can become easily blurred "it is not always black and white and the real reason for the advocacy is not always apparent".

Individuals having dual or multiple positions in an organization (e.g., those with both clinical and administrative responsibilities) were commonly cited as being in a situation that may be a source of ethical concern. It is the "rare doctor that only wears one hat, and without roles clearly articulated, it might not be evident what role they're filling while advocating". "Whether taxpayer, patient, or physician, inherent in those roles alone there is some tension with biases in each of these roles that needs to be reconciled." Some suggested that when speaking out on an issue, physicians need to identify which 'hat' they are wearing.

Ethical issues were also seen to arise in the way that physicians were treated by others and by the system when they advocated for resources. Terms that were used included "procedural justice", "fairness", and "due process". A number of interviewees felt that a transparent, equitable process that evaluated the merit of advocacy efforts was lacking and sometimes resulted in decisions being made without "due diligence".

Leadership and advocacy

Interviewees believed that leaders within organizations (physician or administrators) may not have been "formally educated or prepared" in how to effectively deal with physicians advocating. Thus, there may be widely varying responses to advocacy depending on the individual leader's experience, knowledge, and personal leadership style. It was noted that physicians may not always have all the information about an issue and leaders may not always communicate that information in a timely way. Interviewees felt that this lack of feedback or communication adds to the physician's frustration such that he or she may feel the need to go external to the organization to have their concerns heard.

Many interviews included discussions about the relationship between effective leadership and physician engagement, with personal experiences pointing to the effectiveness of including and working with physicians as part of the team. Some believed that if the focus in the organization is on patient care ("which it needs to be"), people and resources start to align and people become focused on where they can improve patient care. A key attribute of effective leaders as identified by the interviewees was "authenticity" and a "demonstrated commitment to following up on issues" identified by physicians

advocating, acknowledging they've been heard, and providing ongoing feedback regarding any progress in attempting to deal with or resolve the issue.

Some interviewees acknowledged that people are busy and in such an environment communication may break down; "even if a clear, succinct message is provided to your superior, s(he) may not get the message, or the issue just may not get to their priority list".

Whether people felt intimidated as a result of their advocacy efforts was often related to a communication style and interaction between a given physician and administrative leader. Some interviewees stressed the importance of differentiating advocacy from disruptive behaviour in order to respond appropriately. Skills in responding to both are required. Some physician leaders indicated they would like to see a model for physician leadership to be "better managers of disruptive behaviours (not assuming that advocacy is disruptive behaviour) created". Physicians advocating may not always understand that their issue or perspective may not prevail given the reality of finite resources. In those situations "it is easy to say there is something not right in the relationship, or the tone of the interaction may result in some people thinking they are intimidated. In that case usually it's a two-way street and both individuals need to reflect on how they may be contributing to the misunderstanding".

> *Whether people felt intimidated was often linked to a communication style and interaction between a given physician and administrative leader.*

Physician inexperience may contribute to not knowing how to advocate well. If an issue "hasn't been 'actioned' or resolved within a certain amount of time, the individual raising the concern may feel discounted and disrespected", highlighting the importance of ongoing feedback to keep people informed of progress. One individual summarized it as realizing that "sometimes you get what you want and sometimes you don't, but it's all part of working in a large organization".

A few interviewees raised the challenges of working with someone who is "constantly negative", though from that individual's perspective they may believe they are advocating for an important cause. Over a period of time this ongoing (perceived) negativity may lead to increasing frustration on the part of the leader, and the individual advocating increasingly feeling marginalized, frustrated, and angry. Interviewees speaking to this issue indicated there may come a time that having the individual leave his or her position or the organization may need to be considered.

Use of the media in advocating for patients

Many interviewees identified the media as legitimate tools in advocating for their patients. As mentioned earlier in this section, public health physicians in particular are seen as legitimately using the media as a key strategy in getting messages out to the public.

For organizations (AHS or government) and individuals sensitive to negative media coverage, proposing to go to the media could be used or viewed as a "threat". Others expressed the need for more caution when using the media, as they believed that "one engages the press with trepidation because you don't know what direction it's going to go". Another interviewee identified using the media as a "landmine", with the risk of losing control of the message and the difficulty in predicting the motivation of the media.

The use of the media was generally seen as requiring "rules of the road". Some articulated that you "didn't want people going to the media because they felt disrespected, but going there because they have had a good hearing but still wanted to step into a public setting". People were seen as using the media when they perceived they were powerless, and not accomplishing their objectives. It was observed that going public could be disconnected from what the organization wants, and depending on how a conversation goes between an individual physician and the department head, for example, if the latter requests or directs the individual not to go to the media, it could be perceived as muzzling.

Interviewees indicated there are no clear rules or policies on when it is appropriate to involve the media. People are aware that when physicians speak out, "it will be picked up by the media, as they are perceived as credible sources". It was identified the "media will believe a physician over a politician any day", so there was an incentive for physicians to go to the media.

> *Several interviewees thought that most physicians believed the "only way to get attention focused on their issues was to go through the media" even though most indicated they would prefer not to do so. They believed it would be preferable to have a system that is working so that approaching the media would be unnecessary.*

Many thought that as a general rule one wants to work initially within the system and work with the people who are actually responsible for making changes. "The media is not going to fix the system; you need to advocate within the system for change". Some, however, believed if physicians are truly speaking on behalf of patients, the system and quality, they may "need to do whatever they need to do to move things forward".

Several interviewees thought that most physicians believed the "only way to get attention focused on their issues was to go through the media" even though most indicated they would prefer not to do so. They believed it would be preferable to have a system that is working so that approaching the media would be unnecessary.

Accessing the media was and is seen as a powerful strategy because governments and regions including AHS, are "sensitive to negative media coverage, as the issues being raised may imply organizational failure to resolve them". In providing a rationale for using the media, one individual said, "The only way I can mobilize 3.7 million people in Alberta is to go to the media and embarrass the government. One weakness we have today is a lack of systems in place to allow frontline workers to report what is broken; if there is a system, it isn't apparent that it is available in Alberta."

For some, using the media was inconsistent within a culture of a "learning organization", implying that issues should be resolvable internally through a process of ongoing learning and continuous improvement, meaning threats to make unresolved issues more public would be unnecessary.

Several interviewees talked about the need to learn how to use the media, and some physicians indicated they already took every opportunity for media training.

Physician education on advocacy

Interviewees generally agreed that, for most physicians, effective advocacy had not been taught in either medical school or ongoing continuing medical education. Many physicians indicated they had no formal education on how, when, and under what circumstances one can advocate but believed it would be a "good thing to have education on advocacy". It was suggested that newer graduates from medical schools may have received some orientation in how to advocate. Other interviewees were knowledgeable about advocacy for a single patient, but knew less about advocacy for system-level changes. Without training or orientation in how to advocate, interviewees questioned how anyone was to know what was expected of them.

Interviewees speculated that it would be difficult to put a training program together for physicians on how to advocate effectively, yet it was seen as being "useful to have some medical schools discuss how to use good judgment when advocating for patients" and ensure medical students understood the context of doing so. Individuals suggested that it is necessary to teach medical students about the dual roles of advocating for individual patients as well as the population or system as a whole, and what it means. It was noted that the balance between patient- and system-level advocacy is essential and to be "unaware of the need for this balance would be irresponsible" in the opinions of interviewees.

Medical schools were seen to have lagged behind in teaching effective advocacy, only now incorporating it into their curriculum. Other organizations such as the Royal College of Physicians and Surgeons of Canada (RCPSC) and the Canadian Medical Association (CMA) were seen as beginning to work on physician advocacy in the last several years. As part of helping physicians understand their responsibilities, the CMA was identified as "having a responsibility to collect data, begin a national dialogue, identify the key themes, root causes and then begin to identify the solutions".

Interviewees identified many reasons for more education on advocacy, including, the fact that many physicians are engaged with the healthcare system in different ways. Increasingly, physicians are involved in different relationships and payment methods, often in a contract or employee/employer relationships, rather than functioning in a manner that is solely autonomous, which historically was more the norm.

Experiencing intimidation and muzzling while advocating

Interviewees expressed widely varied perspectives on how widespread intimidation and muzzling are when advocating for patients. Some thought comments describing "a culture of fear of intimidation in the health system" to be a "grand generalization with no substantiation presented, designed to attract media attention and jeopardize public confidence and further inflame others in their profession." Other interviewees were unaware of any physician ever being "bought off" to remain quiet or being "muzzled" as a result of advocating for their patients.

On the other hand, many interviewees identified through their own personal experiences or experiences of others disturbing situations where leaders (most often physician or administrative leaders) had attempted to muzzle or intimidate physicians to prevent or cut short their advocacy. In some cases, this was attributed to leaders being 'directed' from external sources, such as politicians or the government, to stop the advocacy.

Interviewees described numerous situations in which physicians or prominent senior leaders had experienced severe negative repercussions while advocating for patients or system improvements. In some cases the intimidation was "subtle and nuanced and was career destructive", and in others the intimidation was "direct and focused". These experiences caused significant stress for some of the individuals involved and in some instances were life-altering, resulting in career changes or a move out of the province. These situations were seen to have sent a clear message that "if you speak up, this is what can happen to you", and were seen as having a 'chilling effect' on others. Other individuals used strong language when describing their experience; one said "it was like I had rabies". Equally concerning were experiences of people being told not to get involved in situations where a colleague's behaviour or performance was being reviewed, with an implication that "it can only hurt you".

Several of these situations were described as being handled through ad hoc processes. The physician or administrative leaders chose not to use the medical staff bylaws in place at the time, as they wanted to use a "less forceful and formal process" to see if the issues could be resolved without having to involve the CPSA. Physicians described being intimidated with false accusations, having their contracts cancelled after verbal promises of renewal, being threatened with "being reported to the CPSA", and being subjected to clinical reviews that "fell outside of due process". Whether the loss involved position or privileges, the physicians in question, as well as others who were aware of or involved in the process, perceived a lack of procedural fairness. One interviewee asked: "Where do physicians with wrongful dismissal go?"

> *Interviewees expressed widely varied perspectives on how widespread intimidation and muzzling are when advocating for patients.*

Some individuals identified that involving the CPSA was used as a "threat" to deter physicians from advocating. While this was commonly perceived among interviewees that this was why the CPSA was involved, several interviewees pointed out that "the statistics don't support that view", and as one individual stated, "If I got a letter from the College (CPSA), I would read it, and if it was about advocating for patient care, I'd say let's talk!"

Lines of authority and accountability

Throughout the interviews the importance of role clarity and clear lines of authority and accountability in relation to physician advocacy, was referenced many times, both historically and in the current healthcare environment. Interviewees emphasized the importance of well-defined roles and responsibilities and clear boundaries within and between elected officials and the ministry, healthcare organizational governance and administration, health professional colleges and associations, and individual physicians for effective and appropriate advocacy.

Interviewees' perceptions about elected officials and Alberta Health and Wellness

Interviewees identified a continuing lack of clarity between the roles, responsibilities, and lines of authority of elected officials (including the Minister of Health and Wellness), the ministry (or Department of Health and Wellness including the Deputy Minister), the former regional health authorities and now the AHS Board and AHS administration. This was described as "each organization playing in the other's

sandbox". It was identified that "it is different from one quarter or one crisis or one Minister to the next" and so the boundaries between these entities were constantly changing or the lines between them were blurred, leaving the perception that the authority attached to specified roles was superficial. Consequently, those advocating would circumvent the formal organizational line of authority to go directly to those perceived as the decision makers – in this case, elected officials. "You go to politicians and start advocating." "If you have a system set up to deal with issues and then you bypass that system … you start messing the waters."

Advocating politically was common practice in the former Capital Heath "because cabinet ministers were readily accessible". If going public or involving politicians resulted in decisions being made or more timely action taken on specific issues, there was more incentive for others to use that route, too. It was apparent to several that "if you talked with this minister, you could get things done." This path of advocacy was not always consistent, however, it was identified there was wide variation in physicians' ability to access the Minister of Health and Wellness or other cabinet ministers. This was highly dependent on who was in the position at the time and how they functioned in relation to the health region, moving from a very arms-length approach to direct operational intervention. One interviewee described this as "a revolving door of leadership and it changes with every one of them". This led many to conclude that there is little consistency in what the role of the minister should and shouldn't be and so the effect on physician advocacy was that the "rules are different depending who you are; is it physician advocacy obeying the rules or is it whoever gets there wins?" Inconsistent responses by elected officials were underscored during the interviews when it was heard there was often little if any transition process between ministers.

There was a common belief among interviewees that the "squeaky wheel gets the grease" and this "creates some difficulty in the system when that happens". It was observed that direct interference by the Minister or Department in operational decision making caused confusion and created an environment in which physicians felt that "political decisions trumped evidence-based decision making". This was reflected in statements such as "political forces trumped the right, and priority switched from fixing community first to full-capacity protocol because the Minister was pushing for something now" (regarding the issue of ED crowding) and "decisions (regarding) resource allocation (were) based on who was advocating rather than evidence and prioritized needs". Some individuals spoke to significant resource allocation decisions as a result of advocating to politicians as "the government thinks they are doing a good thing to clear up the backlogs but in the meantime they were creating problems in other areas." One example provided was the Premier announcing there would be two institutes in the province, one in Edmonton (Mazankowski Alberta Heart Institute) and one in Calgary (Alberta Bone and Joint Health Institute). The approval for the institutes was viewed as a "politically motivated decision". Interviewees also felt that funding these types of decisions reduced funds available for other health system priorities or other societal sectors, such as education, social services, and so on. These "one-off decisions without apparent regard for the impact on other priorities" were seen by some to be "irresponsible" and "inappropriate".

Some interviewees viewed the involvement of politicians by physicians in advocacy activities as doing 'end runs'. This behaviour was not always viewed favourably. "I don't like people going around me and I don't go around them. I think too many people are running to the Minister," said one participant. Others

cited situations where this was viewed as appropriate advocacy: "Advocacy happens at the lowest level and works its way up and if you're not listened to then go to the Minister so somebody's making decisions; and in this case it was health ministers making decisions and allocating resources; but it was done with complete support; not as an end run". Involving politicians did not automatically result in the same or desired outcome, with some individuals describing great success with the use of this strategy and others achieving very little.

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Interviewee comments regarding Alberta Health and Wellness focused on confusion about the department's role, particularly in relation to AHS ("substantial confusion between the role of AHS and the role of government") and how "politicized the department had become". This was particularly evident in the initial formation of AHS where the Deputy Minister and the Department were perceived as "interventionist" and that the Deputy Minister should "run the Department effectively, not be partisan politically". This blurring of lines between health policy administration and health service delivery was further expressed as "if you are not going to let the Board and its management team deliver the operational side of the business then bring it inside and run it by the Department – we have clearly mushed those two in the last 18 months". An example of this brought forward during the interviews was the Five-year Action Plan for Mental Health. During the interviews, it was suggested that AHS executive and AHS Board "had not heard about it", that the decision came from the Department and this was simply "political posturing that the government was doing something".

Governance of Alberta Health Services

Interview themes about the role of AHS governance and physician advocacy identified concerns regarding the Board's ability to remain at arm's length from government. This began with the formation of AHS, which was viewed as having occurred without ensuring that the structure for effective governance and oversight was in place: "AHS hadn't yet put in place the governance norms needed". Interviewees felt it was further compounded by the appointment of the former Deputy Minister of Health and Wellness into the position of AHS executive operating officer, which created "considerable confusion between the role of AHS and the role of government". It was seen that "ambiguity remains, no one is clear who is running the show and making decisions (and) nobody really believes that AHW is overall leadership and AHS is operational". To some, this set a pattern of direct government or Department intervention into the role of AHS governance.

Political interference was again identified when the then Minister of Health and Wellness reversed the cost-cutting decisions AHS was implementing to make "a billion dollar correction". These cost-cutting decisions were the closing of a significant number of mental health beds at the Alberta Hospital Edmonton and the plan to reduce 300 acute care medical beds over three years. In addition, the sudden

release of the AHS CEO in the fall of 2010 was seen as the "Minister became directly involved" versus an AHS Board decision and was perceived as evidence that the AHS Board of Directors was not being allowed to work at arm's length from the Minister. This "loss of a CEO" was cited as the cause of "the loss of a third of the Board". This continued with what were perceived as inappropriate appointments to the Board, including former regional CEOs, where it was seen that "here is a CEO now telling the next CEO how to run the health service. I worry about that line being crossed." The frustration with the perceived circumvention of the AHS Board's line of authority was further expressed by the remark that "if you are going to have a board of directors let them make the decisions and let them stand at the pointy end of the stick. Step back, Minister, and let them do their job."

Physicians perceived that the Board was being circumvented or politically motivated, thus creating confusion as to the accountability frame in which physicians operated and advocated. This confusion was recognized by some as not a new phenomenon but one they had experienced throughout their careers in the Alberta health system. The "lines between operations, Board, and government are not clear enough but never are".

There was also an indication from some of the interviews that in the current environment the hope is that the lines of accountability between the most recently appointed Minister, the Department and the AHS Board will become more apparent and adhered to.

Views about advocating within Alberta Health Services (AHS)

It was identified during the interviews that the frequent restructuring of the healthcare system was a major challenge. It was pointed out that healthcare gets "redirected on the political priority of the moment, and the noise in the paper, which takes us off course, so never finish and carry through". In particular, the initial transition year for AHS (2008) "was extremely difficult for everyone in the system because all existing pathways were broken and changed", therefore physicians "had no idea how to advocate successfully". Many interviewees shared past experiences where they knew exactly "who to go to (in order) to get things fixed" but "now I have to start from scratch".

Interviewees also described advocacy efforts that were not responded to or were "seemingly lost" within the AHS bureaucracy. This would result in physicians circumventing the appropriate chain of command as, "having followed appropriate lines" and "receiving no reasonable or perceived to be reasonable response or action", this kind of behaviour was perceived as justified.

Interviewees described a lack of local decision-making authority as a barrier to effective advocacy. It was felt that "if you can get it down (to) a level that people could advocate – within the zone they would know where it stops". There was acknowledgement that AHS was moving towards more local autonomy and decision-making authority but there was an identified need to "delineate what should be central and how to allow for local variation".

Several interviewees talked about the importance of having an intentional and explicit conversation about roles and responsibilities of physicians when taking on a specific appointment within an organization. Without that explicit discussion, "you are setting yourself up for failure". Without clear role definition, "everyone has their own perception and assumptions of their boundaries and freedom to speak out, which can lead to significant misunderstandings". "If you don't lay out expectations when people take AHS

appointments, most docs have a strong sense of their obligations to patients; when you push it out to advocacy, out to the public, the understanding might not be so clear."

Interviewees identified that taking on an administrative role changes the degrees of freedom in which the physician can advocate. These physicians have obligations to their own patients but also have obligations in terms of the goals and direction of the organization. As one interviewee stated, "What is appropriate physician advocacy does change based on your role, in part because you have taken on other trustee-type positions in the universe to help make it better." Some saw it as a limiting factor in that it might restrict what one would like to say, as there is a "need to consider the obligations of that role in determining your ability to advocate". This was summarized in this interviewee comment: "If you're carrying on a clinical practice and you're head of a clinical program at the same time, you've got obligations to the patients that you're directly treating and then in the other hat you've obviously got obligations to the organization in terms of the goals and direction of the organization. I think where a physician or anyone would need guidance is if they believe they've reached a circumstance where there (were) two things conflicted." Others felt that holding an administrative role provided them more opportunity to advocate.

Views about the College of Physicians & Surgeons of Alberta (CPSA)

It was apparent through the interviews that some physicians do not fully understand the role of the CPSA. However, others described the CPSA as the organization that oversees physician practice and behaviour, licensing (registration), complaints, and professional or personal conduct.

The CPSA was described as "heavy handed" and instilling fear if and when it called. The threat of reporting a physician to the CPSA was described as a tactic used by a colleague or administration to intimidate physicians and that "they are going to take my licence". Some healthcare administrators expressed similar views indicating they "always have approached the physician directly" because many physicians experience "terrible anxiety with any call from the CPSA".

It was suggested that some healthcare administrations have been and are seen as too close to the CPSA, particularly administration in the former Capital Health: "What disturbs me most is the regulatory body and health system should be functioning separately; CPSA (is) working too closely with administration." It was also felt that physician advocacy can "sometimes be interpreted as disruptive behaviour especially when it becomes zealous and/or political". Suggestions were made during the interviews that the CPSA was used to silence "disruptive" physicians who were advocating appropriately.

Some noted that formal investigations and outcomes by the CPSA can be prolonged (describing a "process (that) went on for years"), the communication of the investigation process sparse, and the outcome imprecise. Because the CPSA is bound to principles of strict confidentiality in dealing with both patient and physician issues, it was described as "secretive" and "punitive". To help alleviate the fear of the CPSA, interviewees suggested that the CPSA needs to be more transparent in its processes and emphasize its programs of education and support for physicians and provide a more timely process for validating and responding to a complaint.

Alberta Medical Association (AMA)

Some interviewees described the AMA as "no more than a union and behaves like a union", as one of its primary roles is the negotiation of physician fee agreements. This function is sometimes seen to be in conflict with advocacy as it is not always clear whether the AMA is advocating for patients or for physicians.

A joint submission was presented to the QAC by the AMA and Canadian Medical Association (CMA) and made public to all the AMA members.[95] It was identified by the AMA and CMA that, at the creation of AHS, "disruption in local relationships" had resulted in "increased distance between governance at a system level and decision-making at the patient level" that "fostered an environment of misunderstandings and distrust between providers and those responsible for managing Alberta's healthcare system". These relationships were described as "long-standing informal processes" through which physicians could advocate for their patients that "allowed for a degree of mutual understanding and stability". The AMA and CMA also acknowledged that physician groups that went public were often rewarded through funding of their particular area of healthcare without sufficient regard for the effect to the rest of the healthcare system. This resulted in the perception that the system promoted advocacy outside of "normal channels".

Physicians' relationship to the health system

Some interviewees described the first wave of regionalization in 1994 as if it were a sentinel or critical event. "Physician engagement has been an issue even if we just go back as far as 1994 … because they were not involved; they were purposefully excluded, actively excluded." Prior to this, physicians were seen as full partners in the healthcare system and were highly involved in planning and decision-making throughout the province. With the elimination of the previous local governance structures, physicians felt excluded from decision-making processes, and for many these feelings of exclusion continue to this day. This, in the opinion of some interviewees, has led physicians to "focus on their own interests" and less so on the system perspective.

Interviewees identified that as each regional health authority (RHA) developed its own organizational structure and culture, each chose its own strategies to deal with physician engagement. A few individuals felt that some RHAs were able to retain good relationships with their physicians and that others took an active approach to improving physician participation and communication. Calgary, for example, chose to make physician engagement a strategic priority and implemented an administrative model of leadership dyads, with a physician leader and an administrative leader for each major program or portfolio. Some interviewees spoke of this as an initiative that addressed the "real fracture between the physicians and the health region … that was a huge step towards physician engagement".

Interviewees who spoke of the former Capital Health consistently identified the management style of the corporate office to be "command and control but they were all good people and they all got the control message". There was a perception that "certainly the culture in Capital Health was tightly controlled – don't get out of alignment – in (the) executive team for sure and also the case more broadly". The reputation of the organization was paramount and "there was nothing but good news that came out of Capital Health".

In the view of some interviewees, it was also felt that the Capital Health Board was as tightly controlled as the organization and that the senior executive had considerable influence over the information presented to the Board. Some interviewees spoke about physicians having open access to the senior executive and to the Board and in fact, the Board was very interested in hearing from physicians. Others spoke of access to senior executive and the Board as being a case of "favourites who had direct, unfettered access and those who did not", fostering a culture of disparity. One person noted that "there are no 'have not' groups in the Alberta system but there was disparity in funding allocations".

There was a clear perception of disparity and stratification of funding priorities, with cardiac sciences appearing to be at the "top of the list". Rivalry between the two largest centres, the University of Alberta Hospital and the Royal Alexandra Hospital, was commonly recognized. As the academic site, UAH was perceived as having 'favoured' status in the region when it came to programs and funding.

The culture of "arranging meetings with physicians and politicians" and AHW officials in Capital Health was longstanding. Department officials and politicians were readily accessible and interaction was a familiar part of the culture. ED physicians had attended meetings with the caucus and senior administration in the past to present concerns about the wait times. Some interviewees speculated that the department eventually pressed Capital Health to take action to improve ED wait times as a direct result of information they were receiving from these meetings and from ongoing reports in the media.

Interviewees described working conditions in the ED as becoming so stressful that many valued and experienced staff (nurses and physicians) left the department. One interviewee described the ongoing frustration with administrators who didn't appreciate the seriousness of the situation; they thought that "some days were bad but most times it's okay. We couldn't convey that most days were bad and some days, it was a disaster".

Interviewees' views about the formation of Alberta Health Services (AHS)

For physicians in the health system, the formation of AHS was a major system change that, similar to 1994, was seen to exclude physicians. The decision to create a single regional structure was made by the government without physician consultation. "I doubt that any physician had any input – I wasn't aware of any consultation at all – I don't think anyone was in the tent." "Now there is such a huge gap between the frontline physician and the CEO and people feel powerless and don't know what to do," commented one participant.

There were strong views that a change of this magnitude without apparent planning was "irresponsible" of the government. It was widely recognized that the transition from the provincial regional structure to AHS created chaos for everyone including physicians trying to advocate for patients. "All the existing pathways were being broken up and changed; (there was a) general inertia and lack of anything developing and there were not well-established patterns of how to get stuff done. It was not a good time for anybody." During this period, there were fears that anyone who spoke out in any way was at risk of losing his or her position. It was widely believed that dissention of the new system would not be tolerated.

In developing the infrastructure for the new organization, AHS released a Code of Conduct in April 2009. The document evoked strong reactions from employees and physicians, who interpreted the code as "insulting, heavy handed, and essentially creating a gag order" to limit anyone from speaking out on

issues or discussing information that may in fact benefit the organization. "The physicians had a lot to say about just and trusting culture and why don't we have it and why isn't it recognized in the code." Conceding that its initial Code of Conduct missed the mark, AHS undertook broad consultation and presented a second version that was seen as an improvement. Interviewees said that many felt the message from the new organization was about bureaucratic control, which did not sit well with healthcare workers struggling to provide care under sometimes difficult circumstances.

Interviewees' comments about organizational culture and advocacy

Many physicians spoke of feeling "disengaged" from the health system and "fatigued" at trying to advocate for their patients. "They don't feel any citizenship in the system. It is going to take a long time to regain that trust." Others made comments on their previous advocacy efforts, saying "docs feel disenfranchised; don't call on me, I've done my bit. Healthcare workers are fed up; nobody wants to get involved anymore. Partly apathy; partly change fatigue; very cynical".

There was recognition by some interviewees that more issues were likely to arise during advocacy for groups of patients (by service, program, or population) where advocacy was directed at system-level outcomes and required a system-level response. This was identified as a more complex process involving organizational leadership and often needing more significant resources. For others, there was a perception of personal risk in speaking out on certain issues or in challenging the local or organizational leadership in advocating for their individual patients. "The system in no way encourages physicians to be advocates; it's not overt, it's a subtle process of being dissuaded from being an advocate." While some had first-hand experience in these risks, others had knowledge of colleagues who had experienced some form of substantive negative consequences for doing so.

Documentation review

Introduction

Based on some of the comments and identified themes from the interviews and *Role and Process of Physician Advocacy* survey, a number of documents that provided context for these issues were reviewed.

Lines of authority and accountability

Key documents were reviewed to gain an understanding of the established definitions and descriptions of current health system structures, roles, and responsibilities, including the *Regional Health Authorities Act* (RHAA),[96] *Alberta Public Agencies Governance Act* (APAGA),[97] Public Agencies Governance Framework,[98] *Hospitals Act*,[99] AHS Mandate and Roles document,[100] AHS Medical Staff Bylaws[101] and Rules,[102] AHS contract template for physicians in leadership roles and the employment contract between AHS and the current CEO.[103] The AHS Mandate and Roles document has been a requirement of the APAGA since 2009. Its primary purpose is to "reflect a common understanding of the respective roles, responsibilities, and accountabilities" of the Minister of Health and Wellness (Minister), the Department of Health and Wellness (Department) and Alberta Health Services (AHS).[100] It is jointly developed and negotiated by AHS and the Minister of Health and Wellness and was signed and agreed to by the AHS Board Chair and the Minister on December 2, 2010. (A memorandum of understanding governed the relationship up until this time.)[104]

In order for the health system to function effectively, the separation of roles, responsibilities, and accountabilities between the various authorities must be clearly defined and articulated to ensure the public interest is served.[104] This separation and clarity removes ambiguity, provides explicit lines of reporting and delineates the accountability frame. This was echoed in the 2007 report *At a Crossroads: The Report of the Board Governance Review Task Force,* which stated "successful governance requires defined lines of authority, responsibility, and accountability".[105]
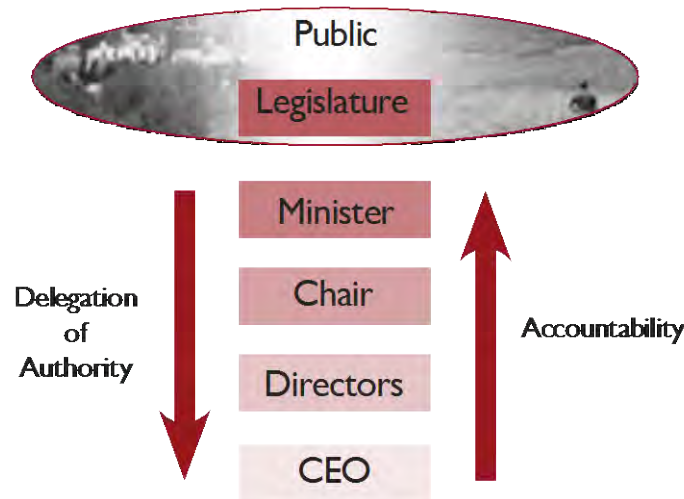
In 2010 the Minister's Advisory Committee on Health report recognized the need to delineate "clearer roles and lines of accountability between government, health delivery systems, providers and the public".[106] In *The Public Agencies Governance Framework*, which was adopted by the Government of Alberta in response to the *At a Crossroads* report, it is clearly stated that "authority flows from the public, through the Minister to the agency directors; accountability returns from the agency, through the chair to the Minister, who is held accountable to the public".[97]

Elected officials (Minister of Health and Wellness) and the Department of Health and Wellness

The RHAA states the "Minister may give direction to an RHA for the purpose of providing priorities and guidelines" for it to follow.[96] The Minister can approve or amend the Health Plan submitted by the RHA or refer the plan back to the RHA with direction "to take any further action the Minister considers appropriate". If the minister "considers that it is in the public interest to do so", the minister can do "any other thing the Minister considers necessary to promote and ensure the provision of health services in Alberta".

The AHS Mandate and Roles document provides further detail as to the Minster's authority. As per Section B (2) the Minister:[100]

- "allocates funding to AHS,

- establishes, appoints and oversees the AHS Board,

- sets the overall health system strategic direction,

- works with AHS through the Department of Health and Wellness to establish and monitor health system performance goals and targets, report progress and provide public assurance as to AHS compliance with direction and performance expectations,

- may establish or operate any programs and services the Minister considers desirable in order to carry out matters under the Minister's administration".

The Deputy Minister (Section B (3)) of the AHS Mandate and Roles document) is the "chief officer of the department and acts under the direction of the Minister". The Deputy "supports the Minister and coordinates with the CEO" of AHS to "provide direction, communicate government expectations and outline the strategic goals, guidelines and directions of the department to AHS". (Note: "Where an act or regulation directs or empowers the Minister to do something, this authority includes the Deputy Minister (with the exception of the authority to enact a regulation as defined in the *Regulation Act*).")

The Department of Health and Wellness, under direction of the Deputy Minister, implements and ensures compliance with government policy.[107] As per the AHS Mandate and Roles document (Section B (4)), the department provides "guidelines and directions to AHS regarding the contents, preparation and submission" of the health and business plans, including "specifying priorities, performance measures and targets".[100] It provides strategic policy that "outlines the broad government direction for the health system" and directional policy that "identifies actions and sets targets that align with strategic policy to achieve specific results". The Department "establishes standards of care for the health system and monitors performance against those standards".

Governance of Alberta Health Services

The AHS Board's role is also defined within the AHS Mandate and Roles document.[100] The Board is "established, appointed by and overseen by the Minister of Health and Wellness". The Board, through the Board Chair, is accountable to the Minister for the "delivery and operation of the public health system in Alberta". The Board guides the strategic direction, approves, and monitors the AHS health and strategic plans (subject to the approval of the Minister) and financial results. It "recruits, directs, evaluates and, if required, dismisses the CEO" of AHS. It determines the "compensation and the contract terms and conditions for the CEO, subject to the approval of the Minister". (The APAGA states that the public agency (AHS) sets the remuneration and expenses to be paid to the CEO, without mention of requiring ministerial approval.)[97]

The chair of the AHS Board "works in collaboration and cooperation with the CEO and the Minister to fulfill the mandate and mission of AHS" and "any government direction and department priorities", and on behalf of the Board, oversees the CEO.[100]

The *Regional Health Authorities Act*[96] states an RHA shall:

- "promote and protect the health of the population in the health region and work toward the prevention of disease and injury,

- assess on an ongoing basis the health needs of the health region,

- determine the priority of the provision of health services in the health region and allocate resources accordingly,

- ensure that reasonable access to quality health services is provided in and through the health region,

- promote the provision of health services in a manner that is responsive to the needs of individuals and communities and supports the integration of services and facilities in the health region, and

- has final authority in the health region in respect of the matters referred to above".

AHS CEO and medical staff organizational structure

The role and responsibility of the CEO is defined in the AHS Mandate and Roles document and the employment contract between the CEO and AHS.[103] As per the AHS Mandate and Roles document, the CEO is "accountable to the Board and provides leadership and management for AHS" and administration for all of its programs and services, and ensures "financial, human, capital and other resource management".[100] The CEO reports to and accepts instructions from the AHS Board directly, or through the chair. The CEO "works in coordination with the Department through the Deputy Minister" and is "responsible for immediately advising the Board and the Minister (through the Deputy Minister) of any material adverse events or other matters affecting the safety or well-being of Albertans". The CEO's contract clearly states that the position takes direction from the Board; however, the Mandate and Roles document states that the Deputy Minister "coordinates" with the CEO to "provide direction, communicate government expectations, and outline the strategic goals, guidelines, and directions of the Department to AHS".

The Alberta Health Services Medical Staff Bylaws and Medical Staff Rules (approved and effective February 28, 2011) govern the "creation, organization and operation of the medical staff"[101,102] including the administrative structures, committees, and positions for the governance of the medical staff. They define the accountability, responsibilities, and duties for the various medical staff administrative positions and committees.

The chief medical officer (CMO) is the most senior medical administrative leader in AHS and is appointed by and directly accountable to the CEO. The CMO is "responsible for implementation of policies established by AHS related to the medical staff".[101]

In the AHS dyad leadership model, the administrative/operations leader and medical leader are partnered in a shared decision-making relationship. In general, the administrative leader provides an operations perspective and the medical leader ensures a clinical focus as they jointly make all major decisions and recommendations for a specified portfolio. The responsibilities and accountabilities overlap significantly but each also has his or her own areas of accountability. Although the positions do not report to the same individual their annual performance targets are largely identical.[108] Individual physicians, those not in a medical leadership role, are accountable to their zone clinical department head for the responsibilities and obligations outlined in the Medical Staff Bylaws and Rules and service agreements.

Physician roles

As described in the previous section, physicians working within AHS report through the medical staff organizational structure. Their clinical responsibilities are defined in the AHS Medical Staff Bylaws and Rules and/or medical services agreement. Their administrative services, if applicable, are articulated through a Medical Administrative Services agreement with AHS, which also describes the reporting

requirements and from whom the physician will receive general directions on the provision of those services. The agreement also states that the practitioner agrees to adhere to such directions.[109]

Physicians are encouraged, in fact have the "right and obligation", as per the Medical Staff Bylaws (Section 4.2.3[101]) to advocate on behalf of their patients. The AHS Medical Administrative Services Agreements align with the bylaws. The agreements state "Nothing in this Agreement shall prevent the Contractor from advocating on behalf of his/her patients. The Contractor will ensure that should h/she choose to advocate by making public statements, for example to news media, that h/she will take appropriate steps to avoid confusion that h/she is expressing his/her views and not necessarily those of AHS."[109] (Note: In the interviews and survey results analyzed for this report, there were differing perspectives on whether one's contract had a bearing on a physician's ability to advocate. It was noted that AHS had inherited legacy physician contracts as well as having developed its own medical services agreement template, which may contribute to these differing perspectives.)

The same rules for advocating apply to those physicians in medical leadership positions within AHS. However, AHS recognizes that this "issue is made more complex by the diversity of roles that practitioners fulfill from independent clinicians to employees to AHS leadership positions. These roles have traditionally also carried different expectations related to the limits of advocacy and different access to the planning and decision-making process".[108] As physicians in a medical leadership position, they too have the right and obligation to advocate on behalf of their patients. It is expected, however, that "when advocating as individuals, practitioners who hold medical administrative leadership roles within AHS shall articulate clearly that they are not speaking as representatives of AHS".[101] Physicians in leadership positions are also "encouraged to first advocate or enquire about the matter internally within AHS before making public statements". This statement is echoed in the AHS communications (internal and external) policy,[110] which states that when a physician is speaking in his or her role as administrator or leader the expectation is to communicate the position of AHS.

The Royal College of Physicians and Surgeons of Canada identifies the importance of this duality issue in the CanMEDS 2005 Competency Framework. The framework states physicians must "appreciate the possibility of conflict inherent in their role as a health advocate for a patient or community with that of manager or gatekeeper".[77]

The CPSA supports physicians as advocates for their patients, communities, and populations. The CPSA also recognizes that physicians are part of and must consider the larger health system and so must be "willing to work with other individuals or agencies to understand or address the issues being advocated".[111]

College of Physicians & Surgeons of Alberta (CPSA)

The College of Physicians & Surgeons of Alberta website states that the CPSA "regulates the practice of medicine in Alberta".[112] The privilege of self-regulation is granted through Alberta's *Health Professions Act* (HPA). The CPSA is governed by a council that includes physicians, public members, and representatives from Alberta's medical schools. On the CPSA website, its "lines of business" are:

- Register physicians

- Investigate and resolve physician-related complaints

- Provide clinical review

- Accredit health facilities

- Guide professional conduct and ethical behaviour

- Contribute to public policy affecting healthcare delivery.

The CPSA also provides a number of programs designed to support physicians, such as continuous professional development, the triplicate prescription program, a physician achievement review program, and the physician health-monitoring program. Confidentiality is a key element described throughout the CPSA's programs.

Alberta Medical Association (AMA)

According to the Alberta Medical Association website,[113] the AMA stands as an advocate for its physician members, providing leadership and support for their role in the provision of quality healthcare. In carrying out its mission, the AMA works to support physicians in their roles as medical experts and healers, advocates, collaborators, communicators, managers, professionals, and scholars. The AMA attempts to ensure physicians are involved in healthcare decision making and their voices are heard by government, Alberta Health Services, other healthcare professionals, and the public. As the sole representative of fee-for-service physicians, the association negotiates with Alberta Health and Wellness and manages the global physician services budget. It is also developing alternate payment mechanisms.

ISSUES, ANALYSES, AND RECOMMENDATIONS

Stability and consistency in the health system

Issue

The magnitude, frequency, and at times abruptness of the restructuring of the health system in the past, including the formation of AHS, created a sense of chaos and instability. This has been further complicated by repeated reorganization within AHS. The frequent disruption of established processes and relationships caused by the restructuring was identified by physicians as a barrier to effective advocacy.

Analysis

The effects of regionalization

The structure of the healthcare system in Alberta has undergone drastic change over the past two decades, moving from a system of hospital-based care to the first regionalization of services in 1994 that created 17 regional health authorities (RHAs). These were reduced to nine RHAs in 2003, and then to one RHA: AHS in 2008. Within AHS itself, and its five regional zones, there have been numerous organizational iterations since 2008.[114,115]

Local Hospital Districts	**17 RHAs (1994)**	**9 RHAs (2003)**	**1 RHA (2008)** **5 Zones (2009)**
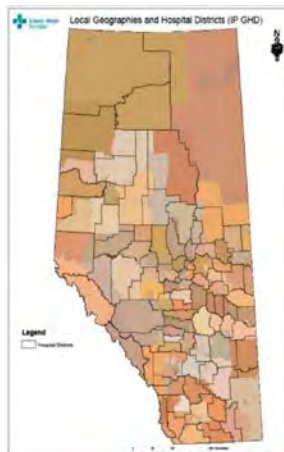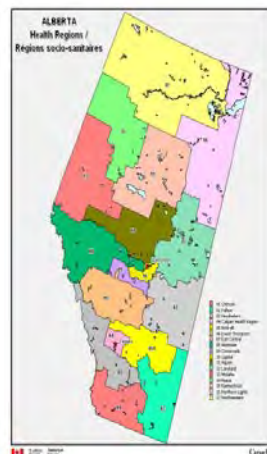
During that time, physicians' roles and their place in relation to the hospital and healthcare systems in which they worked also changed. Before regionalization, physicians were an integral player in a small system (e.g., one hospital) and actively involved in decision making. After regionalization began in 1994, physicians were excluded from many levels of decision making and felt marginalized. This led to widespread confusion, anger, and disengagement from the operations of the hospital and broader healthcare system. Cultures of trust and familiarity were lost to new and unclear organizational structures and the people within them were seen to be in a state of constant change.

From 1994 to 2008, RHAs employed different approaches, with varying degrees of success, aimed at effectively integrating and re-engaging physicians.

The abrupt creation of AHS in 2008 and the associated destabilization in the system was a prominent theme in the survey responses and the interviews. There were strong views expressed that a change of this magnitude, without apparent planning, was "irresponsible", with one interviewee calling it "semi-criminal". Some people believed that the stated reason for creating AHS – to improve efficiencies – was not the real reason and that the impetus was in fact a political motive to eliminate the power of two RHAs (Calgary Health Region and Capital Health) and their CEOs. Many interviewees believed government showed little insight into the chaos that a structural change of this scale could and did create.

In the almost four years since AHS was created there have been three CEOs and ongoing and frequent internal reorganizations including the recent creation of five zones. In the interviews and the physician advocacy survey, physicians expressed great difficulty in ascertaining and understanding the various levels of authority and responsibility within the AHS organizational structure.

In addition, the frequent turnover within the positions of Minister and Deputy Minister contributed to the confusion. Each change at these senior levels brought with it a wave of new priorities and leadership styles, causing further disruption and distrust within an already complex and volatile system.

1. RECOMMENDATION

The Government of Alberta and Alberta Health Services undertake no further major restructuring in Alberta's healthcare system without first having a clear rationale for the change including a transition plan that specifies the potential ramifications to safety and quality of patient care, the well-being of frontline providers, and the overall integrity of the health system.

REQUIRED ACTIONS

- If major restructuring of the Alberta healthcare system is being considered the government of Alberta must establish a process for effective consultation with relevant stakeholders, the public and expert advisors.

- If further major internal restructuring of Alberta Health Services is being considered an effective, open, and transparent process engaging its staff and stakeholders must be implemented.

Lines of authority and accountability in the health system

Issue

Lines of authority and accountability between the Minister of Health and Wellness, the Department of Health and Wellness, AHS governance, and AHS administration and operations are blurred. In this context there is a perceived improper use of authority, especially by the Minister and/or the Department, which causes mistrust between the government and AHS administration. The cascading effect of this mistrust is that frontline providers (physicians and others) are unclear about the genuine authority of the AHS Board of Directors and AHS administration to make decisions that directly affect healthcare service delivery. As a consequence physicians are confused about the appropriate avenues to follow when advocating.

Analysis

A critical issue that surfaced repeatedly throughout the interviews and from the survey responses is the relationship between elected officials (Premier and Minister of Health and Wellness), the Department of Health and Wellness (Deputy Minister and Assistant Deputy Minister) and the healthcare delivery system (AHS and physicians). As has been emphasized, frequent changes at senior political and bureaucratic levels result in severe disruption to relationships and a breakdown in trust, which takes time to rebuild. The strong perception of "inappropriate and irresponsible" political interference in the health system was believed by many to be related to the changes in leadership style and policy at the ministerial and department level.

The line of authority for the health system flows from the public, through the Minister of Health and Wellness to the AHS Board of Directors, and separately to the medical profession.[105]

The role of government through the Minister of Health and Wellness is to authorize the scope of health services provided to the population that is supported by public funding. The largest level of funding is for AHS (approximately 64 per cent), followed by physician compensation and development (approximately 21 per cent).[116] The Minister establishes the performance targets for AHS, appoints the AHS Board of Directors, and then holds it accountable for delivering high-quality, safe healthcare services with the funds provided.

The Department recommends the scope of health services that the government should fund, sets health service standards and monitors performance, recommends health legislation, policy, and strategy and the level of funding necessary to support the health system.

Alberta Health Services, the medical profession, and others are required to efficiently deliver quality and safe healthcare services within the approved level of funding.

The Minister is perceived as acting inappropriately if on an ad hoc basis, after approving the level of funding and scope of services, counteracts the decisions of those who provide and deliver services, thus undermining their authority. The Department is seen as acting inappropriately if it becomes involved in how health services are delivered or assumes a role of operational direction over AHS and/or the medical profession.

The current absence of clarity in the roles and responsibilities, lines of authority and accountabilities of AHW (Minister and Department), AHS, and the medical profession combined with the frequent turnover of Ministers, Department leadership, and senior management at AHS creates frustration, alienation, and confusion. It is in this difficult environment that physicians advocate for their patients.

According to the RHAA and the AHS Mandate and Roles document, the Minister approves the AHS health plan, the CEO's compensation and contract terms, and at any time "can do any other thing the Minister considers necessary to promote and ensure the provision of health services in Alberta" including establishing or operating any programs or services the Minister considers desirable. This would indicate that the Minister also has authority over – not only strategic and policy direction – but what some would consider more direct health provision or operational decisions. The RHAA, however, also states that the AHS Board is the "final authority" for promoting and protecting the health of the population, assessing health needs, determining priorities and allocation of resources for providing health services, and ensuring

reasonable access to health services within the health region. This would appear to introduce an inherent contradiction of authority for the Board, and others working within the AHS system, as to how much authority the Board actually has for autonomous decision making.

This contradiction is illustrated by what many believed to be the inappropriate appointment of the former Deputy Minister of Health and Wellness into the position of AHS Executive Operating Officer at the initial formation of AHS.[117] Even though the AHS Board announced the appointment, the transition from the position of Deputy Minister to the AHS executive occurred so quickly it gave the appearance that the Ministry was now responsible for the operational arm of the health system, and to some this set a pattern of direct government intervention into the actions of AHS governance. The sudden release of the AHS CEO in November 2010 further illustrates the degree to which the ministry was, or appeared to be, involved in AHS governance, as this was viewed by some as a directive from the Minister of Health and Wellness and not an AHS Board decision. This perceived intervention by the Minister was cited as the cause of the very public departure of several AHS Board members. This type of intervention occurred again with what was perceived as inappropriate appointments to the Board where CEOs who had been released from former RHAs were appointed to the AHS Board of Directors. This was described as "here is a CEO now telling the next CEO how to run the health service. I worry about that line being crossed".

Physicians' perceptions that the Board was being circumvented, or was itself politically motivated, created ambiguity and confusion about the accountability frame in which physicians operate and advocate. This was reflected in the following quote: "Ambiguity remains; no one is clear on who is running the show and making decisions; nobody really believes that AHW (the Minister and the Department) is overall leadership and (that) AHS is operational." In such an environment it is a challenge for physicians to recognize and follow the appropriate pathways to advocate effectively for their patients. This degree of ambiguity was recognized by some as not a new phenomenon but one they had seen throughout their careers in the Alberta health system. The "lines between operations, board, government (are) not clear enough but never are". It was further noted that it took strong leadership, especially by the Board Chair, to ensure these lines of responsibility and accountability were maintained.

> *The absence of clarity in the roles and responsibilities, lines of authority, and accountabilities of the Minister and the Department, AHS, and the medical profession – combined with the frequent turnover of Ministers, department leadership, and senior management at AHS – creates frustration, alienation, and confusion. It is in this difficult environment that physicians advocate for their patients.*

In order for the health system to function effectively, the separation of roles, responsibilities and accountabilities between the various authorities must be clearly defined and articulated to ensure the public interest is served. This separation and clarity removes ambiguity, provides explicit lines of reporting and delineates the accountability frame. This was echoed in the 2007 report *At a Crossroads: The Report of the Board Governance Review Task Force,* which stated "successful governance requires defined lines of authority, responsibility and accountability".

In 2010 the Minister's Advisory Committee on Health report recognized the need to delineate "clearer roles and lines of accountability between government, health delivery systems, providers and the public".

In *The Public Agencies Governance Framework*, which was adopted by the Government of Alberta in response to the *At a Crossroads* report, it is clearly stated that "authority flows from the public, through the Minister to the agency directors; accountability returns from the agency, through the chair to the Minister, who is held accountable to the public".

The AHS Mandate and Roles document states that the AHS board is "established, appointed by and overseen by the Minister of Health and Wellness". The *At a Crossroads* report emphasizes that "making sure the best people are appointed to agency boards is absolutely critical to ensuring that good governance happens". It goes on further to say that "board appointments cannot be left to chance when the work of agencies is such an important part of how government provides services to the public". The task force then recommended that the process for the appointment of directors to public agencies should be "transparent, non-partisan and competence-based".

A clearly defined mandate with associated roles and responsibilities can also contribute to continuity in governance and oversight, especially during times of change in key government, governance, or senior administration roles. These documents can be used as tools to inform and orient newly appointed officials, whether at the ministerial, governance, or administrative level.[106]

2. RECOMMENDATION

The Government of Alberta establish a task force, similar to the one that released *At a Crossroads: The Report of the Board Governance Review Task Force*, to review and make recommendations to the Government of Alberta to clearly delineate the lines of authority, roles and responsibilities, and accountabilities between the Minister of Health and Wellness, the Department of Health and Wellness, Alberta Health Services (including the appointment of the Board of Directors), and the medical profession.

REQUIRED ACTIONS

- The membership of the task force must have an equitable balance of health experts, governance experts, government officials, and members of the public.

- The Minister of Health and Wellness must use a process that is transparent, non-partisan, and competence-based when making appointments to the Alberta Health Services Board of Directors.

Culture within Alberta Health Services

Issue

Evidence gathered from the interviews and from the physician survey suggests there is a significant level of mistrust in the system that is not compatible with a just culture. As long as individuals in the organization, including physicians, feel uncertain as to the consequences of advocating for patients and resources, they will be constrained in the manner in which they participate in the organization. The full benefit of the various perspectives that lie within the organization will not be captured. Mistrust fosters disengagement and conflict, which makes it very difficult to develop supportive relationships critical to participation in discussion and decision-making and the goal of delivering safe, effective patient care.

There appears to be an 'organizational memory' of negative outcomes that certain individuals have experienced in the past. Some describe a 'culture of fear' or 'a culture of silence', both key symptoms of mistrust in an organization. If physicians are feeling intimidated in the course of their advocacy efforts, they do not trust that the organization will treat them fairly.

Analysis

The interviews and physician survey responses identified a range of beliefs about the current healthcare environment. Some believe the issues of intimidation have been overblown, while others describe severe, life-altering repercussions. That said, the frequency with which experiences of threats, intimidation, censorship, punishment, ridicule, bullying, or termination are cited is concerning. The impact of this intimidation is that many Alberta physicians motivated to speak out in defence or promotion of the health of patients or populations censure themselves before initiating any advocacy measures. For some, it was to 'tone down' their comments; others chose not to bother at all.

To consistently deliver high-quality, safe healthcare, it is critical that a healthcare system develops, fosters, and sustains a supportive organizational culture. A just culture only exists when the organization demonstrates consistently that individuals are treated fairly and appropriately and where individuals are clear as to what constitutes acceptable and unacceptable behaviour. In this environment, individuals can feel safe to be engaged in the work of the organization, feel free to present their ideas, and speak out on issues. Without this psychological safety, issues may linger because they are not brought forward, corrective solutions delayed, or a preventable adverse event takes place as safety issues remain hidden. A just culture therefore is imperative for safe healthcare organizations.

Just cultures evolve over time but to gain any cultural strength requires at a minimum, stability in organizational structure, stability in leadership, and clearly stated values. As a just culture matures, benefits accrue through more active engagement, open dialogue, learning, and change that can be recognized as improvement. In Alberta, ongoing health system restructuring including changes in AHS leadership and governance, combined with numerous changes at the leadership level of the Ministry of Health and Wellness, have made it difficult for the health system and AHS in particular to establish trust and the supporting processes to create a just culture.

The healthcare system will require strong, consistent leadership with unswerving resolve to rebuild trust with its physician stakeholders. Boards within healthcare organizations must commit to developing a 'just culture' as a goal of the organization. This includes providing the guidance to develop a 'just culture policy' and supporting infrastructure.

3. RECOMMENDATION

The Alberta Health Services Board of Directors accelerate the development and implementation of an overarching just culture policy that provides the structure and supporting processes to guide the entire organization.

REQUIRED ACTIONS

- ▪ The just culture policy must serve as the foundation for all of the organization's policies and procedures, including the medical staff bylaws. To ensure the just culture policy is fully implemented and achieves its maximum impact throughout the organization it must be adequately resourced and supported and must be periodically evaluated.

- ▪ The just culture policy specifies, as clearly as possible, responsible and accountable behaviour, particularly as it applies to decisions and actions that affect patient care, including advocacy.

Structures and processes to support effective physician advocacy

Issue

Within AHS and other organizations, many physicians do not know what channels they should pursue to advocate for patients and populations, what constitutes appropriate and responsible advocacy, under what circumstances it might be appropriate to move from internal to external advocacy, what policies and guidelines address their role in advocacy, or what processes the health system will use to review their concerns, examine their validity and determine next steps.

Analysis

The initial regionalization of healthcare in 1994, and the subsequent reductions in the number of regions over the past 17 years, was identified as a significant factor that contributed to physician disengagement at a local level. These restructuring events led to an "increased bureaucracy", along with "multiple layers of middle management", and a "maze" of processes. It was identified that the restructuring also curtailed middle management's ability to be effective leaders and decision makers.

The response by many regarding the impact of the creation of AHS was that the "blowing up of all health regions" resulted in the disruption of established reporting relationships and lines of accountability, which resulted in widespread concern over loss of local autonomy and decision-making authority. Many physicians reported getting no response or action from management to their advocacy efforts, owing to an unknown and complicated organizational structure through which one could not easily navigate.

In addition, the 'single employer' structure that emerged with the creation of AHS significantly shifted the balance of power and limited the options for people to move between regions of the province. Interviewees and survey respondents described this as "structural" or "monopoly power", which was seen as "extremely intimidating". Throughout the interviews, the QAC learned of individuals who, as a result of advocating for their patients or system improvements, either seriously considered leaving or had to leave the province to continue their practice.

The release of the initial draft of the AHS Code of Conduct further added to the chaos of the new structure, and triggered a strong reaction from those physicians and employees who interpreted it as a "gag order". Though it was revised following broad consultation, the first version has not been forgotten. This increased disengagement among physicians, as reflected in the AHS Workforce Survey[47] (reported in April 2010). Twelve per cent of physicians responded to the survey. Twenty-six per cent of

respondents rated their overall engagement as favorable – well below the 76 per cent benchmark that reflected the average score for engagement of physicians in similar organizations.

As demonstrated by the interviews and the physician advocacy survey, physicians find it difficult to see and understand the various levels of authority within AHS. The AHS Medical Staff Bylaws were approved and became effective in February 2011 after wide consultation with all physicians in AHS as well as the AMA, yet many interviewees did not know what was in the bylaws.

The responses to the survey showed that 60 per cent of physicians report their ability to advocate is limited by an unclear process for advocacy (37 per cent of physicians were not aware of a process through which they could advocate and 23 per cent simply didn't know); and 40 per cent were aware of a process for advocating. A majority, 69 per cent, reported that their contract didn't address advocacy and 45 per cent reported that organization policies did not address advocacy directly. Similarly, the most frequent comment made in the narrative survey responses concerned the need for the clear "rules", "avenues", and "processes" to advocate within AHS, other organizations, and to the media. Many concerns were expressed with the "bureaucratic challenges", as well as managers and administrators who were described as being "remarkably disconnected from actual care delivery", and "limited in their ability to make decisions".

Interviewees differentiated between *appropriate* and *responsible* advocacy; these were not necessarily seen as the same as *effective* advocacy, which referred to the outcome of whatever was being advocated for. *Appropriate* advocacy most often described the onus to raise concerns within the organization before taking any external action. Advocating *responsibly* was seen by some individuals as "needing to keep the needs of others" and the "bigger picture" in mind, recognizing there are "finite resources (that) need to be used for the best of society". Several interviewees felt that physicians do not fully acknowledge the implications of funding decisions, and that if advocacy efforts are successful for one particular population, there is "little appreciation there may be a negative impact on another group".

The AHS has responded to the challenges that physicians are having with advocating effectively by creating an AHS Provincial Physician Executive Committee (PPEC) Supporting Practitioner Advocacy Working Group. They developed a work plan and timelines (January 2012) that provide definitions of advocacy, intimidation, and bullying.[118] One of the initiatives in the work plan is the AHS Physician Advocacy Assistance Line (PAAL), which was launched on February 13, 2012. While this work will help physicians associated with AHS, there are other physicians in the province not affiliated with AHS that may also benefit from similar undertakings.

Some interviewees and survey respondents commented on the importance of having access to an "independent body" that could provide a neutral appeal mechanism. "Whistle-blower protection will be required if we are ever going to speak out," said one participant. In circumstances where there may be a disagreement regarding the appropriateness of particular advocacy efforts, an objective review and appeals mechanism is needed to which those who advocate can turn without fear of retribution. For such a mechanism to be objective, effective, and credible, it must be demonstrably independent of the healthcare delivery system from which the disagreement arose and it must be – and be seen to be – free of influence from existing healthcare and government leadership.

The literature review, interviewees, and survey respondents identified conflicts of interest that arise when physicians advocate for their patients and communities. Such conflicts include: (1) responding to the health needs of a particular patient and promoting the health of a population when health resources are finite; (2) advocating for increased or improved healthcare services when this may result in a financial or other gain for the physician; (3) responding to the needs of, or promoting the health of, a patient in cases where the physician also fulfills the role of an administrator with duties to protect the interests of the health organization in which he or she serves.

It is important to note that a conflict of interest does not imply unethical behaviour. Appropriate acknowledgement, disclosure, and mitigation of these conflicts will be key, however, to ensure that the process of advocacy is reasonably free of undue influence from competing interests.

> *In the survey, the most frequent comments made in response to the question "do you have any additional comments, concerns, or suggestions regarding physician advocacy issues as you have experienced them in your practice?" concerned the need for clear "rules", "avenues", and "processes" to advocate within AHS, other organizations, and to the media.*

4. RECOMMENDATION

Alberta Health Services, in collaboration with Alberta universities, the Alberta Medical Association, the College of Physician & Surgeons of Alberta, and other organizations develop and implement clear policies and procedures to guide physicians on how to ethically, appropriately, responsibly, and effectively advocate.

5. RECOMMENDATION

Alberta Health Services, Alberta universities, the Alberta Medical Association, the College of Physicians & Surgeons of Alberta, and other organizations explore the need for and feasibility of a provincial independent process for physicians who, despite exhausting all internal processes, believe their advocacy efforts have not been adequately addressed.

Physician education on effective advocacy

Issue

There was significant agreement among interviewees and survey respondents that many physicians had received little if any formal education on how, when, and under what circumstances one can and should advocate appropriately, responsibly, effectively, or constructively. Many expressed support for and interest in formal education on advocacy. Most indicated they were generally familiar with the notion of advocacy for an individual patient, but less comfortable advocating for communities, populations, or system-level changes.

Analysis

In the survey, 69 per cent of physicians reported having no formal training in advocacy; 14 per cent reported receiving training in medical school; 15 per cent in residency; and 16 per cent as part of continuing medical education. Nearly half, 45 per cent, believe they have the necessary skills to effectively advocate for their patients, whereas 20 per cent do not and 35 per cent do not know.

Nearly a third of Alberta physicians (31 per cent) felt restricted by their lack of training and education in advocacy and 23 per cent by their inexperience. Similar to interview findings and survey comments, the literature review revealed that feeling unprepared is one of the barriers to physician advocacy. As described in the literature review section, two articles found that medical residents felt inadequately prepared to take on the role of health advocate, and a literature search in 2005 found no studies on the curriculum of healthcare advocacy in residency education in Canada. The identified barriers to teaching health advocacy included time pressure with other curriculum requirements; residents perceiving that they did not observe faculty members modelling health advocacy; faculty members feeling unsure about their roles in teaching advocacy (never having learned it in their own training); and a lack of remuneration for advocacy activities.

As found in the interviews and narrative survey responses, many physicians feel that advocating effectively had not been taught in either medical school or ongoing continuing medical education. There was significant interest in being involved in further education on advocating effectively through continuing medical education (although finding the time to participate was identified as a probable challenge). It was suggested that newer graduates from medical schools may have received some training in how to advocate. Others were knowledgeable about advocacy for an individual patient, but had not learned as much about advocacy for system-level changes.

A program to train physicians in effective advocacy was seen to be difficult to create, whereas having medical schools teach students how to use good judgment when advocating for patients was considered useful, as was instilling awareness of the need for balance between patient- and system-level advocacy.

Medical schools were thought to be "lagging behind (in) teaching effective advocacy". Other organizations, such as the Royal College of Physicians and Surgeons of Canada (RCPSC) and the Canadian Medical Association (CMA), were also seen as only beginning this work in the last several years. As part of helping physicians understand their responsibilities, the CMA was identified as "having a responsibility to collect data, begin a national dialogue, identify the key themes, root causes and then begin to identify the solutions".

The literature review and interviewees identified many reasons why additional education on advocacy is required, one being the fact that many physicians are engaged in different ways with the healthcare system in terms of how they are positioned and paid, such as through contractual relationships.

6. RECOMMENDATION

The faculties of medicine in Alberta ensure that the Royal College of Physicians and Surgeons of Canada CanMEDS 2005 physician competency framework be the foundation for an advocacy curricula for undergraduates and postgraduates and that it be made available for continuing medical education.

Leadership responses to physician advocacy

Issue

A disturbing number of physicians reported that their privileges, positions, or contracts have been inappropriately threatened or affected as a result of their advocacy efforts. It was also felt that administrators or leaders abused their authority by "cracking down" on physicians who spoke up, concealing this abuse under the guise of addressing problems in physician performance. In some cases where physicians' performance was investigated, established processes were circumvented. The process outlined in the medical staff bylaws was not used because it was seen by health administrators to be too heavy-handed or onerous. In some cases, physician administrators and colleagues expressed concern over the process used to evaluate their performance, and identified the need for more explicit processes.

Analysis

Physicians advocating for their patients or system improvements may run into conflict with leaders in an organization or government. Ensuring that organizational leaders are prepared and authorized to respond effectively to these advocacy efforts will help resolve the issue in the most constructive manner. Sharing a common understanding of what responsible advocacy looks like in their organization, all parties can differentiate between 'constructive advocacy' and performance issues.

The CMPA wrote about the changing relationship between physicians and hospitals and identified the important role of physicians as advocates.[89] It states that conflict can arise when physicians advocate but "this conflict should not always be viewed as negative, as issues may be more fully understood through differences exposed through that conflict". It also provides examples of organizations and governments (p.19) attempting to constrain physicians from advocacy, contrary to lessons learned in safety-driven organizations where employees are encouraged to speak out. Likewise, Saltman (2011) echoed this call to "welcome advocacy", even though advocacy activities can result in physicians being in conflict with government healthcare priorities and agendas.

The AHS Workforce Survey (Physician Segment)[119] showed "leadership effectiveness was a fundamental issue for AHS" at the time the survey was done (fall 2009).

This review's Role and Process of Physician Advocacy Survey suggests that specialists who advocate to their organizational department or executives of their healthcare organization (as compared with other specialists who advocated) are more likely to experience a negative outcome. Likewise, general practitioners (GPs) who advocated to the executive of their healthcare organization were more likely to experience a negative outcome than were other GPs who advocated elsewhere. Both specialists and GPs who advocated to executives of their healthcare organizations were more likely to have been asked to withdraw a request, as compared with others who advocated elsewhere.

When asked "who" restricted their ability to advocate, 55 per cent identified "organization administration"; 33 per cent "department or division administration"; 35 per cent "organization leadership or executive"; 37 per cent "Alberta Health Services"; 27 per cent "AHW"; and 20 per cent identified "physician peers".

In the interviews and survey qualitative analysis, frequent mention was made of conflict arising when physicians were advocating for their patients. In addition, leaders within healthcare organizations (physician leaders or administrators) sometimes find it challenging to respond to this conflict. The leaders may not have received education or coaching to prepare them to deal effectively with physicians advocating. This may lead to great differences in responding to advocacy activities, depending on the individual leader's experience, knowledge, and personal leadership style as well as the experience of the physician and whether he or she has all the information needed about the issue for which the physician is advocating.

Leaders need to demonstrate commitment to following up on issues identified by physicians, acknowledging they've been heard, and providing ongoing feedback on progress to resolve the issue. Ensuring effective communication in the "advocacy relationship" is key to an outcome that both parties would describe as constructive advocacy – i.e., conducted in a context of legitimate debate and respect for different perspectives. Robson and Marshall (2005)[94] have emphasized the importance of preventing and managing conflict as a "vital piece in the patient-safety puzzle".

A number of physicians or prominent senior leaders reported having experienced severe negative repercussions while advocating for patients or system improvements. Physicians described false accusations made to intimidate them, their contracts not being renewed after verbal promises of renewal, threats of "being reported to the CPSA", and clinical reviews of their work that fell outside of due process. Whether the situation involved loss of position or privileges, the physicians perceived there was a lack of procedural fairness. Several situations were described as being handled through ad hoc processes rather than the medical staff bylaws in place at the time. This was described as wanting to use a "less forceful and formal process" to see if the issues could be resolved without having to involve the CPSA.

7. RECOMMENDATION

Alberta Health Services and other organizations that work with physicians train and support physicians and administrators in leadership roles to acquire skills and comfort with conflict resolution, responding effectively to physicians advocating for their patients, and differentiating appropriately between constructive advocacy and physician performance/behaviour issues.

REQUIRED ACTION

- Alberta Health Services and other relevant organizations must ensure that processes and procedures, including those articulated in the medical staff bylaws, used by those initiating physician performance reviews, clearly differentiates between issues that are performance-based versus those that are advocacy-based.

College of Physicians & Surgeons of Alberta (CPSA)

Issue

There exists a perceived lack of transparency and definition between physician-support functions of the CPSA and those functions within it that deal with complaints and investigations of physicians. Many

physicians perceive the CPSA has acted and been used inappropriately, which has led to widespread fear of the CPSA.

Analysis

The CPSA performs and provides a variety of functions, including registering physicians, investigating and resolving physician-related complaints, guiding professional conduct and ethical behaviour, and delivering programs designed to support physicians such as continuous professional development and the physician health monitoring program.

It was apparent from the interviews and physician survey that many physicians fear the CPSA because they feel it has been used (or threatened to be used) by other physicians, healthcare organizations and administrators as a means to discipline or intimidate physicians. It was recognized this could be due in part to the perception that the CPSA processes are not readily transparent to members, nor is the distinction between the various functions and services the CPSA provides. Some physicians identified feeling unclear about when the CPSA is acting in support of a physician versus when it is operating in an investigative or punitive mode.

8. RECOMMENDATION

The College of Physicians & Surgeons of Alberta have clearer lines of separation and clarity between the roles, programs, and services of investigations and complaints versus education and support, and improve how it communicates those roles so that they are well understood by its stakeholders.

REQUIRED ACTION

- The College of Physicians & Surgeons of Alberta must enhance transparency regarding investigative processes and emphasize its programs of education and support for physicians in order to counterbalance the perception of fear that is prevalent among Alberta physicians.

- The Minister appoint an independent task force to review the College of Physicians & Surgeons of Alberta's roles, programs, and services to make clear the distinction between the College of Physicians & Surgeons of Alberta's investigative and support roles and to ensure they are better understood by physicians, outside agencies, and the public.

SUMMARY OF RECOMMENDATIONS AND REQUIRED ACTIONS

Part A
I. Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care

1. RECOMMENDATION

No further action is required regarding the patient charts reviewed by the HQCA's quality assurance committee and the lists of patients identified by the University of Alberta Hospital emergency department physicians for the years 2008 to 2010.

2. RECOMMENDATION

Alberta Health Services takes steps to reduce inpatient occupancy to target levels of 85 to 90 per cent for each of its key admitting services in each acute care institution.

REQUIRED ACTIONS

- Structure inpatient services in acute care institutions around key patient population care needs rather than historical professional organizational structures.

- Empower inpatient services with the appropriate administrative and clinical structure and authority to manage required resources. In addition to being accountable for inpatient length of stay, these services should also be held accountable for their level of responsiveness to the emergency department for consult and decision-to-admit times. Services should be required to develop surge-capacity plans and target average or median occupancy rates below 90 per cent.

- Gain an accurate estimate of the number of beds required for each inpatient service based on appropriate statistical modelling of demand using historical case-mix-group data and population-age-growth data (see recommendation 4).

- Implement an information system that provides clinicians and administrators with long-term, short-to-medium-term, and near-real-time data about the demand for inpatient beds and capacity at the system, program, and service levels. Such an information system would contribute to the dynamic management of inpatient bed capacity and support an accountability model for inpatient services.

- Take steps to reduce the variability of scheduled patient admissions by developing and implementing – for those inpatient services with large volumes of scheduled admissions – dynamic models of patient flow that more accurately predict length of stay and hence inpatient bed capacity based on the characteristics of current patient populations and projected patient admissions.

- Review length of stay data on common case mix groups across institutions to understand where efficiencies could be gained from reducing length of stay.

- Expand use of information systems that identify patients who meet standard 'readiness for discharge' criteria in an effort to reduce inpatient length of stay.

3. RECOMMENDATION

Alberta Health and Wellness and Alberta Health Services review the current need for long term care and supportive living facilities based on detailed forecasting created by appropriate models (see recommendation 4) to further reduce the percentage of alternate level of care bed days – preferably below three per cent of all acute care inpatient days.

4. RECOMMENDATION

Alberta Health Services and Alberta Health and Wellness develop long-term partnerships with Alberta universities to advise on the use and implementation of operations management tools and methods that would assist with medium- and long-term health system capacity projections.

REQUIRED ACTIONS

- Further develop system dynamic and discrete-event simulation models of patient flow through Alberta's healthcare systems that would provide more accurate predictions of capacity requirements for long term care, supportive living, rehabilitation and acute care inpatient beds and human resources.

- Ensure that predictions for inpatient beds are specific at the service level rather than at the institution level.

5. RECOMMENDATION

Alberta Health and Wellness and Alberta Health Services take steps to shorten emergency department throughput including physician response times.

REQUIRED ACTIONS

- Alberta Health and Wellness with Alberta Health Services and the Alberta Medical Association strongly consider implementing an alternate reimbursement model for emergency department physicians.

- Alberta Health Services continues with its innovative approaches for reducing emergency department throughput for discharged patients, implementing best practices throughout the province to develop a common emergency department delivery model.

- Alberta Health Services continues to promote ongoing evaluation of emergency department interventions designed to reduce patient waiting by partnering with the faculties of medicine at the University of Alberta and University of Calgary to increase the emergency department clinical outcomes research capacity in the province.

- Alberta Health Services incorporate its diagnostic imaging and laboratory information systems into an overall performance measurement model of emergency department waiting such that it

can continuously monitor lapsed time from test ordering to test completion and to test interpretation and use this as a basis to drive improvements.

6. RECOMMENDATION

Alberta Health Services continue with innovative solutions to support palliative care patients in their community setting and prevent, wherever feasible, the transfer of these patients to emergency departments.

REQUIRED ACTIONS

- Alberta Health Services standardize across all healthcare sectors its palliative care terminology, such as "goals of care" and "allow natural death", and dissuade the use of descriptors such as "do not resuscitate".

- Alberta Health Services strive to support palliative patients who have a sudden, unexpected symptom crisis so these patients have options for immediate care at home that can obviate the need to go to an emergency department, and support the patient and family's decision to remain at home.

- Alberta Health Services explore options to admit patients with symptom crises directly to an intensive palliative care unit or medical unit, depending on their needs, rather than to the emergency department.

Part A

II. Review of the Quality of Care and Safety of Patients Requiring Access to Lung Cancer Surgery

7. RECOMMENDATION

The Government of Alberta take no further action, and not establish a judicial or health inquiry, to examine:

- The allegation of a list of 1,200 patients on a lung surgery wait list or patients who may have died who were on such a list.

- The allegation regarding the roles and actions of former health ministers, the former CEO of Capital Health, and the Registrar of the College of Physicians & Surgeons of Alberta.

- The allegation that the physicians who raised the issues regarding a 1,200-patient waiting list were either punished or driven out of the province or paid millions to buy their silence and the costs buried in the books under the former regional health authority.

8. RECOMMENDATION

Alberta Health Services develop standardized approaches for the creation of surgical waiting lists making surgical oncology waiting lists a priority.

REQUIRED ACTIONS

- Alberta Health Services develop a patient care and patient flow map for common oncology operations that documents work up and clinical decision-making up to the point that a patient meets criteria for requiring a surgical operation and hence placement on a wait list.

- Alberta Health Services develop standard criteria for when patients are officially placed on a wait list.

9. RECOMMENDATION

Alberta Health Services invite key stakeholders (e.g., patients and non-surgical healthcare providers) to participate in the Lung Cancer Surgery project so that stakeholder needs are considered.

REQUIRED ACTION

- Alberta Health Services ensures that stakeholders contribute to all phases of the project, including the design of a public portal to an information system, which would allow them to determine when they are on an 'official' surgical waiting list and their current status on that list.

10. RECOMMENDATION

Alberta Health Services develop a comprehensive physician staffing plan (that at a minimum would include respirologists, thoracic surgeons, radiation oncologists, and medical oncologists) to ensure long-term viability of its Lung Cancer Surgery project.

Conclusions and Recommendations Concerning the Overall Healthcare System

11. RECOMMENDATION

Alberta Health Services implement a clinical program management model within its geographical zones that fully integrates all hospitals and urgent care facilities under single-program or service-based leadership.

12. RECOMMENDATION

Alberta Health Services develop and use case studies about: (1) the strategic planning and implementation of system-wide interventions that the former Chinook Health Region undertook; and (2) the former Capital Health's Emergency Services and System Capacity project.

13. RECOMMENDATION

Alberta Health Services ensure that its departments or services develop the expertise and the accountability for conducting their own quality assurance reviews with the sole purpose of the review being to improve the reliability and safety of the patient-care delivery system.

Part B – The Role and Process of Physician Advocacy (including physician intimidation)

1. RECOMMENDATION

The Government of Alberta and Alberta Health Services undertake no further major restructuring in Alberta's healthcare system without first having a clear rationale for the change including a transition plan that specifies the potential ramifications to safety and quality of patient care, the well-being of frontline providers, and the overall integrity of the health system.

REQUIRED ACTIONS

- If major restructuring of the Alberta healthcare system is being considered the government of Alberta must establish a process for effective consultation with relevant stakeholders, the public, and expert advisors.

- If further major internal restructuring of Alberta Health Services is being considered an effective, open and transparent process engaging its staff and stakeholders must be implemented.

2. RECOMMENDATION

The Government of Alberta establish a task force, similar to the one that released *At a Crossroads: The Report of the Board Governance Review Task Force,* to review and make recommendations to the Government of Alberta to clearly delineate the lines of authority, roles and responsibilities, and accountabilities between the Minister of Health and Wellness, the Department of Health and Wellness, Alberta Health Services (including the appointment of the Board of Directors), and the medical profession.

REQUIRED ACTIONS

- The membership of the task force must have an equitable balance of health experts, governance experts, government officials, and members of the public.

- The Minister of Health and Wellness must use a process that is transparent, non-partisan, and competence-based when making appointments to the Alberta Health Services Board of Directors.

3. RECOMMENDATION

The Alberta Health Services Board of Directors accelerate the development and implementation of an overarching just culture policy that provides the structure and supporting processes to guide the entire organization.

REQUIRED ACTIONS

- The just culture policy must serve as the foundation for all of the organization's policies and procedures, including the medical staff bylaws. To ensure the just culture policy is fully

implemented and achieves its maximum impact throughout the organization it must be adequately resourced and supported and must be periodically evaluated.

- The just culture policy specifies, as clearly as possible, responsible and accountable behaviour, particularly as it applies to decisions and actions that affect patient care, including advocacy.

4. RECOMMENDATION

Alberta Health Services, in collaboration with Alberta universities, the Alberta Medical Association, the College of Physicians & Surgeons of Alberta, and other organizations develop and implement clear policies and procedures to guide physicians on how to ethically, appropriately, responsibly, and effectively advocate.

5. RECOMMENDATION

Alberta Health Services, Alberta universities, the Alberta Medical Association, the College of Physicians & Surgeons of Alberta, and other organizations explore the need for and feasibility of a provincial independent process for physicians who, despite exhausting all internal processes, believe their advocacy efforts have not been adequately addressed.

6. RECOMMENDATION

The faculties of medicine in Alberta ensure that the Royal College of Physicians and Surgeons of Canada CanMEDS 2005 physician competency framework be the foundation for an advocacy curricula for undergraduates and postgraduates and that it be made available for continuing medical education.

7. RECOMMENDATION

Alberta Health Services and other organizations that work with physicians train and support physicians and administrators in leadership roles to acquire skills and comfort with conflict resolution, responding effectively to physicians advocating for their patients, and differentiating appropriately between constructive advocacy and physician performance/behaviour issues.

REQUIRED ACTION

- Alberta Health Services and other relevant organizations must ensure that processes and procedures, including those articulated in the medical staff bylaws, used by those initiating physician performance reviews clearly differentiate between issues that are performance based versus those that are advocacy based.

8. RECOMMENDATON

The College of Physicians & Surgeons of Alberta have clearer lines of separation and clarity between the roles, programs, and services of investigations and complaints versus education and support, and improve how it communicates those roles so that they are well understood by its stakeholders.

REQUIRED ACTIONS

- The College of Physicians & Surgeons of Alberta must enhance transparency regarding investigative processes and emphasize its programs of education and support for physicians in order to counterbalance the perception of fear that is prevalent among Alberta physicians.

- The Minister appoint an independent task force to review the College of Physicians & Surgeons of Alberta's roles, programs, and services to make clear the distinction between the College of Physicians & Surgeons of Alberta's investigative and support roles and to ensure they are better understood by physicians, outside agencies, and the public.

APPENDICES

APPENDIX I: Ministerial Request

ALBERTA
HEALTH AND WELLNESS
Office of the Minister

Honourable Gene Zwozdesky
MLA, Edmonton Mill Creek
Deputy Government House Leader

March 12, 2011

Dr. Lorne Tyrrell, Chair
Health Quality Council of Alberta

Dear Dr. Tyrrell,

Pursuant to Section 13 of the *Health Quality Council of Alberta Regulation*, I hereby direct the Health Quality Council of Alberta (the Council) to conduct an independent Review that closely examines wait times for emergency department services and for cancer care services in the Province of Alberta. The central purpose of this independent Review is to identify and analyze issues related to these two important services and to make recommendations to improve system performance.

As part of this independent Review, I further direct the Council to examine the following specific issues:

-- Determine, to the extent possible, the impact of wait times on a group of emergency department patients identified by emergency department physicians, and others. The Council shall review the cases and make recommendations based on factual findings to improve, as required, health system performance.

-- Determine if a group of patients waiting to receive cancer care, and who were recently alleged to have died during their wait for care, can be identified. In the event the group can be identified, the Council shall review the cases and make recommendations based on factual findings to improve, as required, health system performance.

. . . . . Page 2

Alberta

This independent Review shall be provincial in scope and is to be conducted utilizing Section 9 of the *Alberta Evidence Act* in order to maintain evidentiary privilege over the provision of documents and evidence of participants. The Council shall also take whatever steps it deems necessary to maintain confidentiality of the people who participate within this process.

The Council will establish its own Terms of Reference for this independent Review in accordance with the general parameters described above, and will make those Terms of Reference public. The Council will begin this work immediately.

Additionally, the Council will establish its own processes and procedures for this independent Review, including the selection of individuals that may be required to assist the Council in this regard.

I look forward to your early response and to receiving your anticipated timeline to accomplish this task. Thereafter, I will look forward to receiving your final report and recommendations, which will also be made public. Thank you for undertaking this very important work.

Yours truly,

Honourable Gene Zwozdesky,
Minister, Alberta Health and Wellness
Deputy Government House Leader

Cc: Honourable Ed Stelmach,
    Premier of Alberta

    Dr. John Cowell,
    Chief Executive Officer,
    Health Quality Council of Alberta

APPENDIX II: Terms of Reference

Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and Process of Physician Advocacy

Objectives and Scope

Pursuant to section 13 of the *Health Quality Council of Alberta Regulation* 130/2006 (the "Regulation"), the Health Quality Council of Alberta ("HQCA") will, through a quality assurance committee, conduct a full and thorough review of:

Part A: Quality of Care and Safety of Patients requiring Emergency Department Care and Cancer Surgery

1. To determine whether the quality of care provided to and the safety of:

   a. a group of 321 patients that accessed emergency department services at the University of Alberta Hospital (UAH) during 2008, and

   b. a group of 9 patients that accessed emergency department services at the UAH during 2010

   was significantly compromised due to extended lengths of stays awaiting diagnosis and treatment in the emergency department. These cases were identified publicly on October 22, 2010. The cases had been collected by the emergency department physicians serving in the role of triage physicians at the UAH.

2. To determine whether the quality of care and the safety of a group of 250 cancer patients on a surgical wait list of 1,200 were seriously compromised due to delayed access to surgery as alleged in a question raised in the Alberta Legislature on February 28, 2011.

3. Based on the findings and analysis of the investigation and an analysis of current practices, make recommendations for system-level improvements in access and wait times for emergency department care and cancer treatment.

Part B: Role and Process of Physician Advocacy in Patient Safety and Health Service Quality

1. To investigate the role and ability of physicians to advocate for patients whose quality of care and safety the physicians believe is or could be compromised due to system resources or policies.

2. Based on the findings and analysis of the investigation and an analysis of current practices, make recommendations for system-level improvements in the policies and practices relating to physician advocacy intended to serve the best interests of patients.

The Council has established a quality assurance committee under section 10(2) of the Regulation for the purpose of conducting the planned and systematic study, assessment and evaluation of the matters set out above. The quality assurance committee must conduct the review as a quality assurance activity under section 9 of the *Alberta Evidence Act*. A team of health professionals and system review experts who have no known association with the specific matters under review will be appointed to the quality assurance committee.

A panel of experts will be appointed to assist and advise the Council in this review.
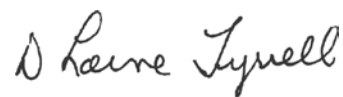
Under section 10 of the Regulation the HQCA has access to information held by health authorities for the purpose of carrying out its objects. The HQCA, which is a custodian of health information, can support the quality assurance committee's work by providing necessary health information to the Committee in accordance with section 35 of the *Health Information Act*.

Deliverables and Timeline

John W. F. Cowell M.Sc, MD, CCFP, FRCP, the CEO of the HQCA is the review sponsor.

A full report of the findings and recommendations will be made public as soon as is feasible but is expected to be released within 9 months. A progress report will be released publicly at 3 months and 6 months.

Approved by the Council of the Health Quality Council of Alberta

_____

D. Lorne J. Tyrrell, OC, AOE, MD/PhD, FRCP
Chair

Revised:
March 24, 2011

June 9, 2011

Dr. Chris Eagle
President and CEO
Alberta Health Services
Suite 700, Manulife Place
10180 101 Street
Edmonton, Alberta T5J 3S4

Dear Dr. Eagle:

Re: Request for Assurances and Confirmation Protecting Physicians, Other Health Service Providers, Administrators, Employees, Former Employees and Board Members

At the direction of the Minister of Health and Wellness, the Health Quality Council of Alberta ("HQCA") is undertaking a Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and Process of Physician Advocacy ("the Review"). The Review is being conducted by the Quality Assurance Committee of the HQCA under section 9 of the *Alberta Evidence Act*.

The Review will focus on two principal topic areas:
- Quality of Care and Safety of Patients requiring Emergency Department Care and Cancer Surgery.
- Role and Process of Physician Advocacy in Patient Safety and Health Service Quality.

The Terms of Reference are attached for your reference. The data gathering phase of the Review will be conducted by sub-committees of the QA Committee.

Physicians, other health service providers, administrators, staff, former staff and board members of Alberta Health Services will be invited by the QA Committee to speak to it or a sub-committee and to provide information, including documents.

Participation in the Review is voluntary. In order for the QA Committee to obtain an accurate and complete understanding of the events that are its focus, the QA Committee needs open and complete disclosure of information and documents. This cannot occur if physicians, other health service providers, administrators, employees, former employees and board members feel at any risk as a result of their participation in the Review. To alleviate any concerns that they may have about participating in the Review and sharing information with our QA Committee and its sub-committees, I ask that you provide the following assurance and confirmation:

Alberta Health Services provides the assurance, with respect to this Review, that no physician, other health service provider, administrator or other employee, former employee or board member will suffer any adverse consequence through Alberta Health Services as a result of participating in this Review, including but not limited to:

Over/

210, 811 14 Street NW Calgary, Alberta T2N 2A4   T: 403.297.8162   F: 403.297.8258 Website: www.hqca.ca

a. censure, suspension, variation of or restriction on contractual arrangements, financial penalties or termination;

b. having their appointments or privileges to practice negatively affected if any of them provide information orally or documents to the QA Committee or its sub-committees for the purposes of the Review.

The above does not extend to such information as discovered that requires Alberta Health Services or another authority to investigate into possible criminal or intentional activity to cause harm. In such situations, Alberta Health Services or the other appropriate authority is bound to investigate these matters and report them as appropriate and required by law.

It is expected that physicians, health service providers, administrators, other employees, former employees and board members will rely on the assurances and confirmation provided by Alberta Health Services.

Please provide the assurance and confirmation requested above, by executing a copy of this letter and returning it to my attention as quickly as possible.

Yours truly

John W. Cowell, MD, CCFP, FRCPC
Chief Executive Officer

Assurance and Confirmation

To: HQCA
And To: Any physicians, health service providers, administrators, other employees, board members and former employees of Alberta Health Services who participate in the Review

On behalf of Alberta Health Services, I have reviewed the contents of this letter and provide the assurance and confirmation requested above, understanding that it may be relied on by physicians, health service providers, administrators, other employees, board members and former employees who provide information and documents to the QA Committee or its subcommittees for the Review.

Executed this 10 day of June , 2011.

ALBERTA HEALTH SERVICES

Per: _____

210, 811 - 14 Street NW Calgary, Alberta T2N 2A4   405.297.8162   405.297.8258   www.hqca.ca

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Mutual Waiver of Confidentiality Obligations

This mutual waiver of confidentiality is entered into between ALBERTA HEALTH SERVICES ("AHS") and _____ (the "Physician, other health service provider, administrator, board member, former employee or other employee") effective ___ day of _____, 2011.
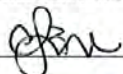
AHS waives the privilege and confidentiality provisions (collectively the "Confidentiality Obligations") contained within settlement release dated _____ related to termination of physician, other health service provider, administrator, board member, former employee or other employee service contract or any other applicable agreement ("Agreement") between _____ and _____ or AHS.

This waiver is solely granted by AHS to the Physician, other health service provider, administrator, board member, former employee or other employee subject to the conditions and limitations as follows:

1. This waiver is granted solely for the purpose of participation and response to inquiries by Health Quality Council ("HQCA") related to the review of Alberta physician intimidation allegations, as set out by the Honourable Minister Gene Zwozdesky. For this review, the HQCA has established a quality assurance committee under section 10(2) of the *Health Quality Council of Alberta Regulation* for the purpose of conducting the planned and systematic study, assessment and evaluation of these matters. The quality assurance committee must conduct this review as a quality assurance activity under section 9 of the Alberta Evidence Act. This waiver is only applicable to this section 9 protected review.
2. This waiver excludes any reference to identifiable health information. The Physician, other health service provider, administrator, board member, former employee or other employee shall be responsible for ensuring that s/he is compliant with all applicable privacy legislation.
3. This waiver excludes any information that is protected by solicitor client privilege.
4. This waiver excludes communication of any monetary settlement amounts.
5. This waiver is mutual. The Physician, other health service provider, administrator, board member, former employee or other employee hereby waives the Confidentiality Obligations imposed on AHS and agrees that AHS may speak about the terms and conditions and information pertaining to the Agreement, in accordance with the conditions and limitations set out in Paragraphs 1, 2, 3 and 4.

ALBERTA HEALTH SERVICES

By: _____

Name Printed: Dr. Chris Eagle

Title: President + CEO

Date: June 10, 2011

PHYSICIAN

By: _____

Name Printed: _____

Date: _____

210, 811 - 14 Street NW Calgary, Alberta T2N 2A4   T: 405.297.8162   F: 405.297.8258 W: www.hqca.ca

UNIVERSITY OF
ALBERTA

OFFICE OF THE PROVOST AND VICE-PRESIDENT (ACADEMIC)

2-10 University Hall
Edmonton, Alberta, Canada T6G 2J9
Tel: 780.492.3443
Fax: 780.492.1438
www.provost.ualberta.ca

July 27, 2011

Health Quality Council of Alberta
210, 811 – 14th Street, NW
Calgary, Alberta T2N 2A4

ATTENTION: John W. Cowell, MD, CCFP, FRCPC
Chief Executive Officer

**Re: Request for Assurance and Confirmation Protecting Physicians, Other Health Service
Providers, Administrators, Employees and Former Employees**

Dear Dr. Cowell:

In accordance with your recent request, the University of Alberta hereby provides the following
assurance and confirmation:

1.   The University of Alberta encourages its academic and non-academic staff members to
cooperate with the Review of the Quality of Care and Safety of Patients Requiring Access to
Emergency Department Care and Cancer Surgery and the Role and Process of Physician
Advocacy ("the Review").

2.   The University of Alberta provides the assurance, with respect to this Review, that in the
absence of employee misconduct, no academic or non-academic staff member will suffer
any adverse consequence through the University of Alberta as a result of participating in this
Review, including but not limited to:

   a. censure, suspension, variation of or restriction on contractual arrangements, financial
penalties or termination;

   b. having their employment negatively affected if any of them provide information orally or
documents to the QA Committee or its subcommittees for the purposes of the Review.
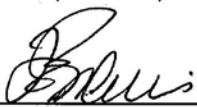
The above (item 2) does not extend to such information as discovered that requires the University of
Alberta or another authority to investigate into possible criminal activity, intentional activity to cause
harm, or misconduct that invokes any disciplinary or anti-discrimination and harassment processes in
an academic staff agreement with the Association of the Academic Staff of the University of Alberta
(AASUA) or the collective agreement with the Non-Academic Staff Association. In such situations, the
University of Alberta or the other appropriate authority is bound to investigate these matters.

We trust that the above is in order, and are hopeful that you are able to effectively complete the Review.

THE GOVERNORS OF THE UNIVERSITY OF ALBERTA

Per: _____

Dr. Colleen Skidmore
Vice-Provost (Academic)

Per: _____

Dr. Verna Yiu
Acting Dean, Faculty of Medicine & Dentistry

ku
G:\AD01-MED-11 Letter to HCQA Jul'27'11

June 13, 2011

Dr. Tom Feasby
Dean, Faculty of Medicine
University of Calgary
7th Floor, TRW Building
3280 Hospital Drive NW
Calgary, Alberta T2N 4Z6

Dear Feasby:

Re: Request for Assurances and Confirmation Protecting Physicians, Other Health Service Providers, Administrators, Employees and Former Employees

At the direction of the Minister of Health and Wellness, the Health Quality Council of Alberta ("HQCA") is undertaking a Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and Process of Physician Advocacy ("the Review"). The Review is being conducted by the Quality Assurance Committee of the HQCA under section 9 of the *Alberta Evidence Act*.

The Review will focus on two principal topic areas:
- Quality of Care and Safety of Patients requiring Emergency Department Care and Cancer Surgery.
- Role and Process of Physician Advocacy in Patient Safety and Health Service Quality.

The Terms of Reference are attached for your reference. The data gathering phase of the Review will be conducted by sub-committees of the QA Committee.

Physicians, other health service providers, administrators and staff of the University of Calgary Faculty of Medicine will be invited by the QA Committee to speak to it or a sub-committee and to provide information, including documents.

Participation in the Review is voluntary. In order for the QA Committee to obtain an accurate and complete understanding of the events that are its focus, the QA Committee needs open and complete disclosure of information and documents. This cannot occur if physicians, other health service providers, administrators and employees (or former employees) feel at any risk as a result of their participation in the Review. To alleviate any concerns that they may have about participating in the Review and sharing information with our QA Committee and its sub-committees, I ask that you provide the following assurance and confirmation:

The University of Calgary Faculty of Medicine provides the assurance, with respect to this Review, that no physician, other health service provider, administrator or other employee will suffer any adverse consequence through the University of Calgary Faculty of Medicine as a result of participating in this Review, including but not limited to:

Over/

a. censure, suspension, variation of or restriction on contractual arrangements, financial penalties or termination;

b. having their appointments or privileges to practice negatively affected if any of them provide information orally or documents to the QA Committee or its sub-committees for the purposes of the Review.

The above does not extend to such information as discovered that requires the University of Calgary Faculty of Medicine or another authority to investigate into possible criminal or intentional activity to cause harm. In such situations, the University of Calgary Faculty of Medicine or the other appropriate authority is bound to investigate these matters and report them as appropriate and required by law.

It is expected that physicians, health service providers, administrators, other employees and former employees will rely on the assurances and confirmation provided by the University of Calgary Faculty of Medicine.

Please provide the assurance and confirmation requested above, by executing a copy of this letter and returning it to my attention as quickly as possible.

Yours truly

John W. Cowell, MD, CCFP, FRCPC
Chief Executive Officer

Assurance and Confirmation

To: HQCA
And To: Any physicians, health service providers, administrators, other employees and former employees of the University of Calgary Faculty of Medicine who participate in the Review

On behalf of the University of Calgary Faculty of Medicine I have reviewed the contents of this letter and provide the assurance and confirmation requested above, understanding that it may be relied on by physicians, health service providers, administrators, other employees and former employees who provide information and documents to the QA Committee or its subcommittees for the Review.

Executed this 2l day of June, 2011.

UNIVERISTY OF CALGARY FACULTY OF MEDICINE

Per:

210, 811 - 14 Street N\(^{...}\)

APPENDIX IV: HQCA Interim Reports

News Release

June 29, 2011

Health Quality Council of Alberta releases update on

the independent review of the quality of care and safety of patients

requiring access to emergency department care and cancer surgery

and the role and process of physician advocacy

*(Calgary, AB)…*The Health Quality Council of Alberta (HQCA) is providing its first update for this review. "Given the scope of the review and to ensure the highest possible attention would be given to it, one of the HQCA's first actions was to divide the review into two parts," said Dr. John Cowell, chief executive officer of the HQCA. "In the first part, we want to understand whether the events that led to the waitlist issues related to lung surgery in 2001, including patients that died while on that waitlist many of whom had cancer, have been mitigated to ensure they don't happen again. We are also doing an analysis of the more than 300 cases identified in 2008 regarding access to emergency department services again to determine whether the issues associated with those cases have been mitigated to ensure they don't happen again." The second part of the review is looking specifically at the role and process of physician advocacy. Both parts of the review are being conducted by the Quality Assurance Committee of the HQCA under section 9 of the *Alberta Evidence Act.*

The purpose of the review is to make recommendations to improve system performance. Alberta Health and Wellness Minister Gene Zwozdesky requested the review in March 2011 under section 13 of the *Health Quality Council of Alberta Regulation*.

Milestones to date:

- The HQCA has established the plan for conducting the review and has appointed the quality assurance teams that will be conducting it. The complex nature of the review has proved challenging and the timeline for completing the report has shifted slightly. The next progress report will be issued in late autumn 2011 with a final report expected early in 2012.
- Medical and ethical advisors have been put in place to provide expertise as needed throughout the review process.
- An Advisory Panel announced on March 23, 2011 has met on several occasions to provide additional advice and counsel.
- The HQCA has obtained commitments of support and cooperation from Alberta Health Services, the College of Physicians & Surgeons of Alberta and the Alberta Medical Association.
- The HQCA has obtained assurances from Alberta Health Services and the faculties of medicine at the University of Alberta and the University of Calgary that physicians who participate in the review process will not experience repercussions.

- Interviews with stakeholders are underway. The names of those interviewed as well as the information they provide are confidential and will not be revealed by the HQCA. Interviewees may choose to disclose that they have been interviewed as part of the review process.
- Analysis has begun on data related to the emergency department component of the review.
- A provincewide survey is being developed to gain an understanding of physicians' knowledge, skills, attitudes and experiences advocating for patients. The survey will be conducted in September 2011.
- Efforts continue to validate the presence of a waitlist for lung surgery in 2001, including patients that died while on that waitlist many of whom had cancer.

While significant work has already been completed, Dr. Cowell says there is still a great deal of work ahead. "As we continue to move forward, our goal is not to lay blame on any one individual or organization but to look at system-wide issues and opportunities for improvement as a result of the review findings."

-30-

The HQCA gathers and analyzes information and collaborates with Alberta Health and Wellness, Alberta Health Services, health professions, academia and other stakeholders to translate that knowledge into practical improvements to health service quality and patient safety in the health care system. The HQCA is a corporation created in 2006 by the Health Quality Council of Alberta Regulation under the Regional Health Authorities Act.

For more information, please contact:

Pam Brandt, Communications Lead

403.297.4091 Cell 403.850.5067

October 27, 2011

<h2 style="text-align:center">Health Quality Council of Alberta releases second
interim progress report on independent review</h2>

*(Calgary, AB)…*The Health Quality Council of Alberta (HQCA) today released its second interim report related to its independent review of the quality of care and safety of patients requiring access to emergency department (ED) care and cancer surgery and the role and process of physician advocacy.

The HQCA review team has been pleased with the number of individuals who have participated in the review. "Nearly all the people with whom we wanted to speak have come forward, as well as others who requested to meet with us, and they have been forthcoming and sincere with their comments," said Dr. John Cowell, Chief Executive Officer of the HQCA.

"Given the scope of the review and the need for a full understanding of the issues, it would be premature to make any recommendations until our work is complete," said Dr. Cowell, adding there are interviews left to conduct and more data to gather and analyze.

Quality of Care and Safety of Patients Requiring Emergency Department Care and Cancer Surgery

Based on the patient charts analyzed to date, the review has confirmed that severe crowding and extremely long wait times as identified by the University of Alberta Hospital (UAH) Emergency Department (ED) physicians were an issue for patients at the UAH ED in 2008. This in turn put at risk the quality of care these patients received. "On the basis of the patient charts analyzed to date, we have not seen any evidence that lives were lost at the UAH ED as a result of prolonged ED wait times in 2008," said Dr. Cowell. "What we have seen is that once patients received care, it was appropriate, but was often provided in challenging and very difficult conditions."

An important example of how the safety margin of the care for patients in the UAH ED was eroded is illustrated by the following experience of a person who went to the ED and left without being seen after approximately a five-hour wait. The patient returned to the ED the following day, still feeling ill, and within a short period of time required life-sustaining therapy. The patient survived, was admitted to the hospital and subsequently discharged home. According to the severity of the patient's condition when the patient first went to the ED, Canadian guidelines recommend that such patients wait no longer than 30 minutes before being assessed by a physician.

Dr. Cowell adds, "Based on the analysis of provincial ED wait time data for 2008, there is no reason to believe that ED crowding and long wait times were unique to the UAH or to only EDs in Edmonton."

In contrast to the data available on the ED issues, information related to the wait times for cancer surgery (focus on lung cancer surgery) has been more difficult to find. Regarding the reference in the Alberta legislature on February 28, 2011 to a 1,200-person waitlist related to lung surgery, including 250 patients who died while on that list, the HQCA has not seen evidence to date that a waitlist of this size exists or existed. Work on this issue is ongoing. Furthermore, to date no evidence has been found to link physicians advocating for additional thoracic surgery resources with subsequent decisions to curtail physician practice opportunities.

Role and Process of Physician Advocacy in Patient Safety and Health Service Quality

Dr. Cowell says that during the course of the review, the team has learned that physicians are expected and encouraged to advocate for individual patients, groups of patients and the health needs of the community as a whole. It appears, however, that the process for physicians to follow is not obvious or defined. "We have learned that physicians we have spoken with have received little, if any, education or coaching on how to advocate effectively. We have also heard that in the healthcare system, administrators, clinicians, government officials and politicians are often uncertain how to handle or react to physician advocacy."

A number of physicians have described disturbing life- and career-changing outcomes that they attribute to their advocacy efforts. These include having hospital privileges affected, feeling ostracized by peers, and having contracts for services being altered or cancelled, which in some cases, limited their options for remaining in the province. Some have elected to leave the province to seek work elsewhere. "During the course of the interviews it came to light that since 2008, the lack of stability in organizational structure, leadership and reporting relationships within Alberta Health Services has impacted physicians' willingness and ability to advocate for their patients," adds Dr. Cowell.

To date, no evidence has been discovered that inappropriate financial payments have been made to any physician to muzzle their attempts to advocate on behalf of patients.

Process

Every practicing physician in Alberta has been mailed a survey within the past week asking about their knowledge and experience related to advocacy in Alberta and the extent to which advocacy for patient care is influenced by healthcare provider organizations, government, professional colleges and others. It is expected that this survey, which is supported by the Alberta Medical Association and the College of Physicians & Surgeons of Alberta, will reveal the extent of issues and concerns related to physicians' experiences advocating for their patients.

"The timeframe of this review goes back to 1998, spanning more than a decade during which the province's healthcare system experienced many significant structural changes. We expect that when the review is done, we will have a more complete understanding of ED crowding, wait times for lung cancer surgery and physician advocacy issues," said Dr. Cowell. "As with any

review the HQCA conducts, our goal is to make system-wide recommendations and identify opportunities for improvement as a result of the findings." The review is due to be completed in February 2012.

The HQCA's second interim report on the *Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and*

Process of Physician Advocacy follows.

The HQCA gathers and analyzes information and collaborates with Alberta Health and Wellness, Alberta Health Services, health professions, academia and other stakeholders to translate that knowledge into practical improvements to health service quality and patient safety in the healthcare system. The HQCA is a provincial health board created in 2006 by the Health Quality Council of Alberta Regulation under the Regional Health Authorities Act.

For more information, please contact:

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The Health Quality Council of Alberta's Second Interim Report on the
Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care and Cancer Surgery and the Role and Process of Physician Advocacy

Progress to Date

- Over 70 interviews averaging two hours in length were completed by October 26, 2011.

- Over 600 patient charts from the University of Alberta Hospital (UAH) have been analyzed including all those identified by the UAH Emergency Department (ED) physicians.

- Acquiring all the data to support the analysis of ED wait times and crowding has been difficult. To gain a good perspective on wait times and crowding since pre-2008, data are needed from 10 years ago to present. However, in some cases data were incomplete or non-existent.

- The review team continues to gather many documents from interviewees and through a formal request to Alberta Health Services.

- A systematic literature review is underway to highlight effective intervention strategies that address the issue of ED crowding and to determine the concept, scope and practice of effective physician advocacy. This will be completed in mid-December 2011 and included in the final report.

- Beginning October 18, 2011, every practicing physician in Alberta was mailed a survey asking about their knowledge and experience related to advocacy in Alberta and the extent to which advocacy for patient care is influenced by healthcare provider organizations, government, professional colleges and others. Both the Alberta Medical Association and the College of Physicians & Surgeons of Alberta have provided their support for the survey. Preliminary data will be available in mid-December 2011 and complete results will be included in the HQCA's final report early next year. It is expected that this survey will reveal the extent of issues and concerns related to physicians' experiences advocating for their patients.

Findings to Date

Quality of Care and Safety of Patients Requiring Emergency Department Care and Cancer Surgery

Emergency Department Care

The University of Alberta Hospital emergency room physicians identified patients in 2008 (and a few in 2010) as examples of patients whose care could have been compromised by ED crowding issues. The review team has analyzed all of the charts of the patients identified by the UAH ED physicians and, in addition, analyzed charts of other ED patients in 2008 to look for other possible cases where negative clinical outcomes might be related to excessive wait times.

Charts of ED patients seen in 2008 who met specified criteria and died in the UAH ED, died within 72 hours of admission to hospital, or required care in an intensive care unit are still under review and analysis is ongoing.

Results

- Of the patients identified by the UAH ED physicians, two patients died neither of whom were determined to be related to excessive ED wait times. However, the review has confirmed that severe crowding and extremely long wait times as identified by the UAH ED physicians were an issue for many of the these patients. The average wait time for an initial assessment by a physician in the ED was 3.1 and 4.9 hours for patients whose condition was classified as emergent (CTAS II[xii]) or urgent (CTAS III) respectively. Canadian guidelines recommend that patients wait no longer than 15 minutes if they are classified as CTAS II and 30 minutes if classified as CTAS III. Over 50% of these patients were admitted to hospital. The average time the admitted patients spent in the ED was 18.5 hours. However, 20% of these patients waited more than 48 hours to be moved to an inpatient hospital bed.

- Excessive ED wait times put the quality of care these patients received at risk, in part by reducing the safety margin of the care that was able to be provided in the ED. An important example of this was the experience of a patient who went to the ED and left without being seen after approximately a five-hour wait. The patient returned the following day and within a short period of time required life-sustaining therapy. The patient survived, was admitted to hospital and subsequently discharged home. If the patient had been seen close to the 30-minute Canadian guideline for how this patient's condition was classified (urgent), the review team believes the patient would not have required urgent life-sustaining therapy the following day.

- Although the review team has serious concerns about the length of time it took these patients to access an ED bed and be assessed by the physician, once this occurred, the team had no concerns about the quality of care provided to patients notwithstanding the crowded environment where the care was delivered.

- The review team has completed its analysis of all patients who died in the UAH ED in 2008 who spent longer than four hours in the ED and whose age was between 18 and 85; none of these deaths could be attributed to excessive ED waits.

[xii] CTAS stands for the Canadian Triage and Acuity Scale and is an ED-assigned urgency score with CTAS I being the most urgent and CTAS V the least.

- Charts of patients admitted to the UAH ED in 2008 who subsequently required intensive care unit care are still being reviewed.

Analysis of Provincial Emergency Department Wait Times

Preliminary analysis of this data that is available from 2005 to present strongly suggests that ED crowding and long wait times are a phenomenon experienced by patients across Alberta.

- Based on comparable ED data, the Edmonton and Calgary sites have consistently had longer wait times than other sites in Alberta.

- In Calgary and Edmonton, from 2005 until late 2010, there was an upward trend in the average time patients spent in EDs and in the percentage of patients who left without being seen.

- There had been some improvement in ED performance over the four quarters beginning October 1, 2010 and ending September 30, 2011.

Cancer Surgery Care

The availability of data and information regarding cancer surgery care (with a focus on lung surgery) has been limited. Through interviews, the review team has concluded that there likely have been issues with delays in accessing thoracic surgery at the University of Alberta Hospital.

- To date, the review team has been unable to confirm a waitlist of 1,200 patients, including 250 patients who died while on that list.

- Given the number of patients who were alleged to have died while on the wait list for lung surgery, some of whom had lung cancer, the expectation is that these deaths would be reflected in differences in lung cancer survival rates between Calgary and Edmonton. However, when the data relevant to this time period were analyzed, there was no significant difference in the five-year cancer survival rates between the two cities.

- To date, the review team has not found evidence to suggest a link between physicians advocating for additional thoracic surgery resources and subsequent decisions to curtail practice opportunities.

Role and Process of Physician Advocacy in Patient Safety and Health Service Quality

- Interviews are being conducted with individuals who have had direct experience advocating for patient care or who have had administrative or other (e.g., governance) experience with physician advocacy.

- A qualitative approach is being used to conduct and analyze these interviews to identify themes/issues about the historical and current experiences of physician advocacy in Alberta's health system.

- Emerging themes/issues related to physician advocacy include:

- Physicians are expected and encouraged to advocate for individual patients, groups of patients and the health needs of the community as a whole.

  - Physicians we have spoken with have had little, if any, coaching or education on how to advocate effectively.

  - Due to the lack of stability in organizational structures, leadership and reporting relationships within Alberta Health Services and some of the former health regions, it was often not clear to physicians who was responsible for dealing with a particular advocacy issue (i.e., with whom they should speak and when).

- A number of physicians have come forward to describe their challenges when advocating for their patients. For many, these experiences resulted in tense, difficult or stressful circumstances that were life and career changing and included actions such as having hospital privileges affected, feeling ostracized by peers, and contracts for services being altered or cancelled, which in some cases limited their options for remaining in the province. Some elected to leave the province to seek work elsewhere.

  - The review findings to date indicate that in many cases the process that was followed in the health system by administrators, clinicians, government officials and politicians in dealing with physicians and their advocacy efforts was not obvious, was poorly defined, and was inconsistent.

- Boundaries of authority, accountability and responsibility between the Alberta government (i.e., premier, cabinet, health minister, MLAs and government ministries), Alberta Health Services (i.e., governance, administrators and clinical operations) and the regulatory bodies (including physicians) were blurred, confusing and inconsistent.

- To date, no evidence has been discovered that inappropriate financial payments have been made to any physician to muzzle their attempts to advocate on behalf of patients.

APPENDIX V: Emergency Department Provincial Administrative Data Review

Emergency Department Provincial Administrative Data Review

Data sources, quality, analysis and definitions

Data Sources

The Health Quality Council of Alberta (HQCA) has data sharing agreements with Alberta Health and Wellness (AHW) and Alberta Health Services (AHS). In some situations the Health Quality Council of Alberta had access to required data sets, while in in other situations a new request for access was required. The following data sources were used to generate the data in this report on emergency department crowding:

- National Ambulatory Care Reporting System (NACRS) - from AHS: a national reporting system, designed and maintained by the Canadian Institute for Health Information (CIHI) to provide valuable information allowing the evaluation of ambulatory care services in Canadian health care facilities. Since April 1, 2010 the NACRS has provided the framework for the province's ambulatory care data acquisition. Details about emergency department (ED) visits are included in the NACRS data.

- Ambulatory Care Classification System (ACCS) - from AHS: a provincial reporting system that ceased when the NACRS was implemented. Like NACRS, ED visits are included in the ACCS data.

- Inpatient data Discharge Abstract Database (DAD) from AHS: This national data set is designed and maintained by the CIHI providing a summary of all patients who were discharged from Canadian hospitals. It is used as the main data source of analysis for inpatient bed activity.

- ED specific data: 1) Regional Emergency Department Information System (REDIS - Calgary); 2) Emergency Department Information System (EDIS - Edmonton); and 3) and Medical Information Technology Inc.(Meditech – Chinook) - from AHS: REDIS/EDIS are the Calgary/Edmonton ED information systems. REDIS, EDIS, and Meditech provide much of the source data for the emergency data that ultimately is captured in the ACCS/NACRS data sets. REDIS and EDIS are the operational data systems for the main urban EDs and many of the urgent care centres; therefore, these databases have much more detail than the ACCS/NACRS databases regarding patient visits. However, because REDIS and EDIS have not been implemented in all ED / urgent care centre sites in Calgary and Edmonton, when comprehensive activity within a zone was required, the ACCS/NACRS databases were used..

- Numbers of funded beds in different Alberta facilities (historical) - from AHW: The different health facilities throughout the province regularly report the number of beds they have to AHW. This data has been collected and organized since 1994. The categories of beds include acute care, long term care, supportive living, psychiatric, addiction, and "other".

- Alberta population - from AHW: The Alberta population data was downloaded from the AHW website using their "Interactive Health Data Application". The population estimates provided are as of June 30th of each year.

Data Quality

- DAD: there is a standardized and disciplined abstracting process for data entry into this very comprehensive database. For the purposes of this analysis it is considered highly reliable.

- ACCS/NACRS: there is a standardized process for data reporting. As the data is acquired from many different original sources, the quality of the data can be variable depending on the source. For the purposes of this analysis it is considered highly reliable.

- REDIS/EDIS/Meditech: these are operational data systems with associated variability in quality of data entry. For this analysis the entire data set was used to determine the number of visits, excluding a small number of cases that had an "exclude" flag. However, where there was clear conflict between different date/time stamps (e.g., a patient seeing the ED physician after the time of discharge), records deemed invalid were excluded. Depending on the year and institution, 94% to 100% of the records were included in the analysis.

Data Analysis

In most cases the questions that are the focus of the report are of 'counts'; therefore, the reported measures are typically 'numbers of' (e.g. number of cases, number of visits, number of hours, etc.) and averages (means). In some analyses central trend was better captured by reporting the median (50th percentile) and the variability expressed by reporting the 80th percentile measure.

Comparison is made across time and geographies. Time is reported according to AHW fiscal year (April 1 to March 31). Geographically the focus of the report is on Calgary, Edmonton, and Chinook (Lethbridge and surrounding area). For Calgary and Edmonton the current zone boundaries (larger than the city boundaries) are used when the entire population is of interest. For Lethbridge the boundary is the pre-AHS, Chinook Health Region. In many of the analyses the focus is on the major acute-care sites (hospitals) of the three cities.

Major Acute Care Sites

- Calgary
    - Foothills Medical Centre
    - Rockyview General Hospital
    - Peter Lougheed Centre

- Edmonton
    - Grey Nuns Community Hospital
    - Misericordia Community Hospital
    - Royal Alexandra Hospital
    - University of Alberta Hospital

- Lethbridge
    - Chinook Regional Hospital

Figure 4. Total visits to emergency departments and urgent care centres by region/zone and site for fiscal year 2009/10

Data source	ACCS
Exclusions	emergency psychiatric services (MIS 7131070)
Period	fiscal year 2009/10
Geography	Edmonton and Calgary zones
Calculations	Sum of number of visits
Comments	• this includes visits to all emergency departments and urgent care facilities within the zone as reflected in the data source. • within the ACCS/NACRS data set the Stollery visits are incorporated within the University of Alberta emergency department visits. Within the emergency department data (EDIS) they are separated. An analysis of the EDIS data showed that nearly all the patients under 16 years of age were linked with a Stollery visit. Therefore, within the ACCS/NACRS data the Stollery patients are defined as those patients who visited the University of Alberta Hospital and were less than 16 years of age. • the classification of the emergency departments and urgent care centres has been created to suit the purposes of this report. For example, while the Northeast Community Health Centre has been deemed an "emergency department", for the purposes of this report it has been deemed an "urgent care centre". For a full listing see the "Classification of emergency department and urgent care centres in Calgary and Edmonton" table at the end of this appendix.

Figure 5. Emergency department average time from first contact to physician contact at city adult hospitals by fiscal year and zone / region

Data source	REDIS /EDIS / Meditech
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	average time in hours = sum of time from first contact to physician contact (in minutes)/(sum of all visits * 60 min/hr)

Figure 6. Average time spent by emergency department patients waiting to see a physician after being assessed by triage at city adult hospitals by fiscal year and zone / region for patients classified as CTAS III

Data source	EDIS / REDIS / Meditech
Inclusion	cases with a CTAS code level = 3
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	average time in hours = sum of time from first contact to physician contact (in minutes)/(sum of all visits * 60 min/hr)

Figure 7. Average time spent by emergency department patients waiting to see a physician after being assessed by triage at city adult hospitals by fiscal year and zone / region for patients classified as CTAS II

Data source	EDIS / REDIS / Meditech
Inclusion	cases with a CTAS code level = 2
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	average time in hours = sum of time from first contact to physician contact (in minutes)/(sum of all visits * 60 min/hr)

Figure 8. Average length of emergency department stay at city adult hospitals by fiscal year and zone / region for patients admitted and for patients not admitted to hospital

Data source	EDIS / REDIS / Meditech
Inclusion	cases with a CTAS code level = 2
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	average time in hours = sum of time from first contact to discharge (in minutes)/60

Figure 9a. Median length of stay for emergency department patients at city adult hospitals who are admitted to hospital by fiscal year

Data source	EDIS / REDIS / Meditech
Inclusion	patients with a Discharge Disposition of "Admitted"
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2003/04 to first quarter fiscal year 2011/12
Geography	city adult hospitals in Edmonton and Calgary
Calculations	median time in hours = median of time from first contact to discharge (in minutes)/60

Figure 9b. Median length of stay for emergency department patients at city adult hospitals who are not admitted to hospital

Data source	EDIS / REDIS / Meditech
Inclusion	patients with a Discharge Disposition of "Admitted"
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2003/04 to first quarter fiscal year 2011/12
Geography	city adult hospitals in Edmonton and Calgary
Calculations	median time in hours = median of time from first contact to discharge (in minutes)/60

Figure 10. Population of regions/zones by year as of June 30 of each year

Data source	Alberta Health and Wellness Interactive Health Data Application
Period	1995 to 2010 as of June 30th of each year
Geography	Edmonton and Calgary 2012 Zone boundaries, and the pre-AHS Chinook Health Region boundary
Calculations	sum of population
Comments	the data are based on the "number of registrants as of June 30 each year registered on the Alberta Health Care Insurance Plan to receive health services in Alberta" (from Alberta Health and Wellness Interactive Health Data Application data notes)

Figure 11. Number of emergency department/urgent care centre patient visits by fiscal year and region/zone

Data source	ACCS / NACRS
Exclusions	emergency psychiatric services (MIS 7131070)
Period	fiscal years 2004/05 to 2010/11
Geography	Edmonton and Calgary 2012 Zone boundaries, and the pre-AHS Chinook Health Region boundary
Calculations	count of the number of visits to ED or urgent care centres

Figure 12. Number of emergency department/urgent care centre patient visits per 1,000 population by fiscal year and region/zone

Data source	ACCS / NACRS
Exclusions	emergency psychiatric services (MIS 7131070)
Period	fiscal years 2004/05 to 2010/11
Geography	Edmonton and Calgary 2012 Zone boundaries, and the pre-AHS Chinook Region boundary
Calculations	(count of the number of visits to ED or urgent care centres / population of zone/region) * 1000

Figure 13a. Number of emergency department/urgent care centre patient visits to Edmonton zone facilities by fiscal year

Data source	ACCS / NACRS
Exclusions	1) emergency psychiatric services (MIS 7131070); 2) Stollery Hospital visits
Period	fiscal years 2004/05 to 2010/11
Geography	Edmonton Zone boundaries
Calculations	count of the number of visits to city hospital EDs, city urgent care centres, and rural hospital or care centre facilities
Comments	• within the ACCS/NACRS data set the Stollery visits are incorporated within the University of Alberta emergency department visits. Within the emergency department data (EDIS) they are separated. An analysis of the EDIS data showed that nearly all the patients under 16 years of age were linked with a Stollery visit. Therefore, within the ACCS/NACRS data the Stollery patients are defined as those patients who visited the University of Alberta Hospital and were less than 16 years of age. • regarding classification of facilities: see comments in Figure 4 above and table at the end of this appendix

Figure 13b. **Number of emergency department/urgent care centre patient visits to Calgary zone facilities by fiscal year**

Data source	ACCS / NACRS
Exclusions	1) emergency psychiatric services (MIS 7131070); 2) Alberta Children's Hospital visits
Period	fiscal years 2004/05 to 2010/11
Geography	Calgary Zone boundaries
Calculations	count of the number of visits to city hospital EDs, city urgent care centres, and rural hospital or care centre facilities
Comments	regarding classifications of facilities: see comments in Figure 4 above and table at the end of this appendix

Figure 14. Number of city adult hospital emergency department patient visits by fiscal year and region/zone

Data source	ACCS / NACRS
Exclusions	1) emergency psychiatric services (MIS 7131070); 2) Stollery Hospital visits
Period	fiscal years 2004/05 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	count of the number of visits to city hospital EDs
Comments	Within the ACCS/NACRS data set the Stollery visits are incorporated within the University of Alberta emergency department visits. Within the emergency department data (EDIS) they are separated. An analysis of the EDIS data showed that nearly all the patients under 16 years of age were linked with a Stollery visit. Therefore, within the ACCS/NACRS data the Stollery patients are defined as those patients who visited the University of Alberta Hospital and were less than 16 years of age.

Figure 15a. Per cent of emergency department patient visits at Edmonton city adult hospitals by CTAS level and by fiscal year

Data source	EDIS
Exclusions	cases where triage level = 0
Period	fiscal years 2004/05 to 2010/11
Geography	city adult hospitals in Edmonton
Calculations	(number of visits by triage code level/all visits to city hospital EDs) * 100

Figure 15b. Per cent of emergency department patient visits at Calgary city adult hospitals by CTAS level and by fiscal year

Data source	REDIS
Exclusions	cases where triage level = 0
Period	fiscal years 2004/05 to 2010/11
Geography	city adult hospitals in Calgary
Calculations	(number of visits by triage code level/all visits to city hospital EDs) * 100

Figure 16. Per cent of city adult hospital emergency department patients admitted to hospital by fiscal year and region/zone

Data source	EDIS / REDIS / Meditech
Inclusions	patients with a discharge disposition that was "admitted"
Exclusions	cases with an "exclude" flag in the data
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	(number of visits with an admitted discharge disposition / all visits) *100

Figure 17. Per cent of city adult hospital emergency department patients who are 65 years of age or older by fiscal year

Data source	EDIS / REDIS
Exclusions	cases with an "exclude" flag in the data
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton and Calgary
Calculations	(number of visits by patients aged 65 years and older / all visits) *100

Figure 19a. Average time spent in different stages by patients visiting city of Edmonton adult hospital emergency departments who were admitted to hospital by fiscal year

Data source	EDIS
Inclusions	patients with a discharge disposition that was "admitted"
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Edmonton
Calculations	average time in hours = sum of time of admitted patients in a stage (in minutes)/(sum of time of all admitted patients * 60 min/hr)

Figure 19b. **Average time spent in different stages by patients visiting city of Calgary adult hospital emergency departments who were admitted to hospital by fiscal year**

Data source	REDIS
Inclusions	patients with a discharge disposition that was "admitted"
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to 2010/11
Geography	city adult hospitals in Calgary
Calculations	average time in hours = sum of time of admitted patients in a stage (in minutes)/(sum of time of all admitted patients * 60 min/hr)

Figure 20. **Per cent of city adult hospital emergency department patients who are admitted to hospital and per cent of total ED patient time that admitted patients used (fiscal year 2010/11)**

Data source	EDIS / REDIS
Inclusions	patients with a discharge disposition that was "admitted"
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates (from average time calculation only)
Period	fiscal years 2010/11
Geography	city adult hospitals in Edmonton and Calgary
Calculations	1. (number of ED patients admitted to hospital / total number of ED patients) * 100 2. (number of ED patients admitted to hospital * total hours in ED / total number of ED patients * total hours in ED) * 100

Figure 21a. **80th percentile of number of occupied city adult hospital emergency department beds taken by emergency inpatient (EIP) patients at 12:00 noon by site and fiscal year quarter - Edmonton**

Data source	EDIS
Inclusions	• patients with a discharge disposition that was "admitted" • patients who were present in the ED at 12 noon
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to quarter 1 of 2011/12
Geography	city adult hospitals in Edmonton
Calculations	80th percentile calculation (over the quarter) of the number of patients who had been admitted to hospital but remained in the ED waiting for an inpatient bed at 12 noon.
Comments	The 80th percentile signifies that for 80% of the days this number of beds or fewer were occupied by admitted patients; conversely, this means that for 20% of the days this number of beds or more were occupied by admitted patients.

Figure 21b. 80th percentile of number of occupied city adult hospital emergency department beds taken by emergency inpatient (EIP) patients at 12:00 noon by site and fiscal year quarter - Calgary

Data source	REDIS
Inclusions	• patients with a discharge disposition that was "admitted" • patients who were present in the ED at 12 noon
Exclusions	cases with: 1) an "exclude" flag in the data or 2) invalid dates
Period	fiscal years 2005/06 to quarter 1 of 2011/12
Geography	city adult hospitals in Calgary
Calculations	80th percentile calculation (over the quarter) of the number of patients who had been admitted to hospital but remained in the ED waiting for an inpatient bed at 12 noon.
Comments	The 80th percentile signifies that for 80% of the days this number of beds or fewer were occupied by admitted patients; conversely, this means that for 20% of the days this number of beds or more were occupied by admitted patients.

Figure 22a. Edmonton city adult hospital inpatient bed occupancy rates by fiscal year

Data source	data provided by AHS directly
Period	fiscal years 2006/07 to 2010/11
Geography	city adult hospitals in Edmonton
Calculations	no additional calculations were performed – rate data obtained directly from AHS
Comments	• hospital occupancy rate is generally defined as the number of in-patient hospital beds occupied divided by the average number of hospital beds for a period. • an important challenge in arriving at this value concerns the definition of a "bed" • there are factors that will affect whether a bed is actually available for a patient's use. • "funded beds" refer to beds which are not only physically available, but which also have funding for staffing in place. • "closed beds" often refer to beds that have been closed for some unavoidable reason, possibly construction or lack of staff. • in recent years the use of "overcapacity beds" has become common in Alberta, as some form of a bed have been placed within a hospital location on a temporary basis. • the beds used in the calculation for this graph are the average of "funded beds", excluding "closed beds" and does not include "overcapacity beds" • it is possible to have an occupancy greater than 100%, as all the beds available can be occupied, and additional patients could be in overcapacity beds

Figure 22b. Calgary city adult hospital inpatient bed occupancy rates by fiscal year

Data source	data provided by AHS directly
Period	fiscal years 2006/07 to 2010/11
Geography	city adult hospitals in Calgary
Calculations	no additional calculations were performed – rate data obtained directly from AHS
Comments	see comments for Figure 22a

Figure 22c. Chinook Regional Hospital inpatient bed occupancy rates by fiscal year

Data source	data provided by Chinook Regional Hospital
Period	fiscal years 2006/07 to 2010/11
Geography	city hospital in Lethbridge
Calculations	no additional calculations were performed – rate data obtained directly from Chinook Regional Hospital
Comments	it could not be verified that the rate was calculated exactly the same way as it was for Edmonton and Calgary hospitals so it may not be directly comparable

Figure 23. Number of acute care beds per 1,000 population by fiscal year and region/zone

Data source	data provided by AHW – historical summary of beds staffed and in operation; AHW population data
Period	fiscal years 1995/96 to 2010/11
Geography	Edmonton and Calgary 2012 zone boundaries, and the pre-AHS Chinook Health Region boundary
Calculations	(number of acute care beds / total population) * 1000
Comments	acute care beds includes acute, sub-acute and psychiatric beds that are located within acute care hospitals

Figure 24. Number of acute care beds used per 1,000 population, adjusted for age, gender and for import / export patients by fiscal year and region/zone

Data source	DAD; AHW population data
Inclusions	all inpatient activity within the zone as reflected in the DAD data
Period	fiscal years 2002/03 to 2010/11
Geography	Edmonton and Calgary 2012 Zone boundaries, and the pre-AHS Chinook Health Region boundary
Calculations	this calculation was more extensive in order to facilitate appropriate comparisons by eliminating the impact of two key factors, differences in age/gender distribution and differences in the impact of the import/export of patients. The following calculations were made for each age group (5 years), gender, and region/zone. step 1: total bed days = number of patients * average length of stay step 2: adjusted bed days = total bed days – bed days for imported patients + bed days for exported patients step 3: adjusted beds per pop. = adjusted bed days/365/total population step 4: standardize the region/zone population = per cent of Alberta population step 5: adjusted beds utilized standardized for age per 1,000 pop. = (adjusted beds per pop. / standardized population) *1,000
Comments	This measure shows the number of beds utilized by a region/zone's population if they had the same age/gender distribution (i.e. the same percentage of older people, middle age, females, etc). If a rate is higher, this would suggest that more beds are being used for every 1,000 people of the same age/gender group.

Figure 25. Average length of stay for patients admitted to city adult hospitals by fiscal year and region/zone (excluding maternal/newborn)

Data source	DAD
Exclusions	all patients with a main service code in the DAD data of 51 (obstetrics delivered), 52 (obstetrics antepartum), 54 (newborn), and 59 (obstetrics postpartum)
Period	fiscal years 2002/03 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	sum of length of stay / sum of patients discharged
Comments	length of stay used was the Canadian Institute for Health Information derived length of stay

Figure 26a. **Average length of stay for patients admitted to city adult hospitals in Edmonton by fiscal year (excluding maternal/newborn)**

Data source	DAD
Inclusions	as per Figure 25
Period	fiscal years 2002/03 to 2010/11
Geography	city adult hospitals in Edmonton
Calculations	as per Figure 25
Comments	as per Figure 25

Figure 26b. **Average length of stay for patients admitted to city adult hospitals in Calgary by fiscal year (excluding maternal/newborn)**

Data source	DAD
Inclusions	as per Figure 25
Period	fiscal years 2002/03 to 2010/11
Geography	city adult hospitals in Calgary
Calculations	as per Figure 25
Comments	as per Figure 25

Figure 27. **Per cent of city adult hospital bed days that are used by patients requiring an alternate level of care (ALC) by fiscal year and region/zone**

Data source	DAD
Period	fiscal years 2002/03 to 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	sum of ALC days / sum of length of stay of all patients
Comments	alternate length of stay day is counted as any day a patient is in hospital after they have been assessed and no longer meet criteria for requiring an acute care facility

Figure 28. Long term care, supportive living, residential mental health, hospice and community support beds per 100,000 population aged 65 and older by fiscal year and region/zone

Data source	data provided by AHW – historical summary of beds staffed and in operation; AHW population data
Period	fiscal years 1995/96 to 2010/11
Geography	Edmonton and Calgary 2012 zone boundaries, and the pre-AHS Chinook Health Region boundary
Calculations	(number of beds / total population) * 100,000
Comments	AHW notes: • long term care includes auxiliary and nursing home beds. Does not include sub-acute beds located in a long term care facility. • supportive living includes all supportive living (SL4, SL4 dementia and SL3) beds operated or contracted by AHS. • Other includes residential mental health, hospice and community support beds.

Figure 29a. Average number of admissions at city adult hospitals by weekday and admission entry group in fiscal year 2010/11 – Edmonton

Data source	DAD
Exclusions	patients with admission categories of 'newborn', 'stillborn', and 'cadaver donor'
Period	fiscal year 2010/11
Geography	city adult hospitals in Edmonton
Calculations	1. total number of admissions for a day of the week / number of days of that week in a year 2. standard deviation of the mean number of admissions for a day of the week
Comments	• the standard deviation, shown by the vertical error bars, shows the amount of variation in the number of patients being admitted for that weekday • for patients admitted via the emergency department, or for unscheduled admissions, the bars are narrower than for the most of the scheduled admission error bars indicating that the number of admissions per weekday for scheduled patients is much more variable than for the other two groups • the "scheduled" patients are all patients classified in the DAD data as "elective". • "emergency department" patients are patients classified as "urgent" and entering via the emergency department. • "unscheduled" patients are patients classified as "urgent" but do not come via the emergency department.

Figure 29b. Average number of admissions at city adult hospitals by weekday and admission entry group in fiscal year 2010/11 – Calgary

Data source	DAD
Exclusions	patients with admission categories of 'newborn', 'stillborn', and 'cadaver donor'
Period	fiscal year 2010/11
Geography	city adult hospitals in Calgary
Calculations	as per Figure 29a
Comments	as per Figure 29a

Figure 30. Average difference in the daily number of admissions - discharges at city adult hospitals by day of week and region/zone in fiscal year 2010/11

Data source	DAD
Exclusions	patients with admission categories of 'newborn', 'stillborn', and 'cadaver donor'
Period	fiscal year 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	Sum (number of patients admitted - minus number of patients discharged) for each day of the week over a year / number of days of that week in a year

Data Definitions / Calculations for Tables 7a and 7b

Table 7a. Average length of stay for zone / region residents admitted to city adult hospitals for common medical conditions in fiscal year 2008/09

Data source	DAD
Exclusions	patients who do not live in the region/zone
Period	fiscal year 2008/09
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	sum of all cases with the appropriate case mix group (CMG) codes, average age of this group, and average length of hospital stay
Comments	The common medical conditions were defined in the data using the CMG codes, part of a standardized coding system used in hospitals across Canada. They are as follows: • chronic obstructive lung disease (COPD) – CMG 139 • pneumonia – CMGs 135, 136, 138 • heart failure – CMG 139 • enteritis (bowel inflammation) – CMG 249

Table 7b. Average length of stay for zone / region residents admitted to city adult hospitals for common medical conditions in fiscal year 2010/11

Data source	DAD
Exclusions	patients who do not live in the region/zone
Period	fiscal year 2010/11
Geography	city adult hospitals in Edmonton, Calgary, and Lethbridge
Calculations	as per Table 7a
Comments	as per Table 7a

Classification of Emergency Department and Urgent Care Centres in Calgary and Edmonton

Zone	Classification	Facility
Calgary Zone	Children's Hospital	Alberta Children's Hospital
	City of Calgary Adult Hospitals	Foothills Medical Centre
		Peter Lougheed Centre
		Rockyview General Hospital
	City of Calgary Urgent Care Centres	8th and 8th Health Centre
		Calgary Health Region Non-Hospital Regional Service Delivery Organization
		Sheldon M Chumir Centre
		South Calgary Health Centre
	Non-city of Calgary Facilities	Airdrie Regional Health Centre
		Okotoks Health and Wellness Centre
		Strathmore District Health Services
		Vulcan Community Health Centre
		Mineral Springs Hospital
		High River General Hospital
		Oilfields General Hospital
		Canmore General Hospital
		Claresholm General Hospital
		Didsbury District Health Services
		Cochrane Community Health Centre
Edmonton Zone	Children's Hospital	Stollery Children's Hospital
	City of Edmonton Adult Hospitals	Grey Nuns Community Hospital
		Royal Alexandra Hospital
		University of Alberta Hospital
		Misericordia Community Hospital
	City of Edmonton Urgent Care Centres	Northeast Community Health Centre
	Non-city of Edmonton Facilities	Health First Strathcona
		Devon General Hospital
		Fort Saskatchewan Health Centre

Overview of Interventions to Mitigate Emergency Department Overcrowding

Overview of Interventions to Mitigate Emergency Department Overcrowding

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Executive Summary

- Emergency Department (ED) overcrowding is an important health care issue in Alberta, Canada and in many jurisdictions in the developed world.

- ED overcrowding is more pressing in EDs serving urban, tertiary care, high-volume and specialized hospitals. While rural EDs experience delays in transfer to overcrowded urban or regional EDs, the presence and influence of ED overcrowding on their service delivery is limited.

- The causes of ED overcrowding are multi-factorial and result from *input, through-put, out-put,* and/or *system-wide* influences.

- There is a strong suspicion of publication bias in the ED literature on this topic since many administrative leaders are not focused on scientific publication and many of the interventions fail to identify a demonstrable benefit.

- Overall, there are a wide variety of interventions that have been tested to address ED overcrowding; however, many of them have used weaker study designs. This arises partially from the fact that health systems around the world are committed to designing and implementing interventions as quickly as possible, with evaluation only being undertaken secondarily, often using weaker before-after evaluation designs. Rapid development of interventions, while laudable from the standpoint of commitment to system improvement, does undermine our collective ability to *scientifically* establish the efficacy of certain interventions.

- Efforts to identify quantitative research regarding the impact of interventions to mitigate ED overcrowding on high-quality ED metrics have revealed a large number of studies and a variety of targeted interventions. Recognizing the difficulty categorizing the different interventions, this report groups the interventions into *input, throughput, output,* and/or *system-wide* influences.
  - *Input Interventions*: Those targeting processes that control the number of patients presenting to an ED, including referrals from primary care and specialist physicians as well as Emergency Medical Services (EMS) arrivals.

- o ***Through-put Interventions***: Those targeting processes of ED care and decision making such as triage, registration, nursing assessment, care provided by ED clinical staff, investigations and treatment, as well as care provided by other healthcare professionals including specialty consultants.

- o ***Out-put Intervention***s: Those targeting processes aimed to improve the flow of patients out of the ED such as admission to hospital, transfer to another facility and discharge to previous residence/home.

- o ***System-wide Interventions***: Multi-faceted interventions targeting multiple processes (input, through-put and/or out-put).

- Our review findings reveal an extensive body of literature assessing interventions in the above-mentioned categories. Among the interventions that were reviewed, a number of efficacious interventions were identified, particularly in the category of throughput interventions. Input and output interventions, meanwhile, are less well studied, and the efficacy of interventions is accordingly more uncertain.

- Regardless of the specific interventions, adopters of any of the proven interventions need to recognize that complex health system interventions in the ED are context-dependent, and that proven efficacy of an intervention in one setting does not automatically dictate that the intervention will be efficacious when adopted in another. As such, most ED flow interventions should be implemented with some component of on-site evaluation, to determine whether the intervention is having a positive influence in the context within which it is being implemented.

- Health systems and hospitals within Canada and beyond can draw on the findings summarized in this review as a comprehensive body of literature on ED flow interventions. It is hoped that this "catalogue of evidence" will be of value to clinical readers and health system decision-makers who are among the stakeholders who may be implementing such interventions into a local context.

Abbreviations

AAA	Abdominal aortic aneurysm
ACCCESS	Acute care emergency surgery service
AD	Ambulance diversion
AHRQ	Agency for Healthcare Research and Quality
AHS	Alberta Health Services
ALC	Alternative-levels-of-care
CADTH	Canadian Agency for Drugs and Technologies in Health
CAEP	Canadian Association of Emergency Physicians
CCT	Controlled clinical trial
CDR	Clinical decision rules
CDU	Clinical decision unit
CI	Confidence interval
CPG	Clinical practice guidelines
CPOE	Computerized physician order entry
CTAS	Canadian Triage Acuity Scale
DVT	Deep vein thrombosis
ED	Emergency Department
EDIS	ED information systems
EIP	Emergency in-patient
ESSC	Emergency Services and System Capacity
FCP	Full-capacity protocols
HQCA	Health Quality Council of Alberta
IQR	Interquartile range
ITS	Interrupted time series
LOS	Length of stay
LTC	Long term care
LWBS	Left without being seen
LWOT	Left without treatment
MAU	Medical admission unit

MIU	Minor injury unit
NENA	National Emergency Nurses Affiliation
NICE	National Institute of Clinical Effectiveness
NPs	Nurse practitioners
OCP	Overcapacity protocols
OECD	Organization for Economic Co-operation and Development
OU	Observation units
PCP	Primary care providers
PE	Pulmonary embolus
P4P	Pay for performance
PIA	Physician initial assessment
POCT	Point-of-care testing
pU/S	Portable ultrasound
RCT	Randomized controlled trial
RAZ	Rapid assessment zones
TAT	Turnaround time
TLP	Triage liaison physicians
TNO	Triage nurse ordering
UK	United Kingdom
WMD	Weighted mean difference

Introduction

Emergency Department (ED) overcrowding exists when the demand for acute care services exceeds the ability to provide those services in a timely and safe manner.[1, 2] ED overcrowding is an increasingly severe problem in most Canadian hospitals and reflects system-wide failures in health care delivery.[3] The conceptual framework for ED overcrowding examines in-put factors (e.g., walk-in patients, Emergency Medical Services (EMS), and referrals), through-put factors (e.g., triage, nurse and physician staffing, ED bed/space capacity, laboratory testing and results, simple and advanced diagnostic testing, consultations, and discharge planning), and out-put factors (e.g., in-patient capacity, length of stay [LOS], and long-term care beds) and implies a complex, system-wide interactive model (**Figure 1**).[4, 5] Interventions and strategies to mitigate ED overcrowding reflect the input (e.g., ambulance diversion), throughput (e.g., computerized physician order entry), output (e.g., full-capacity protocols), and system-wide (e.g., leadership, benchmarking, pay-for-performance) components of the model.

Figure 1: Input-throughput-output conceptual model of ED overcrowding (adapted from original in 2006 CADTH report)
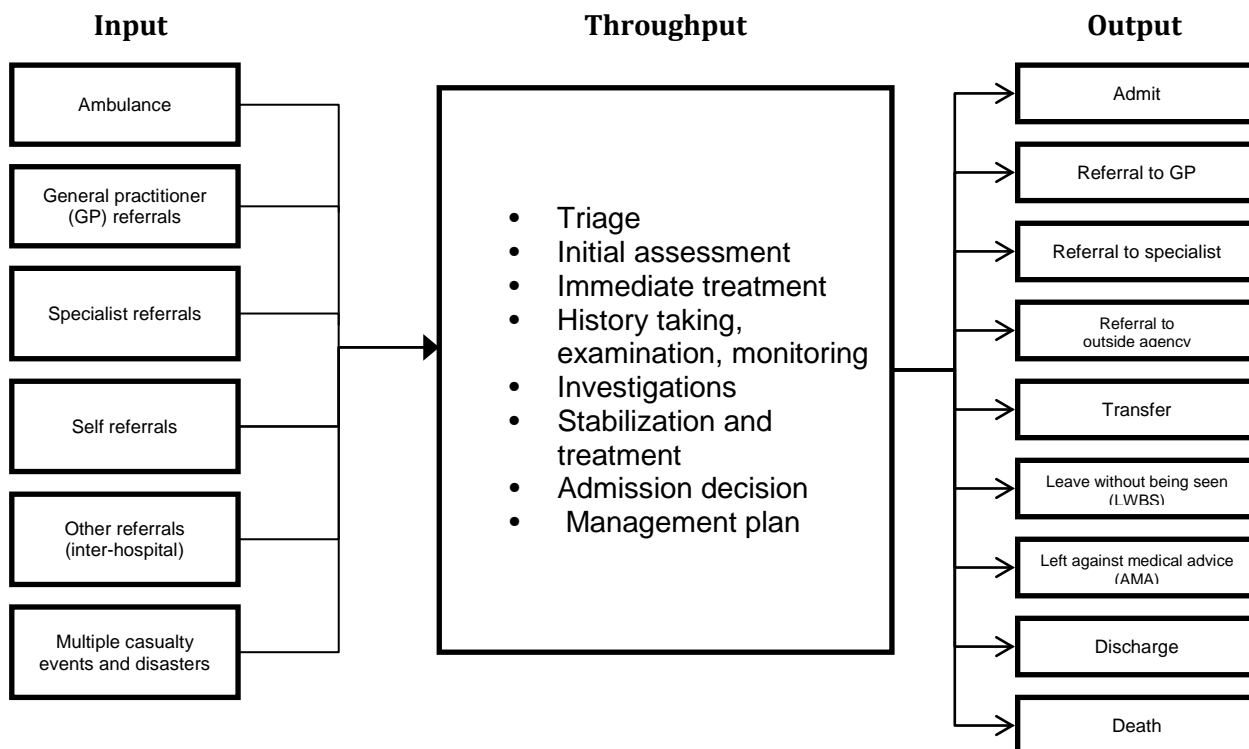
Definitions

Overcrowding is defined by most emergency medicine organizations in the developed world. In Canada, the Canadian Association of Emergency Physicians (CAEP) and National Emergency Nurses Affiliation (NENA) have developed a joint statement and provide the following definition:

ED overcrowding is defined as a situation in which demand for service exceeds the ability to provide care within a reasonable time, causing physicians and nurses to be unable to provide quality care. It can be measured by monitoring waiting times--time to be seen by the ED physician, time to be seen by a consultant, time it takes to move the admitted patient to an inpatient bed.[1]

Table 1: Definitions of overcrowding from various emergency medicine societies.

Society	Quoted Definitions of Overcrowding
American College of Emergency Physicians (ACEP)	*Overcrowding exists when the institutional resources available are insufficient to meet the basic service needs of emergency patients.*[6]
Australasian College for Emergency Medicine (ACEM)	*ED overcrowding refers to the situation where ED function is impeded primarily because the number of patients waiting to be seen, undergoing assessment and treatment, or waiting for departure exceeds either the physical bed and/or staffing capacity of the ED.*[7]
UK College for Emergency Medicine	*ED overcrowding is a symptom of the poor functioning of the whole emergency care system. … Overcrowding is almost always due to ill patients waiting for admission, not ambulatory care patients. Hospitals should have enough inpatient capacity to ensure that patients are not kept waiting for admission to a hospital bed* (4-hour target).[8]

Overall, these definitions all include a demand-supply comment; however, only the CAEP-NENA statement mentions the issue of quality of care. Given this broader focus and the Canadian origin of this definition, the CAEP-NENA joint statement definition will be used throughout this document.

ED overcrowding has been shown to cause some patients to leave prior to completing their care (e.g., leave without being seen (LWBS) or leave against medical advice (LAMA)), decreased

patient and provider satisfaction, delay care for time-sensitive conditions (e.g., acute myocardial infarctions, sepsis, stroke) and increased admissions and mortality.[9] Clearly, efforts to address ED overcrowding are worthy of study.

Project Methods

The review team followed a protocol that had been developed *a priori* to establish the search strategy and study selection criteria.

Searches of electronic databases:

In November 2011, the review team carried out a comprehensive search of relevant electronic databases including PubMed, ISYS, CADTH, NICE, AHRQ, EPOC and SCOPUS using combinations of keywords and thesaurus terms related to the different interventions regarding overcrowding in EDs.

Selection Criteria:

a) **Study design:** Systematic reviews, randomized controlled trials (RCTs), quasi-randomized trials, before-and-after studies, cohort studies, case-control studies, interrupted time series, cluster randomized controlled trials, and prospective observational studies were all considered for inclusion.

b) **Interventions:** Studies that referred to one of the interventions related to overcrowding in the ED were eligible for review. Relevant interventions were those designed to reduce or control ED overcrowding, including input, through-put, out-put and system-wide interventions.

c) **Control:** Comparative effectiveness studies provided a comparison or control population; however, some descriptive studies had no control group.

d) **Outcomes:** To be considered for inclusion, studies had to report numeric or measureable data. Only primary research involving real-time data was considered.

Articles that did not meet all the inclusion criteria such as case studies, editorials, review articles, qualitative studies, opinion letters and commentaries were used in discussions only.

Selection Method:

Using titles, abstracts and descriptors, the review team screened the studies identified by the literature search. Papers deemed potentially relevant were fully reviewed for possible inclusion.

Data Extraction and Presentation Strategies:

Simple strategies were developed to extract from systematic reviews and individual studies. For the interventions where there was a preexisting and recent systematic review, findings of the review have been summarized in the text. For the interventions where there was no systematic review, narrative summaries and tables have been provided to describe what was found on the intervention.

Strategy for Quality Assessment:

The quality assessment of the included systematic reviews was reported. Given the extensive scope of evidence summarized for this review, no formal efforts were made to grade the quality of the evidence for the individual trials. Methodological issues were focused on two main areas: 1) complex interventions and 2) the designs of the studies. Complex interventions were difficult to place into the typical in-put, through-put and out-put framework and were often either categorized as system-wide intervention, or into the main domain of influence. Given the paucity of RCT evidence in this field, non-experimental designs are common (e.g., before-after studies, interrupted time series, and administrative data evaluations) and these come with inherent biases. These designs limit the inferences that can be drawn from the meta-data.

Potential Interventions – Definitions

Input Interventions

Media campaigns/diversions - A media campaign is an effort by a health region to inform the public regarding the appropriate use of EDs.

Ambulance diversions - Ambulance diversion is the practice of rerouting ambulances away from the closest ED. It is commonly used when an ED and/or hospital has exceeded its capacity to care for additional patients.[10]

Walk-in clinics - Walk-in clinics may be internal or external ambulatory clinics dealing with minor illness and injuries, where services in an ED may not be required.

Influenza Pandemics (SARs, H1N1) – Influenza pandemics may have an important impact on ED overcrowding by temporarily increasing ED input.

Telephone health line - A process whereby calls from clients in the community are received, assessed and managed by standardized protocols through a central telephone service; advice or referrals to appropriate services (e.g., walk-in clinics, family doctors or EDs) are provided.

Through-put Interventions

ED navigators - Navigators are non-health care professionals who assist patients coming into the ED prior to their assessment in a stretcher or chair in the ED.

Triage activities - Triage is derived from the French word "trier", meaning "to sort". Patients in Canadian EDs are not generally assessed by a physician upon ED arrival, so each patient starts at triage. Triage staff attempt to prioritize patients according to their urgency for medical care by assessing chief complaint, vital signs and other features of a necessarily limited examination.

Triage nurse ordering (TNO) - Triage nurses generally use accepted protocols to assign an acuity score prior to patients being seen by a physician. These initial encounters have been supplemented by TNO of laboratory and radiography tests for patients with specific medical and injury presentations, respectively.

Triage liaison physicians (TLP) - Physicians work with triage staff to expedite the care of patients, based on medical need, who are subject to unpredictable wait times due to lack of available ED treatment spaces.

Fast-track areas for minor injuries/illnesses - Fast-track systems have been described as: "an organizational approach that assesses and treats both acutely and minimally ill or injured, ambulatory patients in a parallel fashion within one geographic department."[11]

Rapid assessment zones (RAZ units) - RAZ units have been variably described in the scientific literature. Generally, RAZ units are existing ED spaces adapted for clinician assessment and procedures; in such settings, patients have their investigations started, wait for results and/or receive treatment in a chair or on a stretcher. In principle, this intervention attempts to improve access to care for some of the more complex acute ambulatory emergency patients currently being forced to wait for a stretcher space.

Computerized physician order entry (CPOE) – Traditionally, patients obtain laboratory tests and radiography through verbal or written communications with nurses/clerks, or through specific order sets. The use of CPOE programs has been a recent addition to the physician workload.

Improving laboratory-testing access - Laboratory access can influence delays in patient transition through the ED. For example, one study suggested that laboratory testing can add an additional hour to the ED visit.[12] Interventions designed to reduce delays may play a role in improving patient flow through the ED.

Improving imaging access - Since most EDs have access to simple radiographic imaging, most delays associated with medical imaging are related to advanced imaging requests. For example, nuclear medicine (e.g., bone scans, ventilation-perfusion scans), detailed ultrasounds (Doppler ultrasound imaging form detection of venous thrombi, abdominal ultrasounds, pelvic ultrasounds, etc), computerized tomography (e.g., chest, abdomen/pelvis, neck), angiography (e.g., cerebral, limb, etc), and magnetic resonance (e.g., spine, brain, etc) imaging often require radiologist approval and special technologists (often on-call during off-hours). Within this domain would be the concept of timely radiologist reporting (whether local or remote) to assist emergency physicians with decision-making and improve throughput.

Bedside ultrasound in the ED - Portable or bedside ultrasound has emerged as a valuable tool for ED practitioners. These small units are designed to scan for free abdominal fluid/blood in trauma, effusions around the heart, abdominal aortic aneurysms, and/or intra-uterine pregnancies (so called "FAST" ultrasound). While not detailed or comprehensive, these scans can expedite more definitive (usually surgical) care. The use of bedside ultrasound has expanded to include retinal detachments, abscess, and the detection of pneumothoracies and line access for critical care.

Nurse practitioners in the ED (General and specific) - Nurse practitioners (NP) have been used in many parts of the health care system to participate with physicians in the care of patients. The specific introduction of an NP, either to care for non-specific cases or to care for a specified group (e.g., elderly patients with falls) may improve throughput.

Physician staffing models - Also referred to as "matched" staffing, these strategies attempt to adjust physician and nurse schedules to accommodate changes in the volume of patients during a 24-hour day and/or day of the week.

Discharge facilitators - Staff (usually nurses) who assist clinicians with details regarding discharge patient planning on an "as needed" basis.

Allied health care professionals (e.g., Social workers) - Social workers who staff the ED (usually over certain hours) and assist clinicians with details regarding discharge patient planning and social services on an "as needed" basis.

Medical Consultants in the ED - Many consultations in the ED are to generalist medical specialists (e.g., general specialists in Pediatrics for children; Family Medicine and Internal Medicine for adults), and depending on the hospital type, hospital-based physicians (Hospitalists). In some hospitals, strategies to reduce the delays associated with consultations have been implemented.

Care maps/clinical practice guidelines (CPG) - A CPG is defined as a complex and comprehensive body of work that uses systematic methods to derive important questions, searches for evidence to answer these questions, and grades the evidence to generate recommendations (weak to strong) upon which practice is based. CPGs vary, and range from large documents, often indigestible by most busy clinicians, to practical care maps that provide clinicians with guidance on clinician decision-making.

Clinical Decision Rules - A decision rule is derived from original research and may be defined as a decision making tool that incorporates three or more variables from the history, physical examination, or simple tests. These decision rules help clinicians with diagnostic or therapeutic decisions at the bedside.

Computerization - ED information systems (EDIS) are becoming more commonplace in large, urban EDs to facilitate patient sign-up, track patients through the complex ED encounter, and record information regarding consultation and patient flow. Most EDIS provide sign-on for

individual physicians, automatic time stamps for important events (e.g., time of consultation, admission decision, transfer to the floor), maps for patient placement, and access to ED results.

Out-put Interventions

In-patient bed capacity adjustments (increased or decreased) – Bed capacity refers to the number of beds within a hospital or the number of beds set up and staffed for use on all of the in-patient units. It is often reported as a percentage of beds occupied (e.g., 100% occupancy).

Bed coordination – Bed coordination involves the daily allocation of in-patient beds and the strategic planning involved in ensuring that beds are available for ED admissions. It requires the balancing of demand with the supply of in-patient beds and often involves team meetings, dedicated bed coordinators, and even electronic mapping bed tracking tools.

Clinical decision units (CDUs)/Observation units - Specialized units designed to manage patients who require prolonged ED observation, investigation and/or treatment compared to typical ED patients or more seriously ill/injured patients requiring admission. The goal of the CDU is to provide more standardized care of selected conditions (e.g., asthma, intoxication, chest pain) using care pathways, to avoid some brief admissions and to provide more efficient care for other ED patients.

Full-capacity /Over-capacity protocols (FCP/OCP) - Protocols have been implemented in an effort to increase the ED functional capacity by transporting admitted patients from the ED to temporary care spaces (e.g., inpatient care spaces designed for admitted ED patients). The goal of the FCP is to safely share the burden of inpatients without assigned beds throughout the hospital, with the intent of improving clinical operations and mitigating the negative effects of ED overcrowding.

Medical Admission Units (MAUs) - A dedicated unit for patients who are admitted through the ED and are awaiting an in-patient bed allocation. The goal of a MAU is to decrease the ED wait time for admission to the hospital and to maximize the investigation and management in the sub-acute period (24-48 hours of admission).

Care maps/clinical practice guidelines (CPG) - A CPG is defined as a complex and comprehensive body of work that uses systematic methods to derive important questions, search for evidence to answer these questions, and grade the evidence to generate recommendations (weak to strong) upon which practice is based. CPGs range from large documents, often indigestible

by most busy clinicians, to practical care maps that provide clinicians with guidance on clinician decision-making.

Increased long-term care (LTC) beds – LTC beds provide secure settings with the availability of 24-hour nursing care and supervision. LTC homes typically offer a higher level of care than supportive living or retirement homes.

In-patient discharge plans – Discharge plans tailored to individual patients that aim to reduce hospital LOS and unplanned readmissions to hospitals.

Specialized in-patient teams responding to the ED (e.g., ACCESS) – ACCESS is an acute care emergency surgical service developed to urgently assess and treat non-trauma general surgical emergencies. The service provides prompt and expert surgical consultation to ED patients and provides care to these patients following admission.[13]

Discharge lounges – Areas within hospitals where admitted patients can be sent to wait on their day of discharge until arrangements (e.g., transport, home care interviews, personal resources) are made for them.

System-wide Interventions

Multi-faceted interventions (e.g., UK 4-hour rule) - These interventions represent a number of different interventions bundled into a strategy to address ED overcrowding. For example, the UK implemented a strategy whereby different interventions (e.g., adding fast track, nurse practitioners, senior ED staff, new long-term beds, etc.), pay for performance, accountability frameworks and bench-marking performance were used to implement their 4-hour discharge strategy.

Pay for performance (P4P) incentive models - P4P is an innovative and emerging intervention in health care, used especially in Britain and the United States, in which providers (or their institutions) are rewarded for achieving a certain quality level of healthcare services. For example, a quality metric may be the administration of antibiotics in the ED for patients with a discharge diagnosis of community acquired pneumonia (CAP). Both intended (e.g., achieving the 4-hour target for antibiotic administration) and unintended (e.g., gaming, inappropriate antibiotic use) components need to be addressed for the evaluation of this intervention.

Accountability frame-works - A written document that articulates responsibilities and establishes clear expectations against which activities and productivity can be measured and results evaluated. Accountability frameworks can be applied to a variety of "units" within the health

care system (e.g., provider, team division/department, institution and health care system). Effective accountability frameworks take action when targets are not met, in order to reflect the transparency, learning and values of a unit.

Bench-marking/reporting - Benchmarking in health care is a process by which the performance of a unit is compared to similar metrics from similar units (e.g., in emergency medicine this would be institutions with similar volume, Canadian Triage Acuity Scale [CTAS] score and/or admission rate) or to the best practices from the health care field. Typically benchmarking involves measurement and reporting of some element of quality (e.g., % of patient who meet the 4 hour rule for antibiotic use in CAP), time (e.g., Alberta's ED LOS targets: 4 hours for discharged patients and 8 hours for admitted patients) and/or cost (e.g., the cost of care).

Notes:

1. While some interventions might have an impact in multiple areas, we chose to catalogue interventions based on their primary location of influence.

2. An evidence summary for each of the interventions identified is provided below.

Potential Interventions – Results:

Using the methods described above, the following evidence summaries are provided for the interventions we have identified.

Input Interventions

Media campaigns/Diversions - We were unable to identify a systematic review or any primary studies examining the impact of media campaigns/diversions on ED overcrowding. Media campaigns represent efforts, usually by health regions in countries with universal health systems, to inform the public regarding the appropriate use of EDs. These campaigns often occur in times of crisis (e.g., influenza season) or when overcrowding is at its peak for other reasons. While these efforts are well-intentioned and may appear appropriate, there are several potential adverse consequences that may result. First, they are potentially costly, and divert valuable resources away from health services to public relations. Second, they may have the unintended consequence of delaying care for time-sensitive conditions such as chest pain, stroke, and severe infection resulting in non-optimal outcomes.

Summary: There appears to be no evidence that media campaigns reduce visits to EDs, and there is considerable potential for harm. Health systems or regions that employ media campaigns in the future are strongly encouraged to evaluate their effectiveness.

Ambulance diversions - A comprehensive systematic review was published in 2006 examining the effects of ambulance diversion (AD).[10] Using a comprehensive search strategy, 600 potentially relevant studies were identified and 55 were included in the systematic review. Of the 55 articles, 45% (n=25) measured the effect of AD on an outcome and the remaining articles measured the effect of other variables on AD. None of the studies evaluated AD's effect on ED overcrowding. AD was found to be a frequent occurrence and was associated with periods of ED crowding. These periods of crowding were most common on Mondays, during the mid-afternoon to early evening, during influenza season and when hospitals reach capacity. The frequency of AD decreased with the introduction of interventions that redesigned the AD process or that provide additional hospital or ED resources. While AD was not associated with patient mortality, it was associated with increased patient transport times and time to thrombolytics. The authors concluded that while there is a good understanding of the causes of AD (i.e., divert to facilities with appropriate equipment, ED or hospital has exceeded capacity) there is little understanding of its direct effects.

A review of the literature for more recent publications on AD was undertaken and no additional articles were found. While AD is commonly used, there appears to be little evidence on its impact on the health care system.

__Summary__: Overall, AD appears to be a commonly used tool in the management of ED overcrowding; however, its effects on overcrowding remain unclear. Moreover, due to adverse events associated with AD in other parts of Canada, ambulance diversion has largely been abandoned in Alberta. While further research on the effects of AD on ED overcrowding and patient outcomes may shed further light on the impact of AD on the system, it is unlikely to result in major changes in the future in this province.

Walk-in clinics - We were unable to identify a systematic review or any primary studies examining the impact of walk-in clinics on ED overcrowding. Walk-in clinics have become more common in Canada over the past 2 decades. An Ontario study was conducted to examine the quality of care that walk-in clinics provide compared to family practices and EDs.[14] This prospective cohort study, recruited 433 patients from 12 walk-in clinics, 16 family practices and 13 EDs. Quality-of-care indicators for eight common acute conditions were selected and established by an expert review panel. Patients seeking care for any of these 8 conditions were recruited. These eight conditions were commonly seen in all three settings and included: pharyngitis, gastroenteritis, serious otitis media, acute otitis media, upper respiratory infection, acute bronchitis, urinary tract infection and low back pain. A questionnaire was administered to the patients to assess three satisfaction scales: patient-centered care, the physician's attitude and any delay in the waiting room during the study's visit. The patients at the walk-in clinics were significantly more satisfied than ED patients on all three satisfaction scales. Family practice patients were significantly more satisfied with waiting time compared to walk-in clinic patients. The adjusted mean quality-of-care scores were significantly higher for walk-in clinic and ED patients than for family practices (ED: 73.1%, walk-in: 69.9%, family practice: 64.1%). A 2003 review[15] of this study highlighted a number of concerns with the study and issues raised. They noted that the eight conditions studied were non-urgent and were not typical of the type of patients that EDs focus on. They predicted that if the authors had looked at severe asthma, myocardial infarction or multiple traumas, EDs would have performed better; however, they also noted that despite these issues, the EDs still had quite high scores, suggesting that they provide excellent care across a broad spectrum of illnesses.

Summary: Research examining the impact of walk-in clinics on ED overcrowding is difficult to identify. In one non-comparative study examining patient satisfaction and quality of care, satisfaction with waiting time was highest among family practice patients.[14] In addition, both family practices and walk-in clinics were perceived more positively than EDs on patient-centered care, physician attitude and delays in the waiting room. Given the proliferation of walk-in clinics in both Calgary and Edmonton over the past 2 decades and the progressively severe problem with ED overcrowding in both centres over the same time period, the notion that opening walk-in clinics represents a solution for ED overcrowding seems tenuous at best.

Influenza Outbreaks - Influenza outbreaks (e.g., flu season, H1N1, SARs) have been associated with increased ED patient volumes and crowding. In a 2008 systematic review examining the causes, effects and solutions to ED overcrowding,[16] three articles were identified that investigated the impact of influenza season on ED overcrowding.[17-19] One study[17] examined six Los Angeles County hospitals during 24-week influenza seasons from a period of 1991 through 1998. The hospitals reported a 4 to 7-fold increase in AD, often an indicator of ED overcrowding, during the peak four weeks of flu season compared with other times of the year. In Toronto, a retrospective time series analysis was conducted from January 1996 to April 1999 (n=170 weeks).[18, 19] Weekly data were obtained on laboratory-confirmed influenza and other respiratory virus cases that were confirmed in the community. Data were also obtained on visits to all city EDs (n=20) as well as ED ambulance diversions. Every ten new cases of influenza active in the community was associated with a 1.5% (95% CI: 1.2, 1.8) and 1.5% (95% CI: 0.6, 1.8) absolute increase in the proportion of ED patients who were elders with major-influenza related conditions and upper respiratory conditions, respectively.[18] Influenza season was not associated with an increase in ED visits among younger patients. With respect to ambulance diversion, for every 100 local cases of influenza and other respiratory virus cases, there was an increase of 2.5 hours per week of ambulance diversion.[19]

Summary: Influenza season is clearly associated with an increase in AD as well as increased ED utilization by patients aged 65 years and older. While there is a substantial increase in both ambulance diversion and ED utilization, it is important to consider that influenza season is often very brief and is not an ongoing occurrence throughout the year. Solutions to deal with ED overcrowding as a result of influenza season need to focus resources during these peak periods.

Telephone help line - A UK systematic review was published in 2009 examining the impact of telephone consultation and triage services on safety, satisfaction and service usage.[20] Using a comprehensive search strategy, 3,437 potentially relevant studies were identified and 9 were included in the systematic review. Five studies were RCTs, one was a controlled clinical trial and three were interrupted time series (ITS). Three of the five studies reported a decrease in visits to PCPs, while two found a significant increase in return consultations. At least 50% of the calls received were handled by telephone advice alone. Six of the studies found no difference between visits to EDs comparing those that used the telephone advice with those that did not, while one study found an increase in visits. The authors concluded that the effect of telephone consultation on ED visits remains unclear and further rigorous evaluation is needed.

A study conducted in Quebec on the use of a telephone-nursing triage service by patients of emergency services reached similar conclusions.[21] Structured interviews were conducted with 850 patients from a general hospital ED and from walk-in medical clinics while patients were waiting to see a physician. Of the patients who were aware of the telephone-nursing triage service, only 17.4% had used it prior to their medical visit. Among the users interviewed in the hospital ED, 56.4% were advised to consult a walk-in clinic, 28.2% their family doctor and only 12.8% a hospital ED. The authors concluded that despite heightened awareness of the telephone-nursing triage service, the majority of health care users did not make use of it and those that did followed the recommendations very loosely.

Summary: While there appears to be some evidence that a telephone consultation service can reduce visits to primary care providers, the evidence of its effect on ED visits is sparse.[20] Further, some evidence found an increase in visits. Additional research on the effects of telephone consultations on ED overcrowding may shed light on its impact on the healthcare system; however the initial results indicate that it may be ineffective.

Through-put Interventions

ED navigators - No formal evaluations of this intervention were identified in any of the literature searches. During the former Capital Health Emergency Services and System Capacity (ESSC) project (2006-2008) a qualitative evaluation was completed (unpublished data).[22] The evaluation used interviews and observations to draw vague, largely unfounded conclusions. There was no economic evaluation of the benefit of this intervention compared to alternative use of the funding envelope. Moreover, since the Navigator intervention was confounded by other simultaneous interventions (e.g., TLP and other project interventions aimed at improving patient service and decreasing wait times), the exact effect of the Navigator intervention was difficult to determine.

Summary: Overall, evaluation evidence is lacking and support does not exist for the role of ED navigators in most high-volume, urban EDs. It is unlikely that this intervention would have an indication in smaller, rural hospitals.

Triage activities - The CADTH report in 2006 identified 6 studies examining the use of triage to address overcrowding; four were before-and-after studies and two were controlled trials.[23] Five studies reported outcome data for waiting time. Two reported reduced waiting times and three reported increased waiting times. Outcome data for patients who leave the ED without being seen (LWBS) were reported in three studies. Two of them reported a reduction in the number of patients who LWBS and one reported no change between the intervention and control periods.

Summary: Clearly, a formal triage system in overcrowded EDs is better than no triage system; however, the comparative benefits of the triage are difficult to determine. This is the same conclusion reached by Cooke *et al*.[24] who found that implementing triage with the sole aim of prioritizing patients may delay care, while other systems that attempt to combine prioritization, assessment and treatment are more likely to save time. Overall, the outcomes for triage show variability and triage seems to improve waiting time for the lower acuity patients. In addition, in the single reporting study, triage reduced patients' decision to LWBS.

There are some obvious concerns with this approach to triage. First, triage was intended to sort and prioritize patients in overcrowded EDs. Clearly, an ED that is not overcrowded does not need a triage process. Not surprisingly, the triage process results are inconclusive. In addition, there are a variety of different triage systems available. Each consumes different resources and comparisons of triage systems were not undertaken. Finally, researchers in emergency medicine

have questioned the reliability of triage and this may contribute to inconclusive results in these studies.

Triage nurse ordering (TNO) - A comprehensive systematic review was published in 2011 examining the effectiveness of TNO.[25] Using a comprehensive search strategy, 14,446 potentially relevant studies were identified and 14 were included in the systematic review. Most were single-center ED studies; the overall quality was rated as weak due to methodological deficiencies and variable outcome reporting. TNO was associated with a 37-minute mean reduction (95% CI: -44.10 to -30.30) in the overall ED LOS in one randomized clinical trial (RCT); a 51-minute mean reduction (95% CI: -56.3 to - 45.5) was observed in non-RCTs. When applied to injured subjects with/or suspected fracture cases, TNO interventions reduced ED LOS by 20 min (95% CI: -37.5 to -1.9) in three RCTs and by 18 min (95% CI: -23.2 to -13.2) in two non-RCTs. No significant reduction in physician initial assessment (PIA) was observed in two RCTs.

A supplemental aspect of the review was the reporting of training and the reliability of TNO. These results were accomplished with a modest investment in training. For example, from the 14 studies, details of the nurses and their training were extracted. Most studies designated nurses as triage staff; however, several employed senior/experienced nurses only. Training also varied; however, test ordering was initiated after brief training programs (1 hour lectures) in most cases. Moreover, two studies reported data on the proportion of radiographs ordered by triage nurses compared to emergency physicians. Pooled analysis of two RCTs indicated that the risk of ordering radiographs was the same when comparing TNO interventions to emergency physicians/ENPs X-ray ordering (RR = 0.98; 95% CI: 0.83 to 1.15); the risk of obtaining positive results was also the same when comparing these two groups (RR = 1.03; 95% CI: 0.85 to 1.23).

**Summary****:** Overall, TNO appears to be an effective intervention to reduce ED LOS especially in injury and/or suspected fracture cases. The available evidence is limited by small numbers of studies, weak methodological quality, and incomplete reporting. Future studies should focus on a better description of the contextual factors surrounding these interventions and exploring the impact of TNO on other indicators of productivity and satisfaction with health-care delivery.

Triage liaison physicians (TLP) – A comprehensive systematic review was published in 2011 examining the effectiveness of physicians at triage.[26] From 14,446 potentially relevant studies, 28 were included in the systematic review. Thirteen were journal publications, 12 were

abstracts, and three were Web-based articles. Most studies employed before–after designs; 23 of the 28 studies were considered of weak quality. Based on the statistical pooling of data from two RCTs, TLP resulted in shorter ED LOS compared to nurse-led triage (WMD = -36.85 min; 95% CI = -51.11 to -22.58). One of these RCTs showed a significant reduction in the PIA associated to TLP presence (WMD = -30.00 min; 95% CI = -56.91 to -3.09); the other RCT showed no change in LWBS due to a CI that included unity (RR = 0.82; 95% CI = 0.67 to 1.00).

The included studies differed somewhat with regard to study populations and type of interventions. The complexity of patients in each study appeared to vary due to different selection criteria or study settings. Currently, there is no universal or consistent guideline for the TLP function or interventions. In fact, investigators have applied different definitions to this role. Several studies advocated a consultant or senior physician as the TLP;[27, 28] some studies have employed junior physicians.[29] Moreover, the responsibility of a TLP may vary from performing the same activities as a triage nurse[30] to guide the adjudication of administrative issues, expedite the clinical evaluation/treatment, and in some cases speed up disposition of less complex patients.[27, 31] These last activities have been related to achieving the goal of "see and treat".[32, 33] Most importantly, these differences may have critical implications during the implementation of such interventions into routine clinical practice. The different needs and TLP intervention roles need to align with the characteristics of the individual ED and the factors contributing to the crowding.

Summary: While the evidence suggests that a TLP is an effective intervention to mitigate the effects of ED overcrowding, due to the weak research methods identified, more research is required before its widespread implementation.

Rapid assessment zones (RAZ units) - A comprehensive systematic review was published in 2011 examining the effectiveness of RAZ units.[34] From 14,446 potentially relevant studies, four studies were included in the review. The quality of one study was appraised as moderately high; others were rated as weak. Two studies showed that RAZ units were associated with a reduction of 20 minutes (95% CI: -47.2 to 7.2) in the ED LOS; in one non-RCT, a 192 min reduction was reported (95% CI: -211.6 to -172.4). PIA showed a reduction of 8.0 min; 95% CI: -13.8 to -2.2 in the RCT and a reduction of 33 min (95% CI: -42.3 to -23.6) and 18 min (95% CI: -22.2 to -13.8) respectively were found in two non-RCTs. There was also a reduction in the risk of LWBS (RCT: RR= 0.93, 95% CI: 0.77 to 1.12; non-RCT: RR= 0.68, 95% CI: 0.63 to 0.73).

The setting and interventions of the included studies were different and perhaps RAZ worked differently in different EDs due to factors such as patient acuity and complexity, attempts to optimize efficiency, admission rates, organizational culture, funding models (fee-for-service vs. salary), and other factors. When analyzing patients by triage level, CTAS-V patients benefited the most from the RAZ intervention. This aligns with the principle of fast track interventions designed to expedite care of the less urgent patients. RAZ intervention was not specifically designed to address the issue of minor, "fast track" patients; however, clearly, they have the ability to function as a rapid assessment area as well.

__Summary__: Although the results are consistent and low acuity patients seem to benefit the most from RAZ, the available evidence to support its implementation is limited. Developing standardized protocols for RAZ will facilitate their implementation and provide a platform to compare results from different centres. However, standardized protocols may be hampered by the variable demands of each specific clinical practice setting.

Fast-track areas for minor injuries/illnesses: A qualitative review on fast track systems was completed for the Alberta Heritage Foundation for Medical Research in March 2003.[11] The report concluded that: "Based on current evidence, the operation of an ED fast-track system appears to be efficient, operationally cost-effective, safe, and satisfactory for patients." The author made several other conclusions: 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". A review of the literature was conducted and yielded no additional more recent studies.

__Summary__: 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.

Computerized physician order entry (CPOE) – No systematic reviews were identified dealing with CPOE in the ED; however, our comprehensive search in November 2011 identified several important reports. While many of the published manuscripts fail to focus on the health outcomes of CPOE, they do document the barriers to implementation of CPOE and the approaches required to facilitate a more effective implementation. Several comparative effectiveness studies examined outcomes of importance (see Table 1, Appendix A).[35, 36]

One study compared LOS using a before-after design in a US ED and hospital system.[35] The authors found a decreased LOS for patients discharged from the ED after the implementation of a CPOE system. The other study examined computer interactions and compared them to staff-to-staff and staff-to-patient interactions. The authors concluded that ED nurses and physicians both decreased their interaction with patients following the implementation of a CPOE.[36]

__Summary__: While there appears to be some evidence that implementing CPOE does decrease patient LOS;[35] the evidence is sparse, and several claimed CPOE benefits are poorly researched (e.g., medication errors, repeat orders). In fact, there is evidence that CPOE may in some instances **increase** medication errors.[37] There are some other less tangible consequences that raise additional concerns. At least in one study, an unanticipated outcome of the CPOE was a shift in physician time from interacting with nurses and patients toward retrieving information from the electronic patient record.[36] Overall, as CPOE is adopted in the future (e.g., Calgary Zone has CPOE), the literature should provide more clarity regarding the risks and benefits.

Improving laboratory testing access – A systematic review targeting interventions to improve patient flow in EDs explored the impact of point-of-care testing (POCT) over ED metrics.[38] Four of the six included studies were classified as moderate methodological quality and two as low quality. One small Canadian RCT showed shorter LOS, especially for non-admitted patients.[39] While another RCT demonstrated significant changes in management (e.g., decisions were made earlier), there was no effect on LOS or admission rates.[40] A US-based prospective observational study, found shorter turnaround time (TAT) and shorter LOS with POCT. This study also demonstrated high satisfaction among the staff.[41] In a similar US study, almost 95% of the patients also needed central laboratory analyses to complement POCT. Consequently, POCT had no effect on the patients' LOS.[42]

Another review of the literature on ED throughput[43] included another prospective observational study in which addressing the laboratory outliers rather than the mean TAT had a positive impact on reducing LOS.[44] The CADTH report in 2006 identified one more study explicitly reporting on laboratory access issues relevant to the ED.[23] A dedicated stat laboratory reduced median within-laboratory TATs (e.g., specimen collection, arrival in laboratory, accessioning complete blood count, and transportation). The authors concluded, however, that the study failed to show that a dedicated stat laboratory in the ED could improve TAT and expedite the disposition of patients.[45]

Our search identified two additional studies that were published after the CADTH report but were

not included in the previously cited reviews.[46, 47] Details of these studies are summarized in Table 2 of Appendix A.

Summary: Given the delays associated with ordering laboratory testing that have been identified in the medical literature,[12] one might reasonably expect that improvements in laboratory times would have dramatic influence on overall LOS. Based on the available evidence, the effect of POCT on TAT is supported by relatively strong evidence, whereas its positive effect on LOS is supported by limited evidence.

Improving imaging access – No systematic reviews exclusively targeting strategies to improve imaging access in the ED were found; however, interventions like the TNO have involved this component (please see the TNO section for more details).[25] The CADTH report in 2006 identified one study explicitly reporting on radiology services relevant to the ED.[23] Dedicating radiology staff to the ED and re-engineering the x-ray service reduced x-ray TAT, fast-track cycle time, arrival to treatment by the emergency physician and improved overall ED LOS.[48]

Summary: Given the delays associated with ordering radiography that have been identified in the medical literature,[12] one might reasonably expect that improvements in imaging services would have dramatic influences on overall LOS and admission proportions. While evidence for strategies addressing specific conditions (e.g. chest pain, stroke) exists, the effect of multi-purpose interventions on LOS is supported by very limited evidence.

Bedside ultrasound in the ED – Portable ultrasound (pU/S) use in Canadian EDs has been growing at a rapid rate; the Canadian Association of Emergency Physicians and other groups now have national courses as well as training requirements. Originally, bedside ultrasound was applied to trauma and specific cases (e.g., cardiac tamponade, abdominal aortic aneurysm [AAA], pregnancy); however, its application has been expanded considerably. For example, it has been used in the detection of deep venous thrombosis, retinal detachments, pneumothorax, and abscesses, and used to assist in the insertion of central venous catheters. This review will be restricted to the traditional uses of pU/S in the ED.

From a search identifying 1020 potentially relevant citations, a 2006 CADTH report found 29 reports addressing the clinical effectiveness of pU/S: 2 comparative trials and 16 case series reports of pU/S in abdominal trauma, 1 case series report in AAA, 3 comparative trials and 4 case

series reports in ectopic pregnancy, and 3 case series reports in more than one use.[49] Overall, sufficient evidence from studies of blunt abdominal trauma, AAA, and ectopic pregnancy were identified to suggest that ED pU/S performed by non-radiologists is an effective form of *triage*. ED pU/S is likely to improve certainty of diagnosis in an ED setting. These results were robust; however, the review failed to identify health outcome benefits. The non-therapeutic advantages of using this technique are that it is easier to use and repeat, and is non-invasive.

Since that review, a large number of reviews and studies on diagnostic accuracy and clinical outcomes have been completed. The results of two studies that were not included in the CADTH report and two new studies that included health services outcomes are summarized in Table 3 of Appendix A.[50-54]

__Summary__: Overall, the evidence for the use of bedside ultrasound to assist in ED diagnosis is relatively robust for certain conditions. There seems to be a positive impact on LOS; however, the clinical significance of these findings may be controversial. The expansion of use is justified following adequate training, and the appropriate confirmation and monitoring of costs.

Nurse practitioners in the ED (General and specific) - A US systematic review on the impact of nurse practitioners (NPs) in the ED was published in 2007. Of 558 potentially relevant studies, 36 were ultimately included in the review: 8 cohort studies, 18 case control studies, 3 RCTs and 8 survey studies.[55] The quality of all included studies was rated as moderate to high. In 6/8 studies, wait times decreased with the presence of NPs in the ED; however, no pooled mean values were available due to heterogeneity in study designs. Some NPs had a broad scope of practice while others were responsible for a particular group of patients in the ED. One study considered the role of NPs working specifically on low-acuity patients, comparing standard ED care vs. NP care within ED in minor treatment unit vs. separate minor injury unit (MIU). The wait time was found to be 67 min in ED, 34 in dedicated minor area, and 23 in MIU ($p < 0.001$). LOS was 101.7 min in the ED, 85.6 min in the minor area, and 56 min in the MIU ($p < 0.001$ for ED v. either area).[55, 56] When the quality of care provided by NPs was compared to that of residents, it was found to be the same in 16/18 studies. One study of this kind, for example, showed that the difference in sensitivity of interpretation of x-rays for NPs vs. residents was 93.2% v. 92.5%.[55, 57] Overall, the settings and interventions of the studies in the review were too varied to permit pooling.

None of the studies in the systematic review, however, were conducted in a Canadian setting. In their 2009 prospective observational study, Steiner et al.[58], evaluated the impact of

broad-scope NPs on patient wait times, ED LOS and LWOT rates in a Canadian ED. The authors saw a 12% increase in patient volume per shift ($p < 0.001$), and a 7-minute decrease in mean wait times for low-acuity patients. Emergency physicians also saw a smaller proportion of low-acuity patients and there was a trend toward a lower proportion of LWOT patients (11.9% v. 13.7%, p = 0.10). There was, however, no change in overall wait times or ED LOS, which the authors suggested might be due to blocked exit for admitted patients (lack of available beds).

Another 2009 study assessed the impact of primary NPs and physician assistants (PAs) on patient flow, wait times and LWOT in 6 medium-sized Ontario EDs through a retrospective review of health records data.[59] In these settings, the NPs practiced autonomously for CTAS-IV and -V patients and worked in conjunction with a physician to see CTAS-III or higher acuity. Results showed that when a NP was directly involved in patients' care, patients were 2.1 (95% CI: 1.6 to 2.8, $p < 0.05$) times more likely to be seen within the wait time benchmarks. LOS was 48.8% (95% CI: 35.0% to 62.7%, $p < 0.01$) lower when NPs, respectively, were involved. With an NP on duty there was a 29% reduction in LWOT rates (95% CI: 4% to 47%, $p < 0.05$) compared with those when an NP was not on duty.[59]

Summary: Evidence indicates that NPs in the ED lead to reduced wait times and LWOT rates. The studies considered in the systematic review also suggest that the quality of care provided by NPs is at least on par with what is provided by a resident physician. All authors note that adding a NP - either general or specific in scope - to the ED staff may reduce the proportion of low-acuity patients seen by EPs and expedite throughput for a subgroup of less urgent patients. The divergences between the findings of the Canadian studies regarding LOS and wait times point to the difficulty of generalization with this intervention. The impact of NPs likely changes according to patient acuity and complexity, ED organizational structure, funding models, and other factors, and as a result, the relevant evidence remains limited. Further studies comparing the results from different Canadian EDs are required to generate more comprehensive data.

Physician staffing models: In a US national survey on overcrowding, respondents reported that one of the biggest obstacles to solving the problem was lack of ED staff (43%).[60] The CADTH review identified 9 studies in 2006; six out of nine studies reported improvements in ED LOS, waiting times, patients who LWBS and ambulance diversion rates when staffing changes were implemented.[23] Cooke *et al*[24]. reported that the use of senior medical staff may reduce admissions and decrease delays; they recommended further research to better assess the impact of adding

other staff types. Thus, it appears that increased staffing can have a positive effect on ED LOS, waiting time, number of patients who LWBS and the amount of time spent on AD.

There are some obvious concerns with this approach. First, the availability of well-trained and experienced emergency staff, at least in North America, is limited. Simply adding more staff (i.e., emergency trained or not, experienced or not) may negate the potential positive effects of staffing changes. In addition, some have argued that additional staff will have no effect if space to assess patients is unavailable (except perhaps in the waiting room). Finally, it is unclear what role additional staff should have in order to maximize the efficiency of the ED. For example, a physician liaison position to accept transfers, expedite patient care and deal with administrative duties may be more effective than adding another physician to see patients.

Summary: Staffing changes are varied - they could involve changing staff timing, number and/or level of expertise in any ED setting. In general while consensus appears to support volume-based staffing and ancillary staff in the ED, this is not based on high quality evidence and also may not be a viable alternative for all sites. Moreover, reimbursement issues (i.e., fee-for-service vs. salary vs. blended approach) complicate the discussions.

Discharge facilitators - No systematic review on the topic of discharge facilitators was found. An initial keyword search produced 262 potentially relevant articles; however, most of the published studies on discharge planning in the ED were descriptive rather than comparative. Available quantitative studies on the topic tended to focus on older patients and involve different types of interventions, including both single-person and team discharge facilitators.

One Australian study published in 2006 used a before-after design to evaluate the effects of a discharge planning program on re-presentation rates and the average LOS. Risk screening of older people in the ED by a single specialist community nurse resulted in a decrease in ED re-presentations as well as a decreased LOS.[61] Similarly, a 2004 study considered the impact of an ED-based nurse discharge plan coordinator on return visits by older patients discharged from the ED. Again, the authors observed a relative risk reduction for return visits to the hospital by those who had seen the discharge coordinator.[62]

Finally, a study from Australia studied the impact of a risk-screening process that referred patients to a Care Coordination Team (CCT), a multidisciplinary group that provided patients with appropriate community support services. Here, too, the rate of hospital admissions from the ED fell significantly compared with the period before implementation of the CCT.[63] Study details are

summarized in Table 4 of Appendix A.

__Summary__: The differences between the various discharge plan interventions in the ED preclude meta-analysis in this review. All three studies demonstrated a decrease in patient LOS and return visits to the ED with both single-person and team discharge facilitators; however, there are significant limitations to this evidence. The period of follow-up data collection varied significantly; in one study, the effect discharge planning was recorded at 8 and 14 days after the original presentation,[62] while in another, the reduced rate of hospital admissions was measured over a period of 12 months.[63] Two studies focused solely on elderly patients, while the other considered elderly and homeless patients as well as frequent ED attendees, and those with complex medical or drug and alcohol problems.[63] The specific nature of the study populations makes it difficult to generalize about the effectiveness of discharge facilitators when working with other sectors of the population.

Allied health care professionals (e.g., social workers) - The electronic database search yielded few quantitative studies on the role or impact of social workers in the ED, highlighting the lack of robust evidence on this topic.

One study conducted in 1994 examined the impact of a newly introduced ED social work service on re-presentations. Data were collected on 1,758 ED patients during this 12 month study. The re-presentation rate after the intervention was 23%, a 4% decrease from the pre-intervention rate of return visits ($p < 0.01$).[64]

Another before-after study examined the impact of case management by social workers on hospital service use, homelessness, substance abuse, and psychosocial problems in 53 frequent users of an urban ED.[65] In the post-intervention period, the group's median number of ED visits decreased (from 15 to 9; $p < 0.01$). Homelessness decreased by 57% ($p < 0.01$), alcohol use decreased by 22% ($p < 0.05$) and drug use decreased by 26% ($p < 0.05$). The rate of linkage to primary care also increased by 74% ($p < 0.01$). The authors concluded that intensive case management effectively decreased acute hospital service use and psychosocial problems among frequent ED users.

In 1997, an ED case management pilot program consisting of an evening shift social worker and nurse case manager was developed. The study authors found that while each brought specialized knowledge to the team, their roles in the ED often overlapped.[66]

Summary: While studies suggest that social workers can reduce return visits to the ED and save time for other hospital staff, the evidence is limited by the small number of studies and variability in interventions and patient populations. The role of social workers in the ED remains unclear; and likely depends on the needs of different patients. One important observation was the varied functions social workers perform in each ED, such as counseling patients and families, assessing their social service needs, and providing appropriate referrals as part of discharge planning. A 2002 literature review demonstrated, however, that some of these tasks are carried out by nurses or multidisciplinary teams including nurses, physicians, and health visitors in the ED rather than individual social workers.[67] Future studies are required to investigate the effectiveness of different interventions that address the social needs of ED patients, as well as the role of social workers in this setting.

Clinical practice guidelines/care maps: Clinical practice guideline have the potential to standardize and improve care; however, uptake by physicians of guidelines is low,[68] and emergency physicians are no different from other groups. Specialty- or topic-specific guidelines exist that have direct impact on ED patient care; however, until recently, many were not targeted at emergency physicians and most had no or only nominal representation from the emergency medicine community. Other societies have recognized the importance of including emergency physicians on their panels and the acute treatment of the disorder within the CPG. For example, the Canadian Thoracic Society Asthma guidelines panel has representation from the Canadian Association of Emergency Physicians (CAEP) and the Canadian Pediatric Society, and acute adult and pediatric CPG topics have been covered.[69]

Evidence for the effectiveness of guidelines is also variable. As far back as 1993, when Grimshaw and colleagues evaluated 59 published evaluations of clinical guidelines that met a priori criteria for scientific quality and evaluation.[70] Overall, 24 involved guidelines for specific clinical conditions (e.g., asthma, COPD, heart failure, etc), 27 involved preventive care issues, and 8 were focused on prescribing/support services. Most studies detected significant improvements in the process of care after the introduction of guidelines; 9 of the 11 studies reported improvements in outcomes of care that were considered significant. While no subsequent systematic reviews have been published, the authors concluded that explicit guidelines do improve clinical practice. Consequently, while there is evidence to suggest that guidelines can improve care, decision-makers need to be cautioned that the magnitude of the improvements in performance will vary considerably and implementation strategies need to be a focus to avoid failure.

Although many guidelines exist, a suite of system-wide clinical practice guidelines have not been evaluated in the ED setting. Such an option is appealing in the ED setting, since many common guideline-influenced conditions present to EDs daily. As in the systematic review cited above, many of the ED guideline evaluations have been single site implementations or a single guideline such as asthma,[71, 72] sepsis,[73] or pneumonia.[74] It would be safe to say that while clinical practice guidelines have been widely developed and encouraged, their uptake will depend on factors such as validity, ease of use, applicability at the bedside, etc.

Clinical pathways are unique products of CPGs, and represent the bedside application of the guidelines.[75] These structured care plans are used by health providers to deliver standardized, evidence-based care for patients with a specific clinical problem. While many clinical pathways have been developed for the ED, most of the evaluations of pathways come from the hospital sector. In a 2010 Cochrane review, 27 studies involving 11,398 participants were evaluated. Twenty studies compared stand alone clinical pathways with usual care and indicated a reduction in in-hospital complications (OR = 0.58; 95% CI: 0.36 to 0.94) and improved documentation (OR = 11.95; 95% CI: 4.72 to 30.30). LOS was most commonly measured and most studies reported significant reductions, and reduced hospital costs/ charges were also observed.

Finally, with more advanced use of technology in the ED,[76] there is a potential to use electronic systems to prompt physicians to use clinical practice guidelines. There are few examples of this in the literature from the ED setting; however, where it has been implemented, impressive gains have been shown.[77] There is evidence, at least from the clinical decision support (CDSS) literature, that the implementation is more successful when the study authors are also actively involved in developing and supporting the tool.[78]

Summary: Overall, there is a mixed picture when describing CPG in general, and limited evidence from the ED setting. The field is further complicated by weak methods, variable reporting, and likely publication bias. Topic specific CPGs, and especially those with bedside tools such as care maps and electronic tools, may be most applicable and effective to the ED setting.

Clinical Decision Rules: Clinical decision rules (CDRs) are unique components of CPGs, and often focus on a specific diagnostic test (e.g., clinical decision rule to aide admission decisions for pneumonia).[79] While there are a large number of well developed and validated clinical decision rules (CDRs), and these have been purported to be widely accepted by clinicians, implementation has been less commonly studied. Typical examples of validated CDRs for emergency medicine

practice include the Ottawa ankle and knee rules, the NEXUS C-spine rule, the New Orleans CT head rule, the Canadian CT head rule, the Canadian C-spine rules,[80] the Ottawa subarachnoid hemorrhage rule, various chest pain rules, the Well's criteria for both deep vein thrombosis (DVT) and pulmonary embolus (PE), and the PORT or Fine criteria for community acquired pneumonia. ***Implementation*** of CDRs, to demonstrate the true effect on patient care, is the ultimate test of the utility of a rule.[81]

The evidence for implementation is complex and the results are variable. A good example of this variability is the Ottawa ankle rule, which has been shown to be valid through systematic reviews in adults with ankle/foot injuries. The rule is designed to guide clinicians in decisions regarding ordering ankle and/or foot radiographs, and adherence to the rule would safely reduce ED radiograph ordering and decrease ED LOS. It was successfully implemented in many of the sites of origin;[82] however, the same could not be said for other locations.[83, 84] In addition, C-spine rules were effectively implemented in Canadian EDs and by ED nurses;[85] however, the implementation of the CT head rules actually ***increased*** CT ordering after the implementation.[86]

Summary: Overall, the science of CDRs has expanded considerably in the past two decades and there are now a large number of common decision aides to assist emergency clinicians with complex decisions such as: "Who needs an ankle, knee, or C-spine radiograph?, "Who needs a CT of the head for minor head injury", "Who is at risk for SAH"? Despite these rules, their implementation has been incompletely successful, especially with the more life-threatening conditions and outside their sites of development. Future implementation research should be encouraged to examine barriers to the use of CDRs and effective ways to overcome these barriers theses validated CDRs represent opportunities to improve and streamline care. Using local efforts and exploring new technologies appear to be important considerations.[84]

Medical Consultants in the ED: There has been limited research on consultations; however, it is a growing area of interest in emergency medicine. Recent studies have examined the frequency of consultation and admission rates of consulted patients in Canadian EDs. Overall, consultation varies from 20-50% for all patients, and are dependent on the volume and acuity of the site.[87]

A systematic review of consultations in the ED was published in 2008.[88] Using a comprehensive search strategy and multiple search engines, the authors identified 12 studies for inclusion in the review. Of the included studies, all but three were published. Overall, 4 studies

examined ED consultation proportions, 6 studies identified the rate of consultation for special populations of ED presentations, and 3 examined interventions to improve consultations.

The interventions included and described in the systematic review were designed to reduce the time to consultation. Two studies were identified;[89, 90] however, only one was published.[89] In this study, selective consultation increased LOS and return visits compared to routine consultation (a counter-intuitive result).

Finally, the CADTH report identified an intervention to reduce delays in decision-making using ED physician-hospitalist direct consultation.[91] Overall, this strategy reduced average admission times for transfer to the ward from 2.5 hours pre-intervention to 18 minutes post-intervention. In addition, the pre- and post-intervention LOS and mortality rates remained similar. A recent Calgary project (reported only as an unpublished summary) and a current University of Alberta Hospital project used General Internists in the ED to facilitate consultations and reduce the time to decision-making. Qualitative reports suggest success; however, further detailed quantitative evaluations are still pending.

Summary: Given the delays associated with consultation requests that have been identified in the medical literature,[12, 87] one might reasonably expect that interventions to reduce consultation delays would have a dramatic influence on overall LOS. Based on the available evidence, there is limited support for interventions in this field. A promising area appears to be increased hospitalist/internist interactions with ED physicians to expedite obvious admissions.

Computerization - No systematic reviews dealing with ED information systems (EDIS) were identified. The literature search identified multiple qualitative studies and two relevant quantitative studies. The CADTH report in 2006 identified one study explicitly reporting on computerization relevant to the issue of ED overcrowding.[23] The use of an electronic tracking board decreased length of stay and the number of patients who LWBS.[92]

Another quantitative study, conducted in the US in 2010, examined the impact of EDIS on ED efficiency using a before-after design.[93] Certain elements of work flow were redesigned to streamline patient throughput before implementing an EDIS with patient tracking, computerized charting and order entry, and direct access to patient historical data from the hospital data repository. After the intervention, LOS for all patients decreased, as did the time from first doctor-patient contact to disposition decision (52%) and the time from triage to first doctor-patient contact (18%). Other important post-intervention results included reduced X-ray turnaround time

(TAT) (20%; p = 0.18), decreased computerized tomography (CT) scan TAT (40%; $p < 0.001$), and decreased lab TAT (29%; p = 0.006).[93] Given the complex nature of this intervention, it is unclear to what extent the EDIS implementation —independent of the workflow redesigns—impacted ED efficiency. Evidence indicates that although certain improvements were directly attributable to EDIS implementation, electronic systems are likely most effective when supported by appropriate workflow redesigns.[93]

These issues were also raised in the qualitative studies. The authors of a survey published in 2009 concluded that the impact of EDIS could be both positive (e.g., improving the accessibility of information) as well as negative (e.g., interrupting staff workflow due to system downtime, reducing physician-nurse interaction).[94] The authors recommended evaluating work processes and ensuring the availability of adequate technical resources when implementing EDIS. Study details are summarized in Table 5 of Appendix A.

**Summary**: Overall, EDIS appears to be an effective intervention to reduce LOS and LWBS patients as well as to increase efficiency for other processes in the ED. Moreover, computerized information systems also improve the collection and management of data in the ED. The available evidence is limited by the small number of quantitative studies and variability in interventions. Future studies are needed to further evaluate the impact of technology in the ED on productivity, efficiency, and satisfaction in the ED as well as the contextual factors that lead to the successful implementation and adoption of EDIS in different settings.

Out-put Interventions

Clinical decision units (CDUs)/Observation units (OU) - A comprehensive review was completed as part of a CIHR research grant in 2011.[95] From 14,446 potentially relevant studies, six studies were included in the review. The overall quality of all included studies was rated as weak. Two studies reported data on ED LOS;[96, 97] an OU intervention was associated with a median improvement of 50 minutes (IQR: 30, 70) when compared to periods of time without an OU intervention. Only one study reported outcome data on PIA; an 18 min reduction was associated with an OU intervention when compared to periods without an OU intervention ($p > 0.05$).[97] Two studies reported data on LWBS;[97, 98] a 3.4% median reduction (IQR: 2.5 to 4.4) in LWBS was associated with OU when compared to periods of time without an OU intervention. A median reduction of 3% (IQR: 1.4 to 4.6) in hospital admissions was associated with an OU intervention in two studies.[99, 100] Results from one study were not analyzed due to incomplete outcome reporting.[96]

Two studies reported data on ambulance diversion,[98, 100] a median improvement of 121 hours/month (IQR: 79 to 164) associated with an OU intervention.

***Summary*:** The available evidence on OUs is limited by the small number of studies, poor study methodologies, and incomplete reporting. While there are published studies that examine specific diseases in the context of OUs (e.g., chest pain units, asthma rooms, etc.), the only available review concentrated on multi-disease units and their impact on ED overcrowding metrics. At this point it is unclear whether the efforts required to establish an OU are rewarded with sufficient improvements in ED overcrowding metrics.

Full-capacity/Over-capacity protocols (FCP/OCP) – A comprehensive systematic review was published in 2011 examining the effectiveness of FCP/OCP on ED overcrowding metrics.[101] From 14,446 potentially relevant studies, two abstracts from the same comparative study were included. From 29 studies on system-wide intervention, four (14%) contained an FCP component. The included primary study was a single center ED study using a before-after design; its methodological quality was rated as weak. One of the abstracts reported that an FCP was associated with less ED LOS (five-hour reduction) when compared with the control period; the other reported that an FCP decreased ED and hospital access block (28% and 37% reduction, respectively). The ED triggers, format, and implementation of FCP protocols varied widely.

***Summary*:** While some reports on FCP implementation are encouraging, the available evidence to support an FCP implementation is limited. Additional efforts are required to improve the outcome reporting of FCP research using high quality research methods.

In-patient bed capacity (increase or decreased) - Despite the influx in ED visits,[102] there has been a 40% decrease in in-patient bed capacity within Canadian hospitals over the past decade.[103] Across the country, patients wait on average for at least two hours in the ED for access to an in-patient bed, a phenomenon also referred to as patient boarding.[104] It has been suggested that patient boarding constitutes one of the most significant contributing factors to ED overcrowding.[4, 102, 105]

From a retrospective review examining trends in ED admissions, boarding, and resources of over 21,000 ED visits at a large Canadian urban hospital, it was found that moving patients out of ED is restricted due to the paucity of beds throughout the hospital.[105] In addition, the reduction of

in-patient beds increases the number of boarders in the ED, further adding to the gridlock. These findings are similar to those found by researchers examining the impact of hospital restructuring on ED overcrowding.[106] Specifically, restructuring involved the closure of 4 hospital-based ED and convergence of a fifth to an urgent care centre, resulting in 3833 bed closures from 9727 beds. Prior to the restructuring moderate overcrowding was decreasing (-0.05% per month, $p = 0.01$), with severe overcrowding of no concern. During restructuring both severe and moderate overcrowding increased (0.4% per month, $p = 0.0001$).[106] These findings provide further evidence that decreasing capacity or the number of in-patient beds results in increased ED overcrowding. The apparent solution to this problem would be to increase bed capacity; however, this change requires considerable additional resources for an environment currently under financial pressures.[102]

Summary: There is a consensus in the available evidence that in-patient bed capacity is a significant factor in ED overcrowding. It appears as though overcrowding will persist without the functional or absolute increase in bed capacity. Further research examining capacity, overcrowding and potential confounding variables is required to better understand this relationship.

Bed coordination – The coordination and management of hospital beds involves the daily allocation of in-patient beds and strategic planning involved in ensuring beds are available for elective and ED admissions; essentially reconciling demand with supply on a continuous basis.[107]

To address the problem of ED overcrowding, active bed management has been implemented as an intervention to facilitate the timely and safe transfer of patients from the ED to in-patient beds.[108] A pre-post case study implemented a full-time hospitalist-led bed management program. This program involved the designation of a staff member to the bed manager role along with collaboration from the bed director role, regularly visiting the ED to assess in-patient bed availability and assisting with triage. Through implementation of this intervention it was found that time spent in ED reduced by 98 minutes (from 458 to 360 minutes). Active bed management system also decreased LOS, throughput time and the number of ambulance diversions.[108] These findings were mirrored when this intervention was implemented for those patients in need of ICU admission.[109] Although active bed management can be an effective intervention, this is contingent upon the proper training of those managing the beds. Unfortunately, adequate training specific to this role is often lacking. To fill this void, a group developed a training programme which focused on providing staff with the technical understanding of the dynamics of patient flow along with the

management skills required to carry out the job.[110] From this training programme, beds were better managed, staff retention increased and reductions in cancellations and work were seen.[110] Although implementing training programmes and designating staff to fulfill the bed management role are resource intensive, these costs are substantially less than those associated with expanding capacity.[108]

Summary: The available evidence indicates that bed coordination and appropriate training constitute an effective intervention in reducing overcrowding within the ED. The evidence surrounding this topic is, however, limited and further research is required to fully understand the economic feasibility of such an intervention.

Medical admission units (MAUs): A medical admission unit (MAU) is a short-stay unit in the hospital that functions in coordination with the ED. The patient's stay is usually less than 48 hours. MAUs are increasingly being implemented across Canada as one approach for reducing overcrowding in the ED. Since, the patient's LOS is usually less than 48 hours the MAU fills a gap between the ED where throughput is desired resulting in a shorted ED LOS and the hospital which faces bed scarcity challenges around patients with longer length of stays. Even though the available literature is scarce in terms of the MAU effectiveness, several studies have reported decreases with the ED LOS,[111-113] hospital LOS,[111-113] and a decrease in in-hospital mortality.[111, 112, 114] Other performance indicators that have been reported include hospital readmission which seem to be unchanged and a decrease in the patients waiting in the ED.[113] Medical assessment units can also be referred to as: acute assessment units, acute admissions units, medical assessment and planning units (MAPU/MAP), medical assessment units (MAU), multi specialty assessment areas (MSAA), medical receiving units (MRU) or emergency receiving units (ERU). A systematic review and environmental scan of MAU's implemented in Canada is currently being conducted by the University of Calgary – University of Alberta MAU Research Committee (Dean Yergens, personal communications). Overall, the group identified 6 studies that examine MAUs which are summarized qualitatively in Table 6 of Appendix A.

Summary: Since MAUs are a relativity new approach for improving patient flow the academic literature is rather scarce. What has been reported to date indicates that MAUs may potentially be an effective approach to reducing the emergency department and in-hospital length of stay. Further research is required to explore the MAU effectiveness and fully understand the economic feasibility of such an intervention.

Care maps/clinical practice guidelines - Empirical evidence supporting the notion that CPGs improve patient outcomes exists[115], although their influence on hospital LOS is not as clearly understood. Isolated efforts to introduce specific CPGs (e.g., for pneumonia care, GI bleeds, sepsis care, etc.) may be more effective because of local champions; however, hospitals need more than several CPGs to standardize the care of a variety of patients, especially those with co-morbidities. This review searched for evidence of the effect of introducing multiple CPGs on hospital flow and ED LOS.

The search for evidence regarding the effect of CPG introduction within a variety of hospital settings identified inconsistent results. LOS was significantly reduced for some patients; however, this change was not seen across all patients.[116] Further research is required to clarify this inconsistency.[68] In addition, the dissemination and implementation of CPGs need to be improved as current efforts in developing the guidelines do not match its uptake.[115]

In a systematic review examining clinician's perceived barriers towards adherence to CPGs, it was found that a variety of barriers inhibit uptake of CPGs.[68] These include lack of awareness, familiarity, agreement, self-efficacy, outcome expectance, and inertia of previous practice. The full range of these barriers must be considered to improve clinician behaviors and uptake of CPGs.[68]

**Summary**: CPGs have been shown to improve patient outcomes although their impact on reducing LOS is unclear. In addition, the lack of adherence by physicians due to several internal and external barriers has limited the effectiveness of these guidelines. Further research is required to understand the implications of CPGs on LOS within ED.

Specialized in-patient teams responding to the ED (e.g., ACCESS) - A pre-post study conducted between January 1, 2007 and June 30, 2009 was conducted at the Sunnybrook Health Sciences Centre in Toronto, Ontario to evaluate how the implementation of an acute care emergency surgery service (ACCCESS) affects ED LOS, ED overcrowding, and surgical decision time.[13] Under the ACCESS model, a general surgeon is available over a seven-day period and leads a team consisting of a senior surgical resident, junior residents, and medical students. During the ACCESS week, the ACCESS staff surgeon does not conduct any elective surgeries and is instead completely devoted to performing any emergency operations or providing emergency consultations. The team had the targets of responding to any ED request for consultation within 30 minutes and making a final decision regarding the patient disposition within 2 hours of the initial

request. A total of 2,510 patients were included in the study, 1,448 were pre-ACCESS and the remaining 1,062 were post-ACCESS. Implementation of ACCESS was associated with a 15% reduction in surgical decision time (12.6 hours versus 10.8 hours, $p < 0.01$). Before ACCESS was implemented, the mean ED LOS for appendicitis was 17.0 hours. Following its implementation it was 11.8 hours, a 30% decrease ($p < 0.01$). There was, however, no difference between the pre and post ACCESS implementation in the time it took for the ED physician to request a general surgical consultation for appendicitis, which took approximately 8 hours. There was also no significant difference between the time between treatment decision and surgery for the pre and post ACCESS patients (8.2 v. 7.8 hours, $p = 0.45$). In addition, the mean time to stretcher for all ED patients decreased by 20%.

Summary: Implementation of ACCESS at Sunnybrook Health Sciences Centre reduced ED LOS for patients requiring general surgery consultation and improved overall ED crowding, measured by time-to-stretcher for ED patients. This was the impetus for implementing the current ACCESS model at the University of Alberta Hospital in Edmonton. Implementation of the ACCESS service potentially improves the flow of surgical patients through the ED, improving the quality of surgical care and liberating additional beds for new patients. A broader multi-site study is required to determine if the effects of the ACCESS service would be consistent at other sites.

Increased long-term care beds - Research has shown that in-patient bed capacity is a significant factor in ED overcrowding.[105, 106] The availability of LTC and continuing care beds impacts in-patient bed capacity. Across Canada, acute and sub-acute care patients are waiting for placement into LTC or supportive living spaces. According to the Ontario Health Quality Council, patients placed from a hospital into LTC wait an average of 56 days, resulting in 16% of acute care beds in Ontario being taken up by people waiting for this transition.[117] According to a 2010 AHS news release highlighting AHS's acute care plan, there are approximately 700 acute and sub-acute care Albertans awaiting placement to a LTC or supportive living space.[118] In a 2011 report by the Canadian Institute of Health Information[119] alternative-levels-of-care (ALC) patients were highlighted, referring to those that continue to occupy an acute care hospital bed but are deemed well enough to be cared for elsewhere, depending on the situation. Between 2008-2009, ALC patients accounted for more than 2.4 million hospital days and 92,000 hospitalizations in Canada, representing 5% of all hospital stays and 13% of hospital days.[119] ALC patients are problematic to the acute care system for two reasons. Not only does the hospital usually not have the appropriate resources to care for these types of patients, ED wait times are impacted as patients in the ED

cannot get admitted to hospital beds occupied by ALC patients. According to the report,[119] on average, one ALC patient in the ED limits access to four patients per hour to the ED.

__Summary__: In-patient bed capacity is a factor in ED overcrowding and is affected by patients awaiting placement in LTC facilities. Across Canada there are large numbers of patients awaiting placement LTC facilities and this will persist unless an increase in LTC beds occurs. Considerable additional resources would be needed in order to create additional LTC bed spaces and this is problematic for a system that is already under numerous financial pressures.

In-patient discharge planning: Discharge planning is common in health care systems in many countries. Discharge planning aims to reduce hospital LOS and unplanned readmission to hospital, potentially increasing the number of beds available for other patients. A systematic review of discharge planning from hospital to home was published in 2010.[120] Of 3684 potentially relevant studies, 21 were ultimately included in the review; all were RCTs and involved a total of 7234 patients. The RCTs compared those with an individual discharge plan to those with routine discharge care that was not individualized. Hospital LOS and hospital readmissions were significantly reduced for patients allocated to the discharge planning group for LOS (mean difference = –0.91; 95% CI: -1.55, -0.27; 10 trials) and readmission (RR = 0.85; 95% CI: 0.74, 0.97; 11 trials). Neither mortality (RR = 1.04; 95% CI: 0.74, 1.46; four trials) nor discharged from hospital to home (RR = 1.03; 95% CI: 0.93, 1.14; two trials) for elderly patients with a medical condition were influenced by the discharge planners.

__Summary__: Discharge plans that are tailored to the individual patient have been shown to produce small reductions in hospital LOS and readmission rates for older patients that are admitted to the hospital with medical conditions. A decrease in hospital LOS and readmission rates could potentially liberate beds for incoming patients. While small reductions in LOS and readmission rates were found, the impact of discharge planning on mortality, other health outcomes, and healthcare costs remains unclear.

Discharge Lounges: Delays for patients leaving the hospital are common and range from awaiting test results to waiting for transportation. Discharges that occur late in the evening are the most extreme example of delays; where beds are occupied by patients who clearly do not need them. Even a 12-hour delay can have immediate and real implications for EDs. This is a real and particularly common problem for elderly[121] and psychiatric patients.

One UK hospital established a discharge lounge from 10.00 am to 6.00 pm each day. After one year it had saved 6074 bed hours on the wards but it is unknown how this impacted on waits in ED.[122] Details of this study are summarized in Table 6 of Appendix A. Unfortunately, a robust evaluation of this intervention was not performed. A literature search yielded 154 articles, none of which dealt with impact of discharge lounges on general admissions. There were articles discussing approaches to special populations; however, discharge lounges were not evaluated in detail. Study details are summarized in Table 7 of Appendix A.

__Summary__: The evidence for discharge lounges is encouraging; however, the evidence is limited by the quality of data and limited studies. Future implementation of this intervention requires further evaluation.

System-wide Interventions

Multi-faceted interventions (e.g., 4-hour rule) - A comprehensive review was completed as part of the CIHR research grant.[95] From 14,716 potential relevant studies targeting multi-faceted interventions, 29 were included. Eighteen were journal publications, three were web-based articles, seven were abstracts, and one was a report. Most studies (86%) used single-centered ED designs. Fifteen trials were conducted in the US; however, other countries were represented. Only one study was rated as high quality; four were graded as moderate quality; all others were assessed as weak. Overall, 11 of 15 studies reporting ED LOS concluded that multi-faceted interventions resulted in shorter LOS compared to a control period (median absolute improvement for all patients: 21.4%; 95% CI: 7.9% to 28.1%); however, heterogeneity (I^2 = 99%) precluded pooling.[93, 106, 108, 123-131] Eight and nine studies reported that multi-faceted interventions decreased PIA and LWBS, respectively.

Two of the most recognizable multi-faceted interventions are the UK 4-hour rule and the Emergency Services and System Capacity (ESSC) strategy, which ran from 2006-2008 in the Edmonton-Zone (formerly Capital Health). The UK intervention employed pay-for-performance, benchmarking, accountability frameworks, and multi-faceted interventions in an over-all strategy designed to increase the proportion of patients leaving prior to the 4-hour ED LOS target. The ESSC strategy employed multi-faceted interventions in an over-all strategy designed to decrease ED LOS. The UK intervention was able to achieve 4-hour disposition targets for all patients who entered the ED in 98% of the cases; it remains a highly successful program. Despite considerable cost and effort (approximately 50% of the interventions in the ESSC strategy were implemented prior to transition to AHS) the ESSC, the program failed to reduce ED LOS for admitted or discharged patients.

**Summary****:** The available evidence on multifaceted interventions is limited by variability of interventions, poor methodologies and incomplete reporting. There is conflicting evidence regarding their benefit may have more to do with system-wide influences (pay-for-performance, benchmarking, accountability frameworks), than the interventions which are employed.

Pay for performance incentive models (e.g., 4-hour rule) - The database search did not identify a systematic review on the impact of pay for performance (P4P) models in the ED setting. There are various P4P models whose structures depend on a wide variety of quality metrics, intended recipients, and payment schemes. Due to the complexity and site-specific nature of this intervention, its evaluation often involves a combination of quantitative and qualitative measures.

One of the most well known P4P systems was part of the UK 4-hour rule. Early during the implementation of the 4-hour targets, hospitals were paid £100,000 (~$250,000 Canadian dollars) per quarter to reach efficiency targets related to ED patient LOS (percentage of ED patients who were discharged or admitted from the ED within 4 hours). In this strategy, the large majority of UK hospitals met or exceeded the LOS targets; however, gaming did occur[132] and the contribution of this specific intervention in a multi-faceted strategy is unclear. Moreover, the ceiling effect limited the sustainability of this strategy.

An unpublished pilot study conducted in 4 Vancouver EDs evaluated the effect of allocating extra payments to hospitals that treated patients within specified time frames. Investigators concluded that patients seen during the project were treated 10% faster than those in the pre-intervention period.[133] There was no discussion of the specific methods used by the clinicians involved to increase efficiency or of any unintended outcomes.

The search also found an abstract from an Australian study that reviewed the impact of bonus payments made to public hospitals to improve access to care for ED patients.[134] The authors reviewed data from 21 public hospital EDs and found that the number of occasions of ambulance bypass per quarter decreased from 600 in the pre-intervention period to fewer than 100 post-intervention ($p < 0.001$). After the incentive system was implemented, the most urgent patients (Category 1) consistently experienced no waiting times, and adherence to waiting time thresholds for critical, but slightly less urgent patients (Category 2 and 3) improved significantly ($p < 0.001$, R^2 = 0.74; and $p < 0.035$, R^2 = 0.37, respectively).

There are multiple studies of P4P as a hospital-wide intervention. In one paper, Le Grand examined the results of an internal or quasi-market created in the UK to encourage competition

among healthcare providers. The author concluded that the impact of this program was minimal, with the average annual change in productive efficiency as 2 percent after reform, compared with 1.5 percent before.[135] Similarly, a report by the Organization for Economic Co-operation and Development (OECD) indicated that it is unclear whether P4P significantly improves the quality of care and increases value for money in health.[136] The authors of a comprehensive systematic review considered 128 studies on P4P models, ultimately concluding that the effects of P4P interventions varied widely—from beneficial to absent or negligible—according to model design choices and the context in which they were introduced.[137]

__Summary__: Despite its widespread implementation, there has been limited research on P4P programs, and the existing evidence shows mixed results. One investigator warned of the potential for "gaming" P4P systems, noting that there have been cases of hospitals favouring simple cases over more time-consuming cases in order to increase throughput.[138] The authors of a CADTH report also observed that implementing P4P might shift hospitals' focus from the quality of patient care to volume of service.[139] Overall, evidence indicates that the structure and evaluation of any given P4P model is shaped by multiple contextual factors, making it difficult to generalize about the results of a particular study or about the benefit of this intervention as a whole. Further research is required to evaluate the impact of different P4P interventions on efficiency, quality of care as well as its unintended outcomes in the ED.

Accountability frame-works - One of the most well-known accountability frameworks was part of the UK 4-hour rule. The 4-hour rule was introduced in England in 2002 but only after negotiations between the Department of Health and clinicians (January 2005), hospital administration and staff were held accountable for efficiency related to ED patient LOS (98% of ED patients should be discharged or admitted within 4 hours). The large majority of UK hospitals met or exceeded the LOS target; however, this multi-faceted intervention involved several strategies (e.g., financial and other incentives, media, and government pressures) which makes difficult the identification of the key underlying factor(s) determining this success.[140]

Interestingly, a recent systematic review evaluated the impact of the 4-hour rule on clinical outcomes. This review included six studies (before and after studies and time-series analyses) and concluded that this intervention and its financial investment has not resulted in a consistent improvement of other quality of care indicators such as time to see a physician, admissions, mortality, and relapses. Overall, ED staff supported this intervention; however, important concerns

regarding the emphasis on meeting time goals rather than prioritizing clinical needs were identified.[141]

Summary: While the 4-hour rule is perhaps one of the best examples for accountability frame-works, countries and hospitals seeking to emulate the UK experience should proceed with caution. First, the intervention was multi-faceted, and the contribution of the accountability frame-work to the success of the program is unclear. An in-depth understanding of the potential determinants of its success as well as a critical analysis of the available evidence regarding the short and long-term impact on the direct target (LOS) and other quality of care indicators (including staff perceptions and satisfaction) are advised before extrapolations to other contexts of patient care.

Benchmarking/Reporting – In the Canadian health care system, many regions and provinces are just starting to report metrics related to the functioning of the health care system. Given the long waits associated with universal care, it is not surprising that the first benchmarking initiatives in Canada involved the largest province (Ontario) and services such as cataract surgery, hip and knee surgery, cardiac catheterization and access to advanced diagnostic imaging.[142]

In emergency medicine, the first step has been to establish bench-marks or targets for emergency departments to meet. One of the most well known benchmarking activities was part of the UK 4-hour rule. Beginning in 2004, hospital administration and staff were provided with targets related to ED patient LOS (percentage of ED patients who were discharged or admitted from the ED within 4 hours). In this strategy, the large majority of UK hospitals met or exceeded to LOS targets; however, the contribution of this specific intervention (benchmarking) in a multi-faceted strategy is unclear.

The following table outlines the current state of benchmarking initiatives across Canada (Dr. Michael Schull, personal communication):

Table 2: Variation in Emergency Department wait-time targets (as of Nov. 2011).

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

Overall, no systematic reviews of ED benchmarking exist and no primary studies of the intervention were identified. Limited information is available regarding the effectiveness of benchmarking as a single measure to drive change in the emergency care system. While benchmarking has been described in emergency medicine and efforts have been expended to reach targets,[143] the role of benchmarking is unclear. Moreover, it seems unlikely that benchmarking without accountability/consequences can be evaluated in isolation. Finally, caution is warranted since evidence of perverse gaming of the system has been reported for both time[144] and quality of care metrics.[145]

Summary: While benchmarking is now a rapidly expanding intervention in Canadian health care system, the cut-points in emergency medicine across the world and Canada vary, the approaches to public reporting have been diverse, and the evidence for the effectiveness is lacking. Moreover, while the early focus has been on time metrics, benchmarking related to quality of care metrics have also been introduced, especially in the United States.[143] Recent research in Canada has produced similar quality of care metrics and suggestions.[146]

Discussion

The persistent and increasing existence of ED overcrowding is an important threat to the delivery of high quality care in Alberta and many developed countries. ED overcrowding results when emergency demand exceeds the capacity to provide care in a timely fashion. The causes are multi-factorial and result from input, throughput, output, and system-wide influences. ED overcrowding has been linked to increased mortality rates, especially when associated with high hospital occupancy rates, delays to emergency physician assessment and prolonged ED LOS. Presently, markers of timely access to health care such as waiting times to see an emergency physician, ED LOS, and patients leaving the ED without being fully assessed or treated, represent essential information for policy-makers and ED administrators as they reflect Canadians' experiences with the health care system.

In this report, the available interventions have been listed, defined and the evidence upon which these are based has been summarized using the ***input, throughput, output,*** and/or ***system-wide*** model as a framework. Some health interventions that were previously considered to be effective and safe have been shown to have insufficient evidence to justify these claims, and some have been exposed as ineffective and perhaps harmful, or vice versa. In addition, some interventions have improved over time, and new interventions as well as new health outcomes have emerged. Below, the four sections of the report will be briefly summarized and this summary can be found in Appendix A.

Input Interventions: Those targeting processes that control the number of patients presenting to an ED, including referrals from primary care and specialist physicians as well as Emergency Medical Services (EMS) arrivals. This review suggests that interventions targeting input factors have not been shown to be effective. This may be due to the fact that input is difficult to control, and in most settings, the emergency department is considered the safety net in the health care system. When all other options are exhausted, patents have limited options ***apart*** from the ED.

Through-put Interventions: Those targeting processes of ED care and decision making such as triage, registration, nursing assessment, care provided by ED clinical staff, investigations and treatment, as well as care provided by other healthcare professionals including specialty consultants. Many through-put interventions have been shown to be effective as interventions designed to improve access to timely care. EDs are well-advised to search for efficiencies and to strive to improve care within the ED as part of the overcrowding strategy. Once again, not all EDs benefit from the same intervention, and implementation should be based on need.

Out-put Interventions: Those targeting processes aimed to improve the flow of patients out of the ED such as admission to hospital, transfer to another facility and discharge to previous residence/home. The evidence in this area is mixed; some interventions improve care while others lack clear evidence.

System-wide Interventions: Multi-faceted interventions targeting multiple processes (input, trough-put and out-put), such as the UK's 4-hour rule, appear to be effective. There is limited direct evidence regarding the contributions to effectiveness of other system-wide interventions,

While this comprehensive review revealed a number of evaluations that use weaker study designs that bring potential biases to this body of literature, the results of a few high-quality trials have the potential to guide the selection of services that may best be used to improve the decision-making process and strengthen the health care system.

Table 3: **Summary of interventions presented in this review.**

Intervention	Existing Systematic or Comprehensive Review (Y/N)	Year Published or Most Recent Search	Number of Original Studies Identified	Preponderance of Evidence/ Quality of evidence
Input				
Media campaigns/diversions	N	2011	0	uncertain/uncertain
Ambulance diversions	Y	2006	55	harmful/moderate
Walk-in clinics	N	2011	2	uncertain/weak
Influenza outbreaks	Y	2008	3	no benefit/weak
Telephone help line	Y	2009	9	uncertain/weak
Throughput				
ED navigators	N	2007	1	no benefit/weak
Triage activities	Y	2006	6	uncertain/weak
Triage nurse ordering (TNO)	Y	2011	14	benefit/weak

Triage liaison physicians (TLP)	Y	2011	28	benefit/moderate
Rapid assessment zones (RAZ units)	Y	2011	4	uncertain/weak
Fast-track areas for minor injuries/illnesses	Y	2003	N/A	benefit/weak
Computerized physician order entry (CPOE)	N	2011	2	benefit/weak
Improving laboratory testing access	Y	1993, 2005, 2007, 2008, 2011	10	benefit/moderate
Improving imaging access	N	2011	1	benefit/weak
Beside ultrasound in the ED	Y	2006	29	benefit/moderate
Nurse Practitioners in the ED (general and specific)	Y	2007, 2009, 2009	38	uncertain/weak
Physician staffing models	Y	2006	9	benefit/weak
Discharge facilitators	N	2011	3	benefit/weak
Allied health care professionals (e.g., Social Workers)	N	2011	3	benefit/weak
Clinical practice guidelines	Y	1993	52	benefit/weak
Care maps	Y	2010	27	benefit/moderate
Clinical decision rules	N	2011	N/A	uncertain/strong
Medical consultants in the ED	Y	2008	12	benefit/moderate
Computerization	N	2011	2	benefit/weak
Output				
Clinical decision units (CDUs)/ Observation units	Y	2011	6	uncertain/weak
Full-capacity/over-capacity protocols (FCP/OCP)	Y	2011	5	uncertain/weak
In-patient bed capacity	N	2011	2	benefit/uncertain

(increase or decrease)				
Bed coordination	N	2011	3	benefit/uncertain
Medical Admission Units (MAUs)	N	2011	6	uncertain/uncertain
Care maps/Clinical practice guidelines	N	2011	1	uncertain/uncertain
Specialized in-patient teams responding to the ED (e.g., ACCESS)	N	2011	1	benefit/weak
Increased long-term care beds	N	2011	1	benefit/weak
In patient discharge planning	Y	2010	21	benefit/uncertain
Discharge lounges	N	2011	1	uncertain/weak
System-Wide				
Multi-faceted interventions (e.g., 4-hour rule)	Y	2011	29	uncertain/weak
Pay for performance incentive modules (e.g., 4-hour rule)	N	2011	6	uncertain/weak
Accountability frame-works	Y	2010	6	uncertain/weak
Benchmarking/Reporting	N	2011	N/A	uncertain/weak

Note: preponderance of evidence: benefit, uncertain or no benefit; quality of evidence: weak, moderate, strong or uncertain.

Limitations

There are several limitations to this report that require commentary:

Search strategy: While comprehensive strategies were adopted to search for the available evidence on each of the listed interventions, non-indexed, unpublished or non-English literature may not have been captured. A comprehensive search of the grey literature was not conducted. Nonetheless, using a hierarchical approach likely limited the missed information.

Methods/design: While standardized methods for study selection, data extraction/presentation were considered, one single reviewer performed these procedures; validation by a second reviewer as well as a detailed quality assessment of the individual studies were out of the scope of these rapid reviews. Finally, the methodological quality of the studies varied considerably. While RCTs and meta-analyses provide high quality data and provide strong recommendations for many therapeutic interventions in medicine, this field of operations research often relies on lower quality data and thus generates weaker recommendations.

Results from recent systematic reviews and independent studies were incorporated whenever possible. Finally, while attempts were made to synthesize the evidence, these were mostly tabular and descriptive. Once again, we do not feel this contributed to bias; however, the precision of the estimates may be under-estimated.

Paucity of data: Overall, while the evidence in this field is growing, there are a limited number of trials and outcomes reported in each topic area. Two possible explanations could account for these findings. First, publication bias may limit the publication of negative results. Second, many studies did not follow accepted methodological standards for study reporting, and incomplete outcome reporting was one of the major flaws.

Selection bias: Efforts to address selection bias were not specifically incorporated into this review of the evidence. In some cases, the potential for selection bias in systematic reviews was addressed in the individual reviews themselves. Second, we found no evidence of "competing" reviews on the same topic, so we were never forced to select between two reviews.

Publication bias: Although researchers have found publication bias to be less problematic in Emergency Medicine,[147] it is likely that this body of literature suffers from a degree of publication bias. The more frequent and rapid publication of positive results may help to explain this fact. Equally likely, however, is the fact that many health system decision-makers implement changes and do not have sufficient interest, funding or human capacity within their organizations to evaluate new interventions thoroughly.

Selective reporting: Most studies reported on the effectiveness of an intervention on times and processes of care in the ED. Two other key components of ED overcrowding, and perhaps the consequence of implementing interventions or strategies to mitigate overcrowding, are quality of care and costs. Few studies reported on the effect of interventions on quality of care markers or costs. Consequently, it is unclear if the outcomes of interventions result in improved care, achieved in a cost-effective manner.

Conclusions

Overall, there are a wide variety of interventions available to choose from in an effort to mitigate ED overcrowding. Evidence argues against the common perception that EDs are abused by patients and filled with frivolous complaints. Not surprisingly then, the interventions targeting input factors have not been shown to be effective. Overall, many through-put and selected out-put interventions have been shown to be effective in improving access to timely care and transit through the ED and beyond. Admitted inpatients (aka: EIPs) are commonly believed to be the main cause of overcrowding, and efforts to reduce them may be the most efficient strategy. There is limited direct evidence regarding the effectiveness of system-wide interventions, suggesting that evaluation must be an integral component of any future system wide interventions. Overall, it is encouraging to see that multi-faceted interventions are common and generally effective; perhaps the best example of this is the UK's 4-hour rule. Policy-makers, managers, decision-makers and clinicians all have a responsibility to reduce overcrowding and apply evidence wherever possible in addition to evaluating interventions that may take up resources better used elsewhere.

Conflicts of Interest

The authors declare no conflicts of interest. Dr. Brian Rowe is a practicing Emergency Physician within AHS; Dr. William Ghali is a practicing Internist within AHS; however, neither is paid directly by AHS.

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Appendix A: Summary Tables

Table 1: Comparative Effectiveness Studies for CPOE.

Author, year	Patients, Country	Design	Interventions	Outcome
Spalding, 2011	ED patients, USA	Before-After	CPOE vs no CPOE	↓ LOS (-30; 95%CI: -28 to -33)
Asaro, 2008	ED patients, USA	Before-After	CPOE vs no CPOE	↑ MD time spent with computers (30.0% to 38.9%; p = 0.02) ↑ nurse time spent with computers (9.5% to 25.7%; p < 0.01)
Note: ED = Emergency Department; CI = confidence intervals; CPOE = computerized physician order entry; MD = physician.				

Table 2: Summary of studies on improving laboratory testing access.

Author, year	Patients, Country	Design	Interventions	Outcome
Saxena A, 1993	ND*, USA	Prospective observational study	Stat lab implementation	No data on LOS.
Parvin CA, 1996	2067, USA	Prospective comparative study	Stat lab vs Central lab	LOS didn't differ (p=0.4)
Kendall J, 1998	1728, UK	RCT	POC testing vs central lab testing	↓ Decision times by 74 mins (p<0.0001) ↓ LOS (7.8 hrs; 95% CI: 6.9 to 8.6 vs. 8.3 hrs; 95% CI: 7.5 to 9.1; p=0.33)
Murray RP, 1999	180, Canada	RCT	POC testing vs central lab testing	↓ LOS (3.28 hrs; IQR: 2.28, 5.30 vs. 4.22 hrs; IQR: 3.04, 5.47)
Lee-Lewandrowski E, 2003	369, USA	Before-After	POC testing vs traditional laboratory analysis.	↓ LOS by 41.3 mins (*p*<0.006) ↑ MD satisfaction (2.3 difference in a 1-5 scale, *p*<0.001)
Holland LL, 2005	~45.000 (11 hospitals), USA	Prospective observational study	Reducing lab TAT outliers	LOS correlated with the percentage of total laboratory outliers (R2 = 0.75; *p* < .01) the TAT means (R2 = 0.66; *p* < 0.01).
Hsaio. AL, 2007	225, USA	RCT	POC testing vs traditional laboratory analysis.	↓ TAT by 65.0 mins (*p*<0.001) ↓ LOS by 38.5 mins (*p* < 0.001)
Singer AJ, 2008	11266, USA	Before-After	No stat lab vs Stat lab	↓ LOS (466 mins; IQR: 337, 649 vs 402; IQR: 296, 553)
Note: *ND = Not documented; IQR = interquartile range; LOS = length of stay; POC = point-of-care; RCT = randomized controlled trial; TAT = turnaround time.				

Table 3: Summary of studies on beside ultrasound in the ED.

Author, year	Patients, Country	Design	Interventions	Health Services Outcome
Shih C, 1997	115, USA	Prospective comparative study	ED physicians performing pelvic sonography vs. radiologists or	↓ median ED LOS by 4 mins (60 mins vs. 180 mins, p<0.001)
Blaivas M, 1999	1242, USA	Prospective comparative study	ED physicians vs. radiologists screening ultrasound examinations of the gallbladder.	↓ median ED LOS by 32 mins (95% CI = 5 min to 55 min, p = 0.02). ↓ median ED LOS by 73 mins (95%CI=28min to 116 min, p=0.001) in discharged patients presenting after hours.
Lindelius A, 2008, 2009	800, Sweden	RCT	Bedside ultrasound (performed by a surgeon or an ED physician) vs. no-bedside ultrasound in the management of patients with acute abdominal pain.	↓ ED LOS by 16 mins (4.22 hours vs. 4.38 hours) ↓ Admissions by 7% (42.9% vs. 50.1 hours, p=0.041) ↓ Hospital LOS by 1 day (5.4 days vs. 4.3 days)
Chien M, 2011	58, USA	Prospective comparative study	Bedside ultrasound vs. no-bedside ultrasound in the diagnosis of pediatric clavicle fractures.	↓ mean ED LOS by 4 mins (167 ± 47 mins vs. 171 ± 39 mins)
Note: ED = emergency department; CI = confidence intervals; LOS = length of stay.				

Table 4: Summary of studies on discharge facilitators.

Author, year	Patients, Country	Design	Interventions	Outcome
Hegney, 2006	ED patients, Australia	Before-After	Risk-screening process vs. standard discharge care	↓ 16% re-presentation rate; ↓ mean LOS from 6.17 days/pt. to 5.37 days/pt.
Guttman, 2004	ED patients, USA	Before-After	Nurse discharge plan coordinator (providing patient education, coordination of appointments, patient education and telephone follow-up) vs. standard discharge care	↓27% (95% CI: 0%, 44%) re-presentation rate (up to eight days post-discharge)
Moss, 2002	ED patients, Australia	Before-After	Risk-screening and referral to a Care Coordination Team (CCT) vs. standard discharge care	↓ hospital admissions from ED (30.9% [95% CI: 30.5, 31.3] vs. 32.6% [95% CI, 32.2-33.0]; $p < 0.001$)
Note: ED = emergency department; CI = confidence intervals; LOS = length of stay.				

Table 5: Summary of studies on ED Information Systems.

Author, year	Patients, Country	Design	Interventions	Outcome
Boger, 2006	ED patients, Indiana	Before-after	electronic tracking board	↓3.7% LWBS ↓15.3 % in number of pt. waiting in the 4 – 6 hr range
Baumlin, 2010	ED patients, USA	Before-after	workflow redesigns + EDIS	↓28% LOS for all patients (from 6.69 hours (n = 508) to 4.75 hrs (n = 691) ($p < 0.001$)
Note: LWBS = left without being seen; ED = emergency department**;** CI = confidence intervals; LOS = length of stay.				

Table 6: Summary of studies on Medical Assessment Units.

Author, year	Patients, Country	Design	Interventions	Outcome
Moloney ED, 2006	11928, Ireland	Before and after.	AMAU vs. no AMAU.	↓ overall LOS from 7 days in 2002 to 5 days in 2003 and 2004; p<0.0001) ↓ median number of patients waiting in the ED for a hospital bed from 14 in 2002 to 9 in 2003 and 8 in 2004; p<0.0001).
Downing H, 2008	209, UK	Before and after.	SSU vs. no SSU.	↓ overall LOS from 5.5 days in 2005 to 4.6 days in 2006; p=0.02) ↓ mean daily number of patients staying on non-medical wards from 38 to 11; p=0.015). No differences in readmission rates and percentage of bed occupancy.
Rooney T, 2008	19528, Ireland	Before and after.	AMAU vs. no AMAU.	↓ all-cause hospital mortality from 12.6% to 7.0% (p<0.0001). OR for mortality was 0.28 (95% CI 0.23 to 0.35).
Jamdar RP, 2009	74, UK	Prospective observational study	MAU vs. No MAU.	↑ rate of patients seen in the MAU from 17% to 26%, p<0.001.

				↓ readmission rate from 8% to 4% (p=0.12).
Li JYZ, 2010	2652, Australia	Before-after	AAU vs. no AAU.	↓ mean LOS from 6.8 days in 2003 to 5.7 days in 2006; p<0.001). ↓ admitted patients waiting in the ED>8 hours from 28.7% to 17.9%; p<0.001) and>12 hours from 20.2% to 10.4%; p<0.001). No differences in relapses at 7 and 28 days. ↓ all-cause hospital mortality from 4.5% to 3.7% (p=0.056).
Brand CA, 2010	1623, Australia	Before and after.	MAPU vs. no MAPU.	No statistically significant difference in LOS (10.3 vs. 13.2 hours). ↓ mortality from 7.6% to 3.2% (p<0.001).
Note: AMAU**=** acute medical admissions; LOS = length of stay; SSU= short stay unit; MAU= medical assessment unit; AAU= acute assessment unit; MAPU= medical assessment and planning unit; OR= odds ration; CI = confidence intervals; ED= emergency department.				

Table 7: Summary of study on discharge lounges.

Author, year	Patients, Country	Design	Interventions	Outcome
Coldwell F, 2002	In-patients, UK	Before-after	Discharge lounge; set-up cost £2,000 and the lounge is equipped with armchairs, television and video equipment.	6074 bed hours saved over 1 year.
Note: ED = emergency department; CI = confidence intervals; LOS = length of stay.				

Physician Advocacy and Intimidation
A Comprehensive Review

Report for the Health Quality Council of Alberta

Physician Advocacy and Intimidation
A Comprehensive Review

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Executive Summary

- This is a comprehensive review of both the scholarly and grey literature on physician advocacy, with a focus on the issue of intimidation of physicians when advocating for patient populations. The report highlights evidence for effective strategies that address the issue of physician advocacy on matters of health policy and public policy, with emphasis on articles relevant to the Canadian and Albertan context.

- The report defines advocacy and the need for physicians to be involved in health promotion, discusses barriers to advocacy, highlights cases of physician intimidation by government and governing bodies, and concludes with a section on teaching advocacy.

- Our review reveals that there are numerous writings that affirm the physician advocate role, and framework papers that position the advocacy role for physicians in the context of their other roles, most notably that of a care provider to individual patients.

- There is a rich historical record dating back at least to Hippocrates (and probably earlier as well) of physicians acting as advocates. In relation to some of the advocacy led by physicians through history, there are also published accounts of physicians being subject to intimidation. These accounts of advocacy and intimidation appear in both the peer-reviewed and grey literature.

- Notably, the geographic distribution and historical spread of these accounts reveal them to be rather ubiquitous, occurring in both remote and recent times, and occurring in many jurisdictions across Canada and beyond.

- The Canadian Medical Protective Association (CMPA) has produced notable writings on advocacy by physicians, and on intimidation. Those writings point out that disagreements and conflict can arise when physicians assume an advocacy role, and that conflict should not always be viewed as a negative. It is often through conflict that an issue is fully exposed and better understood. The corollary from this is that physicians should engage in advocacy activities, recognizing that their voice in matters of public policy debate can trigger some degree of opposition, and even conflict.

- The fact that conflict has in some historical instances arisen from scenarios of physician advocacy does not forgive the perpetrators of intimidation. In a Canadian context, governments and health system administrators need to embrace the notion of physician

advocacy, and its importance in advancing health and health care in this country. The physician voice needs to be welcomed by governments, on behalf of the public.

- Physicians, meanwhile, need to engage as constructively as possible when assuming an advocacy role, adopting approaches to advocacy that are focused on issues and positive change, rather than on shame and negativity.

- Our review identified a number of writings that point to a need for increased teaching and training on advocacy in medical schools, to better prepare physicians to be impactful in the sphere of public policy.

The Context of This Report

In relation to recent, well publicized allegations of physician intimidation by government in Alberta (1, 2), this review is part of a larger Health Quality Council of Alberta (HQCA) mandate "to investigate the role and ability of physicians to advocate for patients whose quality of care and safety the physicians believe is or could be compromised due to system resources or policies" (3). The overriding goals of this report are to review written accounts (and case studies) of physicians assuming roles of advocates, and also situations of intimidation of physicians. From these, we also assess whether the literature describes frameworks for thinking about constructs of advocacy, and whether the literature presents curricular models for the teaching of advocacy in medical schools.

Methods

We used the key terms listed in Table 1 in our search to retrieve potentially relevant papers from the databases listed in Table 2. These databases covered the broad topics of healthcare, psychology, sociology, philosophy (for ethics papers) and the law. The review also encompassed a variety of grey literature databases, and websites for professional associations and research reports, using the key terms listed in Table 1. The grey literature searched is listed in Table 3.

Table 1: Search terms used in systematic review

Search Term	Related Terms
physician	doctor, surgeon, general practitioner, GP
advocat*	advocacy, champion, spokesman, defend, uphold
physician advocacy	
patient(s)	
intimidation	
government	
consumer advocacy	
health policy	politics
policy reform	
Canada	
health care reform	
patient rights	

Table 2: Scientific and peer-review literature databases searched in systematic review

Database
MEDLINE
PubMED
PsycINFO
Social Work Abstracts
Sociological Abstracts
Philosopher's Index
Index to Canadian Legal Literature
LegalTrac

Table 3: Grey literature databases and sources searched for systematic review

Database	Related URL
Grey Literature Report	www.nyam.org/library/online-resources/grey-literature-report/
KUUC E-Watch Newsletter	www.santepop.qc.ca/en/
Trip Database (excluding MEDLINE)	www.tripdatabase.com
Proquest Dissertations and Abstracts	
Canadian Health Research Collection	
Research and Development Resource Database	www.rdrb.utoronto.ca
Professional Associations	
Canadian Medical Association	
American Medical Association	
World Medical Association	www.wma.net/en/60about/10members/21memberlist/index.html
Canadian Health Information Management Association	www.echima.ca
Canadian Healthcare Association	www.cha.ca
Canadian Patient Safety Institute	www.patientsafetyinstitute.ca/English/Pages/default.aspx
Scopus	
Google	

Papers Eligible for Review

The scientific and grey literature searches identified approximately 1520 papers, along with approximately 30 press pieces (total 1550 articles – see Figure 1). The titles and abstracts of these articles were then screened for relevance to the topic. Inclusion criteria screened for papers that discussed:

- A useful working definition of advocacy at the community or societal level of medicine

- Whether physicians could advocate safely

- Models for teaching advocacy

- Intimidation or cases of physicians being cited or sanctioned by governing bodies or government

- Physician advocacy in countries with similar government-funded models of health care (e.g. the United Kingdom and Australia)

Papers were excluded if they focused on:

- Physician intimidation by patients

- Physician advocacy associated with managed care and health maintenance organizations (HMOs) in the United States

- Non-physician models of advocacy (i.e. other healthcare workers)

From initial screening, 80 articles were selected for further analysis and relevance to this review. The bibliographies of these articles revealed another 15 references for possible inclusion that were not found in the initial 1550 citations. As a result of these steps, we chose to include the articles that lent themselves to the current review.

Figure 1: Flowchart diagram of study selection process
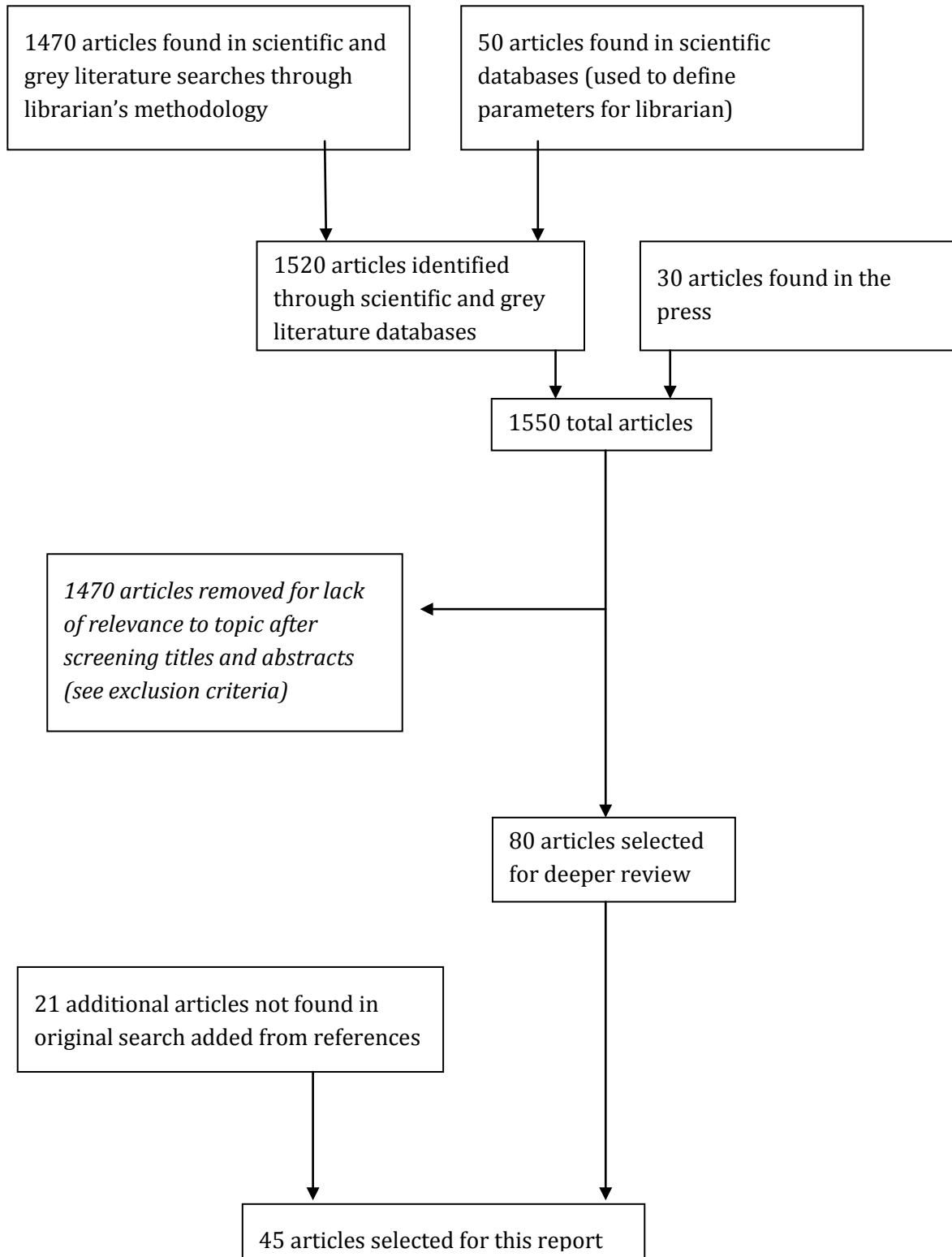
Defining Advocacy

Earnest, Shane and Federico (4) argue that despite calls for physician advocacy from the American Board of Internal Medicine and the American Medical Association in their respective charters, the concept "remains problematic because it remains undefined". Earnest and colleagues draw the distinction between advocating for the individual patient ("an accepted component of ethical practice") from the broader perspective of "public advocacy", and defines physician advocacy as follows:

> *"Action by a physician to promote those social, economic, educational, and political changes that ameliorate the suffering and threats to human health and well-being that he or she identifies through his or her professional work and expertise".*

<div align="right">Earnest et al. (4)</div>

The allusion to advocacy beyond the scope of an individual physician's practice aligns well with the scope of this work, and will serve as the touchstone for this comprehensive review.

Other Definitions

Other authors also offer definitions of advocacy that help to establish what is meant by those who speak of physician advocacy. Forster (5) suggests that various definitions of advocacy have four shared principles in common, namely that advocacy:

- Is biased – it is not undertaken from a neutral position

- Must be structured to be as free from conflict of interest as possible

- "Must be guided by a clear understanding of the social situation"

- Requires "competence and vehemence on the part of the advocate, who must possess contextually specific and necessary knowledge and abilities in order to assert interests"

Hurley (6) echoes Forster's fourth point in her description of what is entailed in successful advocacy – knowledge, passion, skilled communication, vigilance and perseverance.

In the Canadian context, it is important to understand how the Royal College of Physicians and Surgeons of Canada (RCPSC) defines advocacy as part of the Health Advocate Role in its CanMEDS competencies (see Figure 2).

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The CanMEDS 2005 Physician Competency Framework

Health Advocate

2. Respond to the health needs of the communities that they serve
   2.1. Describe the practice communities that they serve
   2.2. Identify opportunities for advocacy, health promotion and disease prevention in the communities that they serve, and respond appropriately
   2.3. Appreciate the possibility of competing interests between the communities served and other populations

3. Identify the determinants of health for the populations that they serve
   3.1. Identify the determinants of health of the populations, including barriers to access to care and resources
   3.2. Identify vulnerable or marginalized populations within those served and respond appropriately

4. Promote the health of individual patients, communities, and populations
   4.1. Describe an approach to implementing a change in a determinant of health of the populations they serve
   4.2. Describe how public policy impacts on the health of the populations served
   4.3. Identify points of influence in the healthcare system and its structure
   4.4. Describe the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity and idealism
   4.5. Appreciate the possibility of conflict inherent in their role as a health advocate for a patient or community with that of manager or gatekeeper
   4.6. Describe the role of the medical profession in advocating collectively for health and patient safety

"As Health Advocates, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations… Communities and societies need physicians' special expertise to identify and collaboratively address broad health issues and the determinants of health. At this level, health advocacy involves efforts to change specific practices or policies on behalf of those served."

Frank (7)

Tellingly, the Royal College description includes the duty of a physician to "identify the determinants of health of the populations, including barriers to access to care and resources" and "appreciate the possibility of conflict inherent in their role as a health advocate for a patient or community with that of manager or gatekeeper" (7). Levey and Hill echo the second point when they suggest that a "major problem" for health advocates is the conflict of interest they face as physicians who dispense care "under the burden of institutional and governmental constraints". "By its very nature, advocacy cannot abide constraint" (8).

Call for Advocacy – Is There a Need?

Historical

Schoolman (9) writes in the New England Journal of Medicine in 1977 that the physician has assumed many roles, a number of which are indispensable. Physician advocate is one of these roles, as Schoolman calls for medical education to "nourish and develop the native potential of its students".

Yewchuk (10) writing in the CMAJ, makes a forceful appeal to physicians to become active in Canadian political affairs:

"It has become obvious that the medical profession is more and more controlled by federal and provincial laws imposed by politicians, bureaucrats, administrators and others who are not necessarily either sympathetic to the medical profession or well informed on the health field in general…I believe that better representation of the medical profession in Parliament would decrease bureaucratic harassment of the profession".

Yewchuk (10)

A similar call appears, again in the CMAJ, more than 20 years later. Sullivan (11) outlines Dr. Ronald Stewart's (a politician in Nova Scotia) call to a national meeting of emergency physicians to become more politically involved.

Before Alberta physicians (specifically, family practitioners) could advocate at the community or population level, an article from 1980 suggests that family doctors first had to lobby for themselves. Imlach (12) outlines the College of Family Physicians (of Alberta - CFPA) decision to "put a little political pressure on the provincial government" to "make the voice of the general

practitioner heard in government", above what was seen as the dominant voice of specialists in the province. Past-president of the CFPA Dr. Peter Heaton suggests in the piece that GP views were not always passed on to government when the government consulted doctors.

Earnest and colleagues (4) put forward the argument that physicians are uniquely positioned to serve as public advocates for health. In addition to understanding the medical aspects of issues, physicians "are poised to observe and delineate the links between social factors and health", have a high degree of public trust, and due to high social standing "enjoy an unusual degree of access to policy makers".

Why advocate at the community level? Besides the fact that physicians are trained to advocate for the individual, Godkin (13) presents the argument that promoting health at this level would go along with the desire to control health care costs. This is because many patients enter the physician's care with illnesses that could have been prevented.

Bandiera (14) suggests that emergency departments have a high profile and a valued position in the public eye. Emergency physicians, often involved in primary care of patients, are positioned at the interface of healthcare with the public and liaise with many other physicians and allied health professionals. They also see many clinical presentations that could be addressed by preventative measures or behavior modifications, and interact with the patient at a time where they may be receptive to health advocacy initiatives. Bandiera (14) outlines numerous avenues to advocate, specifically through the professional organizations associated with the profession (RCPSC, the Canadian Medical Association, Health Canada, etc). Bandiera, Hillers and White (15) also put together and reviewed a compilation of trauma prevention initiatives in Canada, intended to address some of the preventable clinical presentations mentioned above.

Bandiera (14) also cites a number of examples where physicians have made an impact on public health through advocacy. For example, after identifying that Northern Ontario had a disproportionately high incidence of accidental death, Rowe *et al.* (16) wrote that most of these traumatic events were "clearly preventable". After identifying areas where education could make a difference (e.g. anti-drinking and driving campaigns, alerting drivers to wear seatbelts, improving flotation devices for use in boating, safe snowmobiling practices), Rowe and colleagues advocate for an effective and comprehensive injury prevention strategy. Spears (17) reports on the success of a campaign to decrease snowmobile related trauma, with physicians working with snowmobile clubs in Northern Ontario to halve the number of snowmobile-related deaths.

In another example, Bandiera (14) references a position paper prepared by the Ontario Medical Association (OMA) where the authors (including physicians) outline a comprehensive tobacco control program. The OMA paper recommends to Canadian federal, provincial and local governments a number of strategies to reduce tobacco use, including taxation, plain packaging of tobacco products, reduction in tobacco-related advertising, and "a requirement that all indoor workplaces and public places be 100 per cent tobacco free". The paper also explicitly states that the OMA will be involved in furthering these initiatives.

Arguments Proposing that Physicians Should NOT be Advocates

The above-mentioned writings both implicitly and explicitly endorse the notion of physicians acting as advocates in a public policy realm as a positive thing. There are others, however, who argue against physician involvement in advocacy. Huddle (19) makes the case that:

- Civic virtues such as advocating for a cause should be separated from the professional realm
- The profession should not require a particular political stance – a necessary part of advocacy
- Advocacy "seeks change rather than knowledge" thus undermining objectivity and neutrality
- Advocacy training should not be a university function as physicians are relatively ignorant of other competing societal needs

These arguments notwithstanding, the majority of medical writings on physician advocacy argue that physicians should indeed be advocates, and that major physician governing and licensing organizations such as the RCPSC, the Accreditation Council of Graduate Medical Education (ACGME) in the United States and the General Medical Council (GMC) explicitly endorse the practice. The authors of this review similarly endorse the notion here – physicians should be advocates in a public policy realm.

Published Accounts of Physician Advocacy

There are many published descriptions and case studies of physicians acting as advocates.

Earnest *et al.* (4) describe through a number of cases, ways in which doctors have become involved in advocacy through different mechanisms. For example, the authors describe the case of "Dr L", who after becoming increasingly alarmed at the lack of health insurance coverage available to his patients, made a motion at a meeting of his state medical society to make comprehensive health care reform the group's top priority. As a result of support for this initiative, the society

struck a Physician's Congress on Health Reform, which now provides "leadership and advocating for comprehensive health care reform at the state level". Earnest and co-authors also summarize the case of "Dr B", a rural practitioner in Washington State. Dr B noted the high incidence of obesity in his school-aged patients, and identified poor food choices found in local schools as a cause. He brought the issue to a local school board, and was asked to become a member to follow up on a successful project to change nutrition policy in schools. In another case, Earnest *et al.* describe how "Dr S", after calling her U.S. senator about a pending bill that would adversely affect her patients, accepted the opportunity to meet regularly with the senator. Since taking up the call, Dr S had become a trusted advisor on health-related issues. The authors also tell the story of "Dr R", an emergency department physician "sickened" by the number of cases she treated involving children being injured from falls from high-rise windows. Dr. R secured a small grant to place window guards on a number of local apartment buildings, and demonstrated a dramatic decrease in injuries, which the city council recognized and passed a law requiring protective guards on all high-rise windows.

Hurley (6) provides an excellent example of effective advocacy through the Canadian Association of Emergency Physician's (CAEP) involvement in changing gun control legislation in Canada. The CAEP joined the Canadian Coalition for Gun Control in 1992 to make gun control a public health and injury prevention issue. They used an evidence-based position paper and presentations to House of Commons and Senate committees to back Bill C-68, "the toughest gun legislation in the Western World".

In their annotated bibliography, Wright and Katcher (20) review the evolution of pediatricians advocating for children, providing a number of examples of physicians affecting federal legislation and policy making through advocacy. Abraham Bergman (21), a Seattle-based pediatrician approached a connection in his U.S. senator's office to present the case of children being burned when their pajamas ignited. It led to the passing of the state Flammable Fabric Act Amendments to increase safety standards and a dramatic drop in serious burn injuries to children. Bergman was also instrumental in the state Poison Prevention Packaging Act of 1970 after he repeatedly witnessed children falling victim to aspirin poisoning.

In 1993, when President Clinton's proposal to provide vaccines free of charge to all children was in jeopardy from conservative opposition, a group of pediatricians mobilized to support the effort from the grassroots level. The American Academy of Pediatricians had doctors in its network contact their local congressman around the United States to ask them to vote against opposition. In this case, although the scope of the vaccination program was more limited than

originally conceived, pediatricians were able to mobilize enough votes to help establish a program that was broader and more effective than that proposed by opposition (22).

Swift *et al.* (23) provide yet another example of grass-roots advocacy by physicians. In the described instance, physicians undertook a telemarketing campaign targeting patients and the general public to change public sentiment and help vote through a tax to keep a medical centre open. These examples illustrate that physicians can be effective advocates.

Barriers to Advocacy

If it is accepted that physicians should engage in health advocacy, and success and impact of doctors advocating at the community or societal level is evident, what prevents large proportions of physicians from taking on the practice? This section of the review focuses on barriers to physician advocacy.

Bandiera (14), in a review of advocacy by emergency physicians, reports that "staff emergency physicians often do not feel adequately prepared to address many health-determinant issues". They also face time pressure in their jobs, and have limited contact with patients after discharge. The notion of insufficient time for advocacy is reinforced by a survey of trainees at the University of British Columbia by Stafford *et al.* (26) that found that residents identified insufficient time, a lack of rest and general stress as reasons they did not engage in health advocacy. Insufficient time for advocacy in training programs is particularly challenging as pointed out by Bandiera (14) who asserts that "the (CanMEDS) Health Advocate Role is the role least understood and least addressed by program directors and residents in Canadian training programs".

The history of health advocacy for change is full of cases where advocates have met with great resistance from the medical establishment, the public, and government organizations. Tulchinsky and Varavikova (24) cite prominent examples such as opposition to Edward Jenner and his smallpox vaccine, and Ignaz Semmelweis and his ideas about the reduction of infection using antiseptics, among others.

Earnest and colleagues (4) suggest that there are a number of reasons that physicians might not engage in advocacy activities:

- Medical schools may favour academically successful students above those oriented to service

- The focus on medical training within the confines of the medical school reduces student exposure to issues in the community

- Physicians may become used to the control they feel in the clinical environment, and may be uncomfortable with the uncertainty associated with action and advocacy away from their regular sphere of practice

- Time is a scarce commodity for most physicians, and advocacy takes time away from the practice

- Doctors are trained to not indulge personal opinion and preferences in the clinical encounter, and may be uncomfortable doing so in the public domain

- Potential advocates fear political fallout if she/he takes a stand that may be unpopular within their institution

- While physicians are trained to make decisions based on the "hard evidence" of randomized controlled trials, public advocacy can be a messy and chaotic practice, with fewer facts and more rhetoric, opinion and argument

Beck (25) opines that physicians may suffer from "advocate fatigue", where physicians must balance their mandate to be the patient's champion against the bureaucracy of practicing medicine. That is, the battle to order labs and tests in a timely manner, the legal responsibilities for what happens to patients under their care, and the cost-conscious environment in which they are practicing medicine. The daily grind of advocating for the individual patient may reduce the likelihood of a physician engaging in advocacy at the community or population level.

Godkin (13) writes "Although many physicians are currently involved in community activities, medical education needs to place greater emphasis on training students to become community advocates for a clinical population that can be defined by geographic, demographic, occupational, life-style, or sociocultural criteria".

Intimidation

Building on Earnest and colleagues' (4) suggestion (mentioned above) that physicians may fear the political fallout of taking an unpopular stance on a contentious issue, we next focus on the topic of intimidation of physicians engaged in advocacy. The Canadian Medical Protection Association (CMPA) has recognized in its writings the fear of reprimand from individuals in positions of power as a potential side effect of advocacy:

> "At the system level, physicians are leaders in advocating for safer care through the establishment of appropriate policies, the allocation of adequate resources, and the implementation of changes in institutional and clinical practices that reduce the likelihood of adverse outcomes. However, such advocacy can occasionally bring a physician into conflict

with either a colleague or with the health authority or hospital administration… Unfortunately, instead of dealing with conflict in a constructive manner that exploits the potential benefits that can be accrued by an organization, the CMPA has observed increasing efforts to stifle appropriate advocacy for system improvements. Such efforts may negatively impact individual physicians, the medical profession, and patient care."

Statement from CMPA (27)

The CMPA has documented cases of physician intimidation across Canada, and compiled a record of over 100 intimidation-related cases in their 2002 publication (27). The CMPA commentary asserts that "physicians often feel threatened or intimidated by…other health care providers, other physicians, the media, the police or lawyers".

In a recent well-publicized Ontario case of physician intimidation, Eggertson (28) wrote an article entitled "Mayoral candidate assails activist doctors". In this piece, she quotes Rob Ford (then a mayoral candidate and now mayor of Toronto) saying, "'A doctor is there to be a doctor, not to advocate for the poor, or to be the official opposition in government through taxpayer's money'". The doctor in question, Dr. Ronald Wong, was "accused" of filling out forms that allowed people on social assistance to access extra money to help them deal with food allergies. In response, Wong says "'It [Ford's argument] is a form of harassment…when a complaint was not made by a patient, but by a politician'". Dr. Gary Bloch, a member of Health Providers Against Poverty, is quoted as saying "'He [Wong] is a very strong advocate for this…This is clearly an attempt to muzzle him'". Simchison (29) echoes the message "This situation constitutes harassment of a well-intentioned physician".

Jenny (30) describes a high profile case of intimidation of physicians in the United Kingdom, and discusses the "persistent attack" of pediatricians who deal with child abuse cases in the UK. The author suggests that the attacks occur both in the press and, more disturbingly, by the GMC (the licensing organization for physicians in the UK). Williams *et al.* (31) suggest that the decisions of the GMC, when it comes to physicians advocating against child abuse, intimidate doctors involved in these cases.

In a well publicized case from Alberta, Dr. David Swann was fired from his position as a Medical Health Officer by the board of his local health authority in 2002 (32). Dr. Swann's dismissal was an alleged reaction to his public statements that the Alberta government should work to meet targets set by the international Kyoto agreement to reduce greenhouse gas emissions, when the government was opposed to the agreement for its potential economic impact. The Alberta government's opposition party then accused the ruling party of intimidation and called for the provincial health minister's resignation (33).

Intimidation of Whistleblowers

An editorial in the prominent journal The Lancet (34) discusses the lack of whistleblowers in the case of the Mid-Staffordshire NHS Foundation Trust, where "poor practice" was blamed for "more deaths than expected" in the period between 2005 and 2008. "Many doctors were silent at Stafford for fear of reprisal, according to a 2009 review by the Department of Health. Sadly, their fears are valid". The article goes on to say that whistleblowers "face a hostile and stressful environment in the NHS…Many of those who report poor practice have been subject to sanctions, suspension, and dismissal".

Similarly, Furlow (35) discusses intimidation of physician whistleblowers in the United States. The article cites a representative of the US Government Accountability Project as saying "The law's degenerated into a trap – an effective mechanism for finishing off whistleblowers naïve enough to assert their rights" and "Blacklisting is more aggressive in the medical profession than any other industry".

Teaching Advocacy

Organizations such as the World Health Organization, the ACGME and the RCPSC have all issued guidelines regarding physicians and social responsibility and medical education and practice (34). In exploring the philosophical understanding of physicians and social responsibility and its implications on medical education, Dharamsi *et al.* (36) write "A curriculum focused on developing social responsibility in future physicians will require pedagogical approaches that are innovative, collaborative, participatory, and transformative".

Despite the need for educating students and physicians on advocacy, it is a difficult task. Frank and Langer (37) reported that the Health Advocate CanMEDS role was one of the two most difficult for educators to teach and evaluate.

Surveys, including that conducted by Stafford *et al.* (26), also suggest that residents felt inadequately prepared by their education to take on the role of health advocate. Verma, Flynn and Seguin (38) go as far as saying "the role of the physician as health advocate is in danger of being lost between the competing needs of the physician and individual patient, and the availability of health care resources". The same researchers report that a literature search found no studies on the curriculum of health care advocacy in residency education in Canada circa 2005. They identified barriers to teaching health advocacy such as:

- Time pressure to deliver other parts of the curriculum

- Residents did not see their teaching faculty role modeling health advocacy in their daily practice

- Faculty members felt unsure about their roles in teaching advocacy, having never learned it in their own training

- Lack of remuneration for advocacy activities

In the context of official declaration on the need for physicians to serve as advocates, and the recognition that physicians feel unprepared to take on the advocacy role, the barriers discussed here need to be explicitly considered in the planning of undergraduate curricula. Exposure of medical trainees to health issues of relevance to public policy is of great value, and the development of training modules or courses in approaches to advocacy need to be considered.

Mu, Shuroff and Dharamsi (39) make recommendations as to how best incorporate health advocacy related competencies into medical training. Their qualitative study suggests that "early exposure to social injustice, parental influences, role modeling and internal motivators were seen as important inspirations for health advocacy". They recommend creating an "enabling and nurturing environment" before and during residency to motivate students in health advocacy. This might be done by creating protected time for residents to engage in advocacy and providing experiential learning opportunities.

Earnest and colleagues (4) believe that the teaching of physician advocacy would ideally include:

- Undergraduate courses with instruction in the determinants of health

- Resident training in preventive and population health perspectives

- Training in leadership and social/organizational change

- Media training

- Training in policy-making

- Opportunities to practice skills and advocacy

- Mentors for learners wanting to learn about advocacy

- Medical schools developing stronger ties to community

- Accrediting bodies endorsing advocacy competencies

- Schools encouraging and rewarding faculty advocacy activities

- More funding

Existing Programs

Dworkis, Wilbur and Sandel (40) present a list of learning objectives from the Boston University School of Medicine multi-year curriculum on advocacy. Students receive training in advocacy theory, advocacy execution and communication, and conduct advocacy projects. The curriculum's learning objectives are to:

- Identify and distinguish between the roles physicians perform within the spectrum of advocacy

- Develop rigorous understanding of the social determinants of health

- Distill clinical observations from multiple patients into a well-defined advocacy issue

- Engage in small advocacy projects (e.g. writing an op-ed for a local paper)

- Complete a press release, oral presentation or lecture for nonmedical community

Bandiera (14) outlines the Emergency Medicine Subspecialty Training Committee of the RCPSC model curriculum, based on the University of Toronto's Fellowship in Emergency Medicine training curriculum. The curriculum includes small-group sessions based on "What is a health care advocate?", "What is happening now?" and advocacy in "Your practice". Each session requires residents to write on advocacy-related subjects prior to the session, participate in discussions on the topic, and examine literature related to advocacy.

The University of Wisconsin Medical School's family practice residency program teaches physician-community involvement to promote physician advocacy (41). This includes having residents deliver clinical services to diverse populations in local communities. Here, residents work with role models and expand their cultural awareness. They also develop a community health-improvement project over the last two years of training.

The University of Colorado Denver School of Medicine has developed a program to train medical students to become effective advocates (42). Students are trained in advocacy skills, participate in an internship program in the community, and work with a mentor to complete advocacy projects. Learning is integrated throughout the undergraduate curriculum.

Some organizations have recognized the importance of the practice and offer training in health advocacy. For example, the American Association of Neurologists has developed a course to train professionals in advocacy (43). Their program teaches action planning, media training and training in grassroots politics.

Advice from Advocates

Abraham Bergman, an American physician with decades of advocacy experience, offered the following advice on being an effective physician advocate (21). He describes his approach as the "politics of the powerless" – executing effective advocacy without personally having the power or having influence over someone to change laws:

- Because you might be powerless, you need to have more staying power and be tougher than the other side (who may have more clout and/or money)

- Focus on the ultimate goal, not on the noise, hype, or interest you may be creating

- Pick the right goal; make it narrow, definable and focused

- Be selfish – pick a topic that you care about; pick a topic relevant to your own practice

- Use the principles of epidemiology to figure out what problems are important and lend themselves to attack

- Find and watch how role models advocate

- In garnering support, try and include individuals from different parts of the political spectrum, different occupations

- Since you can't buy votes, focus on getting public opinion. Use the media.

Bergman also offers some "don'ts" along with his "dos":

- Don't get caught up "crying" with like-minded people about a difficult situation for your patients

- Don't tell people how morally superior you are as part of your advocacy

- Don't appeal to the conscious every time – health issues "compete" for thoughts, minds and resources along with other important issues such as education, housing, jobs, and the environment

- Don't look for people or organizations to endorse your efforts unless they can provide tangible support

Mebane and Blendon (44) write a step-by-step approach in their article on navigating the political process around physician advocacy. They write "With some guidance on how to think critically about politics, health care professionals can influence the development, passage, and implementation of government-sponsored health policies that affect their patients". Although the authors offer a detailed process map, the major steps are as follows:

1. Diagnose the political nature of the health issue. Assess the following three factors to understand how your potential advocacy issue is resonating in the political arena: 1) public priorities, 2) media coverage, and 3) the priorities of the political party in power.

2. Understand the key political decision makers. Because each government organization has its own set of formal and informal rules for how decisions are made, health care professionals must become familiar with them to influence a policy outcome. You also need to know who exactly will actually create the policy, and which organizations or committees will be involved.

3. Decide on your strategy. This depends on the nature of the issue for which you are advocating, your own resources, how much time you have to put into the effort, and what the political process will be. Mebane and Blendon (44) describe how to categorize issues according to their salience, and then discuss strategies for advocating for each type of issue (high salience, medium and low).

Conclusions

In this comprehensive review of the scientific and grey literature on physician advocacy, we have defined the term and presented some frameworks for thinking about advocacy from doctors. Dating back to the time of Hippocrates, there is long history of physicians working as advocates. It might be that the "founding father" of the science is also the founding father of medical advocacy. Hippocrates believed passionately in medicine's ability to better society's welfare, and the sacred duty of the doctor to stand behind what he believed was right, even in the face of wide-spread criticism. For his beliefs and actions, Hippocrates spent 20 years in prison (45). Although thankfully this type of extreme reaction by government is (or should be) considered unlawful, today's physician should expect opposition and intimidation to be part of the advocacy experience.

As we have documented here, opposition and conflict have also always been a side-effect of advocacy in the public domain. As such, there is also a well-documented phenomenon of intimidation of physicians who act as advocates. It is not a recent phenomenon, nor is it a geographically confined phenomenon. However, as the CMPA has pointed out, there can be positives that come from 'conflict' or public disagreement. "Conflict, depending on its extent and how it is handled, can be positive both in terms of patient care and in the re-examination of policies that may have become outdated" (27). We therefore suggest that conflict is not something that physicians should necessarily shy away from. On the contrary, they should embrace the opportunity for public discourse and exchange of ideas.

At the same time, governments need to examine their practices and avoid unfair intimidation of advocates. Individual cases of sinister threats to person and career need to be aggressively investigated and exposed for public judgment.

Physicians need better training in advocacy, and part of that training should be in the realm of not only understanding how they can be advocates, but how they can deal with scenarios of disagreement, conflict, or even intimidation that might then ensue.

Physicians are uniquely positioned in their roles as patient caregivers to also have significant and far-reaching impacts on the communities in which they serve. The physician advocate role should be embraced, and medical training programs should increase the extent to which they prepare physicians-in-training for this important role.

Acknowledgments

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APPENDIX VIII: Role and Process of Physician Advocacy Survey

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Context of survey

As part of the Review, it was decided to systematically assess the experience of Alberta physicians regarding advocacy. Based on initial interviews and the *Physician Advocacy and Intimidation* comprehensive literature review (see Appendix IV) the HQCA measurement team and the QAC developed a survey to (1) better understand physician knowledge and experience related to advocacy in Alberta, and (2) the extent to which advocating for patient care is supported or obstructed by health care provider organizations, government, professional colleges and others. The survey was supported and participation encouraged by both the Alberta Medical Association (AMA) and the College of Physicians & Surgeons of Alberta (CPSA).

Survey methodology

A public contact list for 7,964 registered physicians in Alberta was provided by the CPSA. Given the expectation that (a) this public contact list would not reach all potential respondents, (b) physician survey response rates are generally low, and (c) some breakdown by physician type and location was required, the HQCA chose to use a census rather than a sampling approach.

A modified Dillman mail survey protocol was used starting with an initial mailing of the questionnaire and supporting material to all physicians on the mail list. This was followed by a reminder postcard and then a repeat mailing of the full survey package to those physicians who had not yet responded. The protocol was modified in that physicians were able to complete their individual survey via a secure web address and log-in if they chose to do so. A detailed survey methodology report can be found after the limitation section.

Overall 7,957 survey packages were mailed on October 20 and 21, 2011. Two hundred and twelve (212) were returned as invalid addresses, 36 declined, and 2,046 were completed yielding a raw response rate of 26%. Seventy-eight per cent (78%) or 1589 were completed by mail, and 457 (22%) via secure web access. Returned paper questionnaires were scanned and validated using *Teleform*, and web forms were completed and submitted directly by physicians on line. Data was cleaned and merged into an SPSS data file. Open ended "other" responses were coded by an experienced analyst, and multiple mention "choose all that apply" items were formatted as multiple response sets. Univariate, bivariate, and multivariate analysis was undertaken in both SPSS and STATA software.

Of the 2,046 surveys completed 478 (23%) provided responses to the final open-ended question of the survey (Question #32) which asked participants to provide "any additional comments, concerns or suggestions regarding physician advocacy issues as you have experienced them in your practice". All comments were collated and analyzed to extract broad themes. While subjective descriptors are used to provide a sense of relative frequency for some areas, actual numeric frequencies will not be provided. Words, phrases or sentences in quotations indicate direct quotes from the narrative survey responses. These quotes are included to provide an example of the nature of the responses or to capture a phrase that was best represented in the respondent's own words.

Quantitative Results

1. Respondent characteristics

Of the 2,046 physicians who responded to the survey, 65.9% were male and 34.1% were female.

Figure 1: Gender
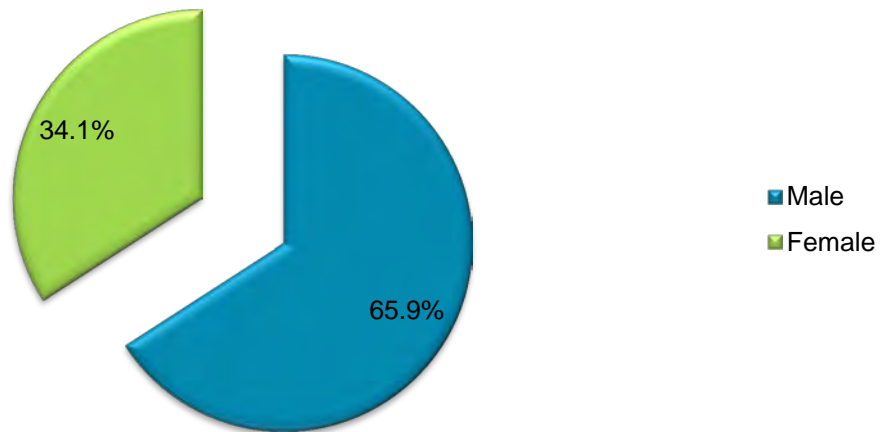
N=1,978

More than three quarters of physicians (76.2%) graduated from medical school between 1971 and 2000. Eleven point one per cent (11.1%) graduated between 2001 and 2011 and 9.2% graduated between 1961 and 1970. A small number of respondents (<1%) indicated they were retired.

Figure 2: Year of medical school graduation

	1940 -1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2005	2006-2011
%	3.4	9.2	24.1	30.2	21.9	7.8	3.3
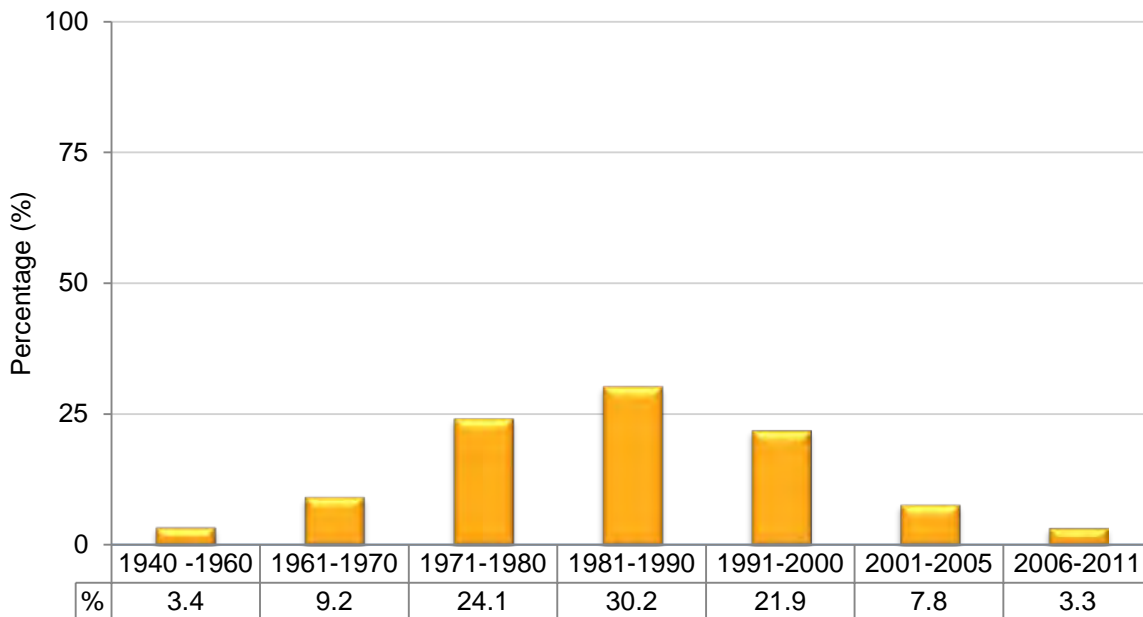
N=1,549

Over half of respondents (56.6%) reported working in a medical specialty other than general practice, whereas 43.4% reported they were a GP or family physician.

Figure 3: Physician Specialty – GP versus Specialist

General Practice
Other - Specialist

43.4%

56.6%
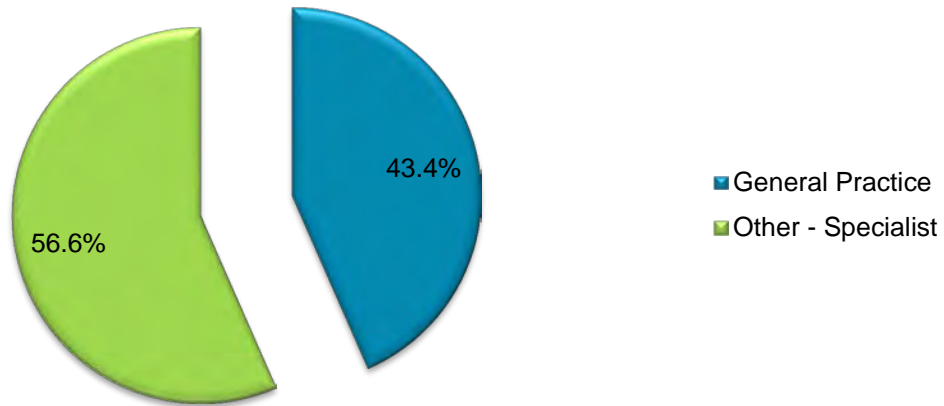
N=1,920

Physicians with specialized training were asked to provide their specialty as an open ended response. Almost 40 specialties were coded from this information; most with small proportions of respondents – shown as "other specialist" (23.9%). Emergency medicine and anaesthesia each accounted for 3.7% of respondents; general internal medicine (4.1%); mental health (6.3%), orthopaedic surgery and general surgery combined (7.4%); and paediatrics (including paediatric emergency and mental health) (7.6%).

Figure 4: Physician specialty

Specialty	Percentage (%)
Emergency Medicine	3.7
Anaesthesia	3.7
General Internal Medicine	4.1
Mental Health	6.3
Orthopaedic Surgery / Gen Surgery	7.4
Paediatrics	7.6
Other Specialist	23.9
GP or Family Physician	43.4
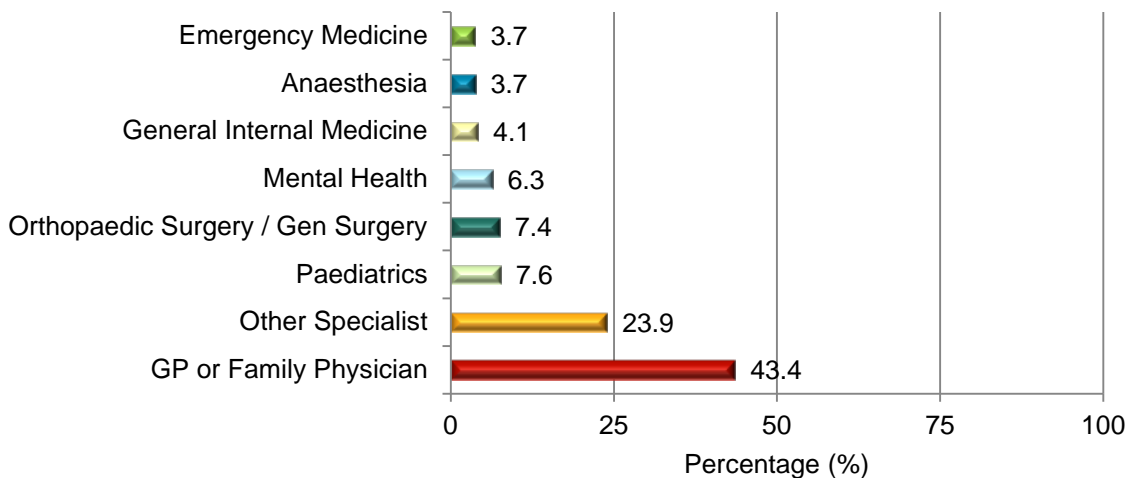
N=1,920

Work setting was reported in five closed ended response categories, as well as an open ended response for "other" work settings. Hospital based inpatient settings were reported by 49.5% of respondents, 33.9% reported working in a hospital based outpatient setting and 27.6% reported working in community based speciality care. Community based primary care was reported by 39%, and emergency department or urgent care by 19.4% of respondents.

Figure 5: Work setting

Work setting	Percentage (%)
Private specialty care	0.8
Laboratory based	0.8
WCB, Social Services, consulting	0.8
Academic medicine	0.9
Healthcare administration	1.3
Long term care, home care	2.0
Emergency department or urgent care	19.4
Community based (specialty) care	27.6
Hospital based - outpatient	33.9
Community based (primary) care	39.0
Hospital based - inpatient	49.5
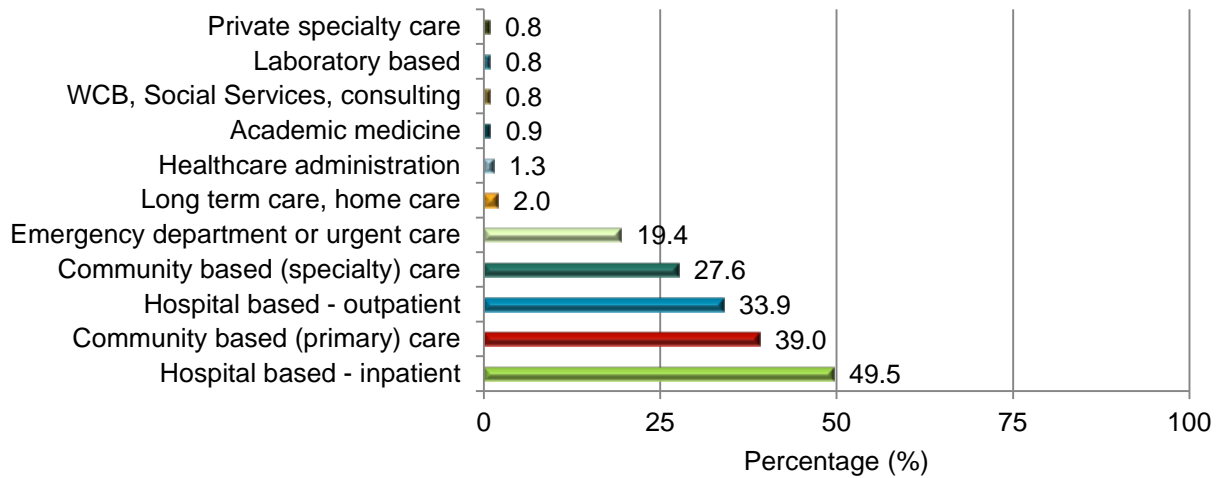
N= 1,989
Note: Respondents could choose more than one answer. Totals sum to more than 100%

The majority of respondents (76.8%) reported they were paid fee for service, whereas 24.9% reported they were paid under an alternative relationship plan (ARP). An hourly rate was reported by 6.8% and various other arrangements reported by 9.6% of physicians.

Figure 6: Payment type

Payment type	Percentage (%)
Community Alternative Relationship Plan	1.1
Hourly rate (other than Alternative Relationship Plan)	6.8
Other	9.6
Academic Alternative Relationship Plan	11.7
Clinical Alternative Relationship Plan	12.1
Fee for service	76.8
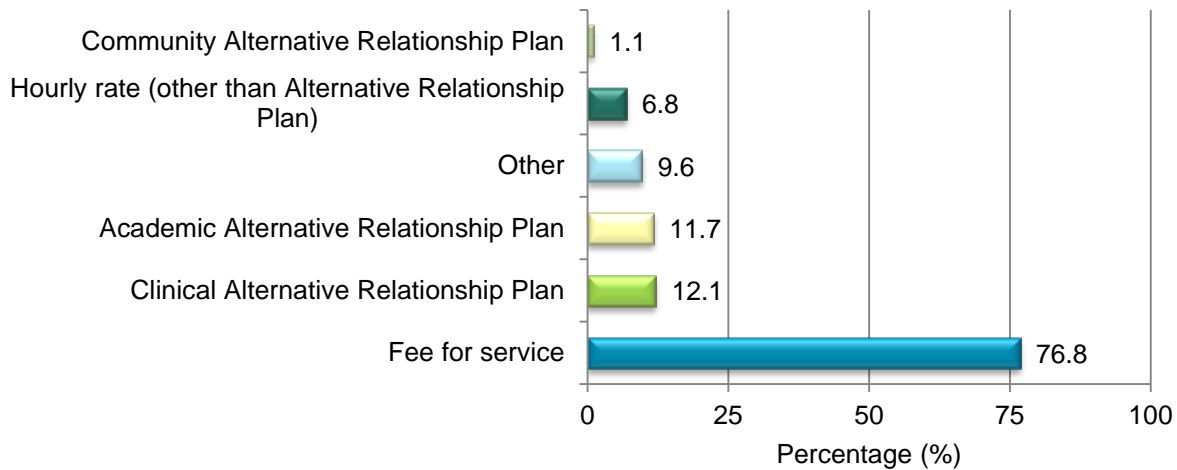
N= 1,991
Note: Respondents could choose more than one answer. Totals sum to more than 100%

The majority of physicians reported working in the geographic area of either the Alberta Health Services Calgary Zone (39.8%) or the Edmonton Zone (38.3%); with the remainder in the Central Zone (8.4%), South Zone (7.7%) and the North Zone (5.7%).

Figure 7: Alberta Health Services zones
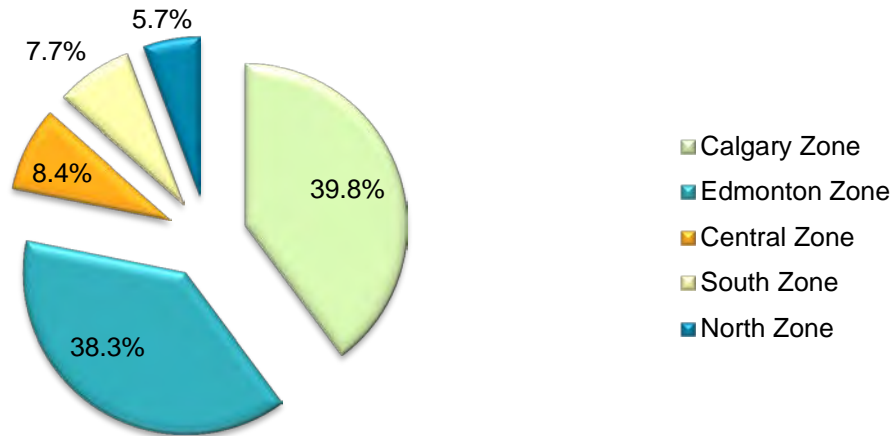
N= 1,998

2. **Physician perspective on their advocacy role and formal training**

Considering the three levels of advocacy roles identified in the Royal College of Physicians and Surgeons CanMEDS 2005 Physicians Competency Framework, 81.5% of physicians believe it is their professional responsibility to advocate for their individual patient, 82.4% for their clinical population of patients, and 70.9% for populations within the broader community.

Figure 8: Professional responsibility to advocate (CanMEDS competency framework)
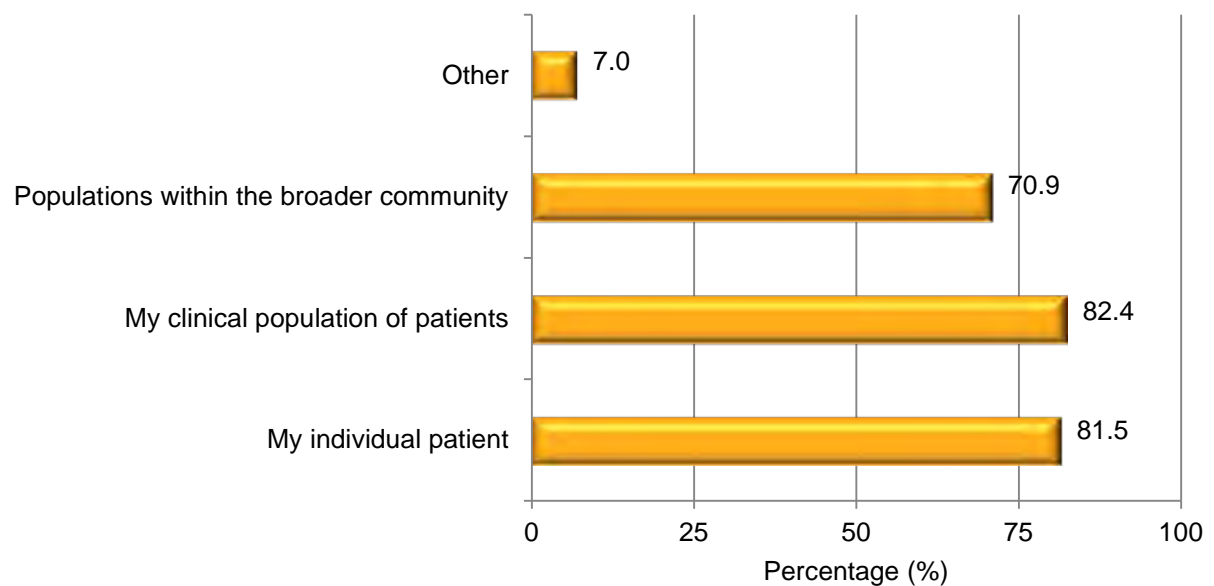
N= 2,023
Note: Respondents could choose more than one answer. Totals sum to more than 100%

Sixty-eight point five per cent (68.5%) of physicians reported having no formal training in advocacy. A further 14.2% of physicians reported receiving training in medical school, 15% in residency, and 15.9% as continuing medical education.

Figure 9: Professional training or education with respect to advocacy
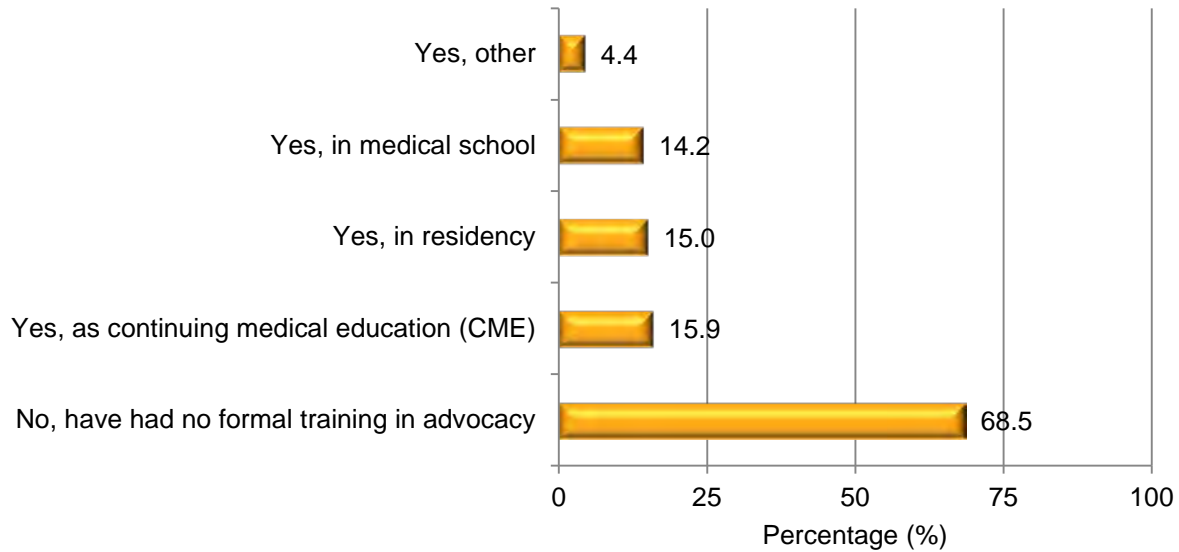
N= 2,024
Note: Respondents could choose more than one answer. Totals sum to more than 100%

Forty-four point nine per cent (44.9%) of physicians believe they have the necessary skills to effectively advocate for their patients, whereas 19.8% do not, and 35.3% do not know.

Figure 10: Physician has necessary skills to effectively advocate
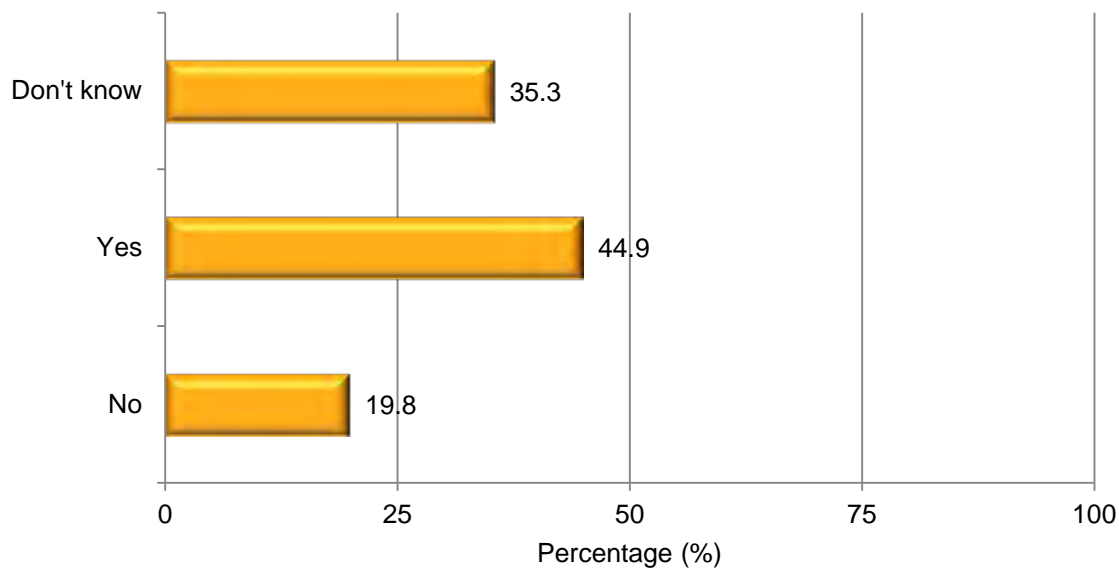
N= 2,017

When asked about sources of advocacy information used in the last year, 50.5% of physicians reported using none. Twenty-four point six per cent (24.6%) reported using information from medical journals or other literature, 23.4% from the College of Physicians & Surgeons of Alberta, 16.8% from the Canadian Medical Association, 9.5% from Alberta Health Services and 9.2% from the Royal College of Physicians and Surgeons of Canada.

Figure 11: Sources of advocacy information
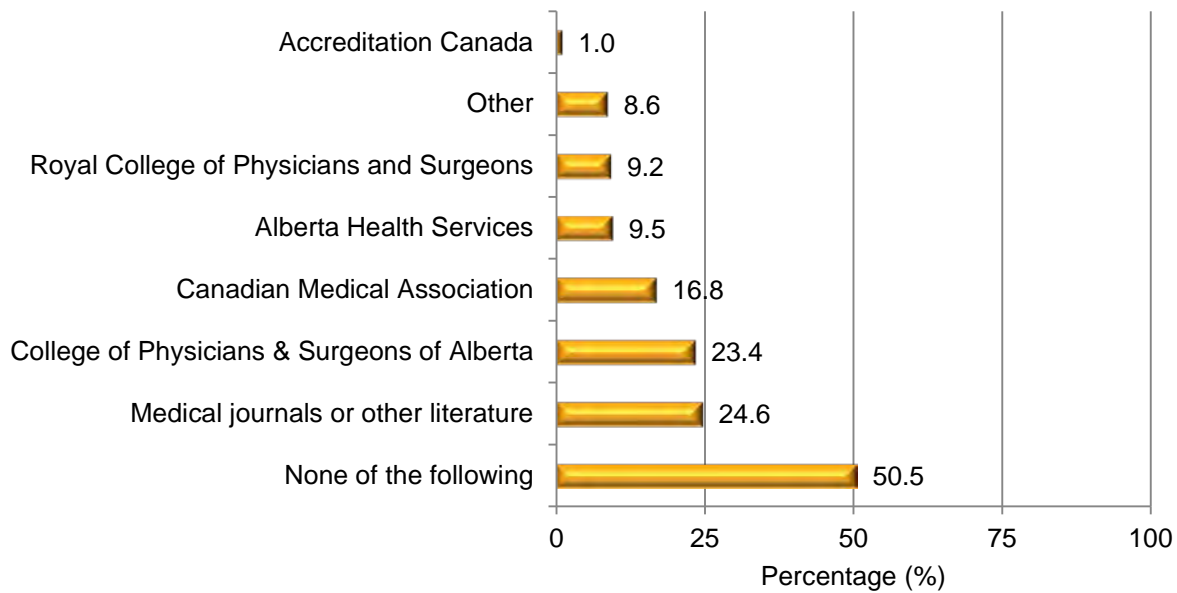
N= 1,969
Note: Respondents could choose more than one answer. Totals sum to more than 100%

3. Factors contributing to advocacy

The 50.7% of physicians who reported their ability to advocate for their patients had been limited in the last year were asked what restricted their ability to advocate (multiple responses were permitted) (Figure 12). Twenty-two point four per cent (22.4%) of physicians reported uncertainty of their role as an advocate and 55.8% reported an unclear process for advocacy. Inadequate communication between providers is reported by 39.1%, and lack of time to advocate is reported by 51% of physicians. Fifty-nine point five per cent (59.5%) reported unsupportive organizational policies and 62% noted lack of resources to provide requested care. Finally, 30.6% of physicians reported being restricted by their lack of training and education in advocacy and 22.7% identified their inexperience in advocating for their patients.

Figure 12: Factors that restricted physician ability to advocate

Factor	Percentage (%)
None of the following	1.0
Other	14.6
Conflict over best course of care	21.6
Uncertainty of my role as an advocate	22.4
My inexperience in advocating for my patients	22.7
My lack of training and education in advocacy	30.6
Inadequate communication between providers	39.1
Lack of time to advocate	51.0
Unclear process for advocacy	55.8
Unsupportive organizational policies	59.5
Lack of resources to provide requested care	62.0

N= 1,018
Note: Respondents could choose more than one answer. Totals sum to more than 100%

When asked "who" restricted their ability to advocate, 55.2% identified organization administration, 32.8% department or division administration, 34.9% organization leadership or executive, 37.3% Alberta Health Services and 27.6% Alberta Health and Wellness. Only 20.2% identified physician peers. The College of Physicians & Surgeons of Alberta was identified by 7.5% and the Alberta Medical Association by 2%.

Figure 13: Who restricted ability to advocate

	Percentage (%)
Alberta Medical Association	2.0
College of Physicians & Surgeons of Alberta	7.5
Other	12.8
None of the following	13.4
Physician peers	20.2
Alberta Health and Wellness	27.6
Department or division administration	32.8
Organization leadership or executive	34.9
Alberta Health Services	37.3
Organization administration	55.2
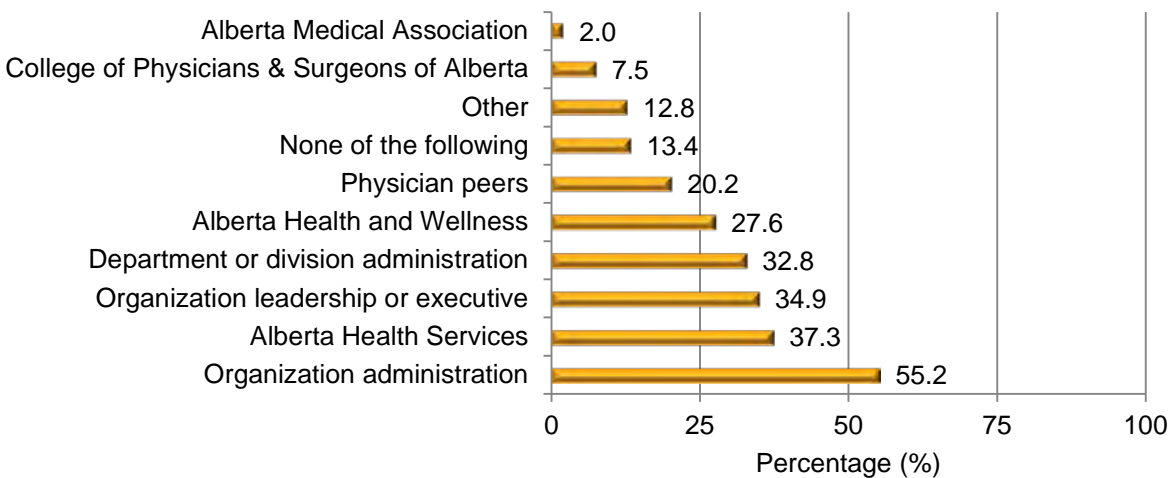
N= 996
Note: Respondents could choose more than one answer. Totals sum to more than 100%

The 49% of physicians reporting their ability to advocate had not been limited in the last year were then asked what enhanced their ability to advocate. Forty-one point eight per cent (41.8%) cited their experience in advocating for their patients, while only 14.3% cited their training and education in advocacy. Notable, 11.4% of physicians cited supportive organizational polices, 8.2% a clear understanding of physician advocacy where I work, and 4.9% a clear process for advocacy. Agreement on the best course of care was reported by 22.7% and having available resources to provide requested care by 16% of physicians.

Figure 14: Factors that enhanced physician ability to advocate
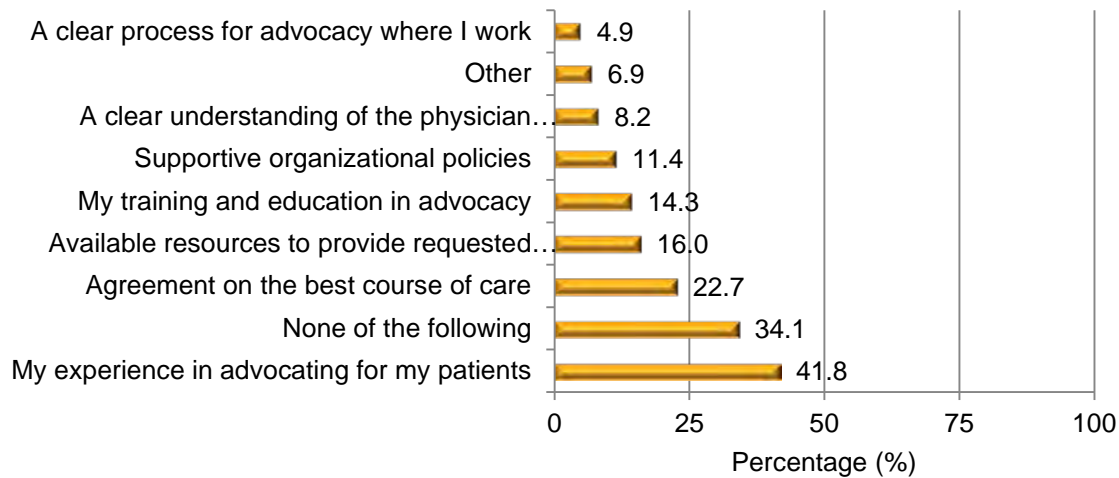
N= 1,937
Note: Respondents could choose more than one answer. Totals sum to more than 100%

When considering "who" enhanced their ability to advocate, 49.1% cited physician peers, and 18.3% cited a mentor (Figure 15). In contrast, 13.2% cited department or division administration, 7% organization leadership or executive, 6.8% organization administration, and 2.5% Alberta Health and Wellness. In addition, 11.2% of physicians cited the College of Physicians & Surgeons of Alberta as having enhanced physician ability to advocate.

Figure 15: Who enhanced ability to advocate

Category	Percentage (%)
Alberta Health and Wellness	2.5
Alberta Health Services	4.0
Organization administration	6.8
Organization leadership or executive	7.0
Other	7.4
College of Physicians & Surgeons of Alberta	11.2
Department or division administration	13.2
Alberta Medical Association	17.6
A mentor	18.3
None of the following	29.2
Physician peers	49.1
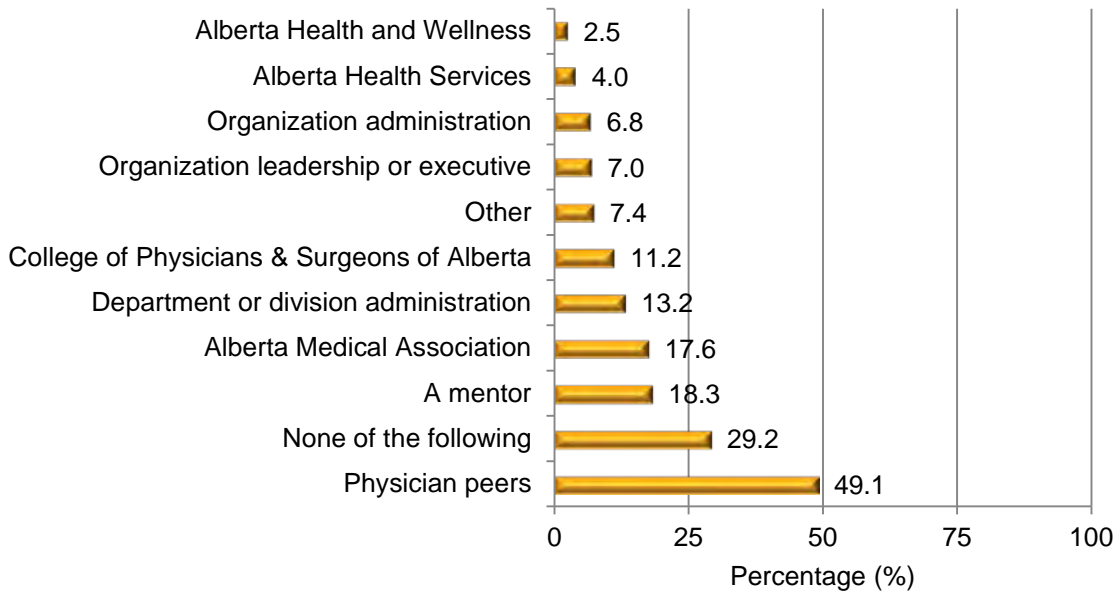
N= 1,970
Note: Respondents could choose more than one answer. Totals sum to more than 100%

Considering their usual work context in the past year, 37.2% of physicians reported not being aware of a process through which they could advocate for their patients to address such issues as quality, safety or resources. Furthermore, 22.5% reported they did not know. In contrast, 40.3% were aware of a process for advocating.

Figure 16: Aware of a process to advocate

Response	Percentage (%)
Don't know	22.5
Yes	40.3
No	37.2
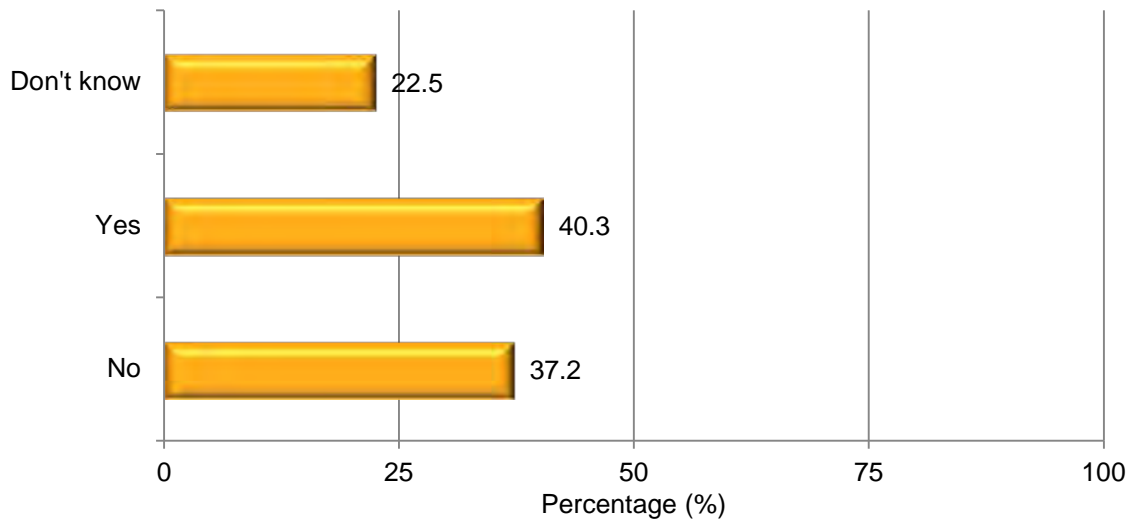
N= 2,018

For those 41.6% of physicians who confirm being on contract, 69.1% reported the contract did not address advocacy directly, whereas 20.5% reported it limited their ability to advocate, and 10.4% reported it enhanced their ability to advocate for their patients.

Figure 17: Advocacy in physician contract

Enhanced your ability to advocate for your patients in any way — 10.4
Limited your ability to advocate for your patients in any way — 20.5
Contract does not address advocacy directly — 69.1

Percentage (%)
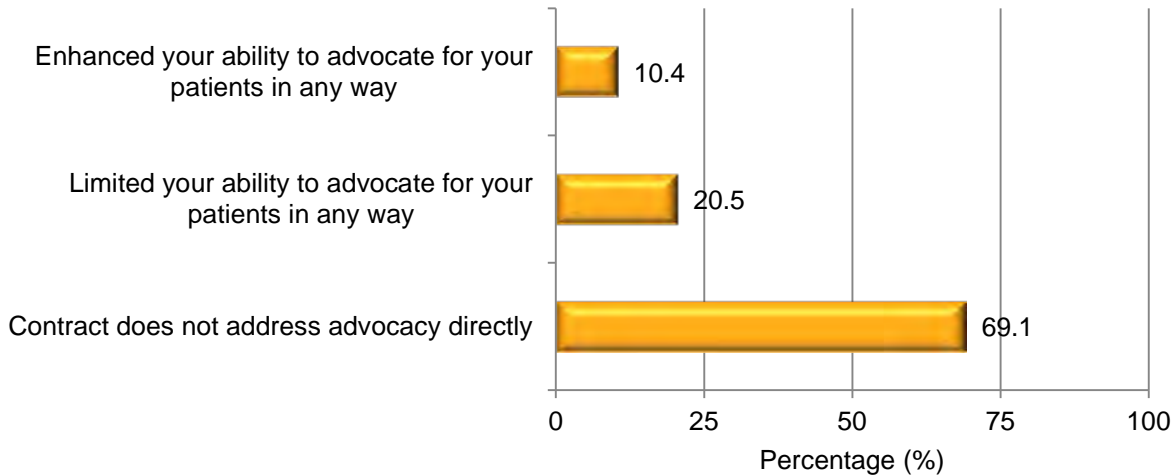
N= 806

For those 72.0% of physicians who confirm working in a healthcare delivery organization, 45.2% reported that organizational policies did not address advocacy directly, whereas 38.2% reported that policies limited their ability to advocate. Only 16.5% reported that policies enhanced their ability to advocate for their patients.

Figure 18: Advocacy in organizational policies

Enhanced your ability to advocate for your patients in any way — 16.5
Limited your ability to advocate for your patients in any way — 38.2
Organizational policies do not address advocacy directly — 45.2

Percentage (%)
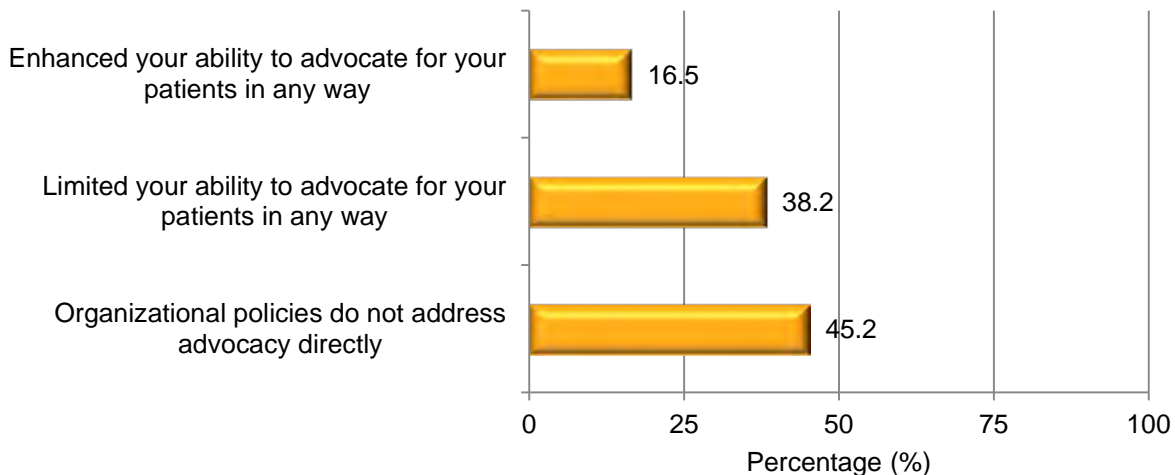
N= 1,404

4. Advocacy: obstruction or support

Overall, 50.7% of responding physicians reported that in the past year, their ability to advocate on behalf of their patients had been limited in some way.

Figure 19: Ability to advocate limited in past year
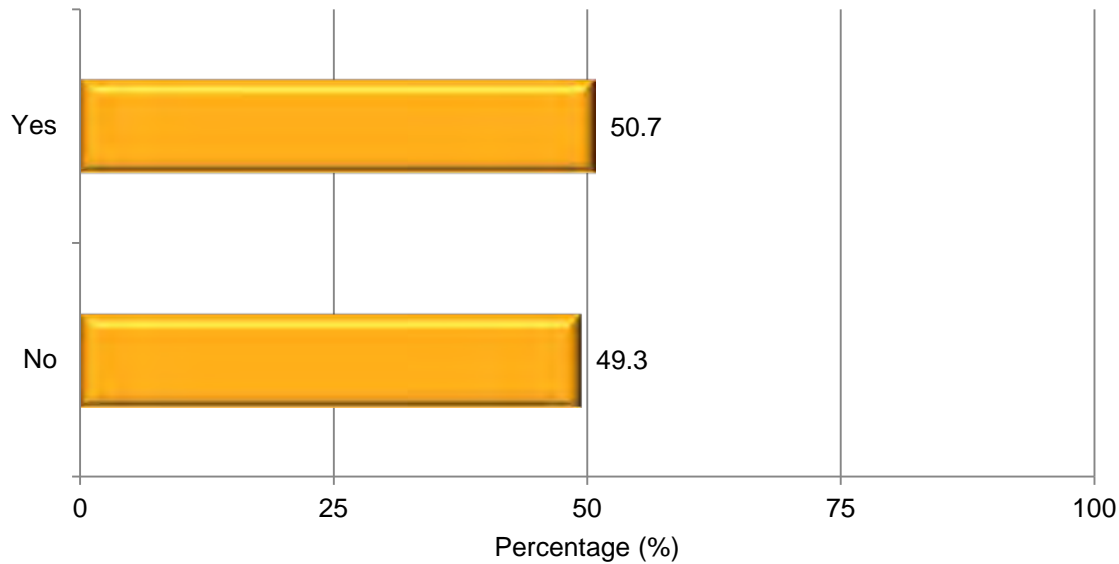
N=2,018

Twenty-one point seven per cent (21.7%) reported that, in the last year, they usually (19.4%) or always (2.3%) stopped themselves from advocating for their patients because they felt that nothing would happen to address the issue. Forty-eight per cent (48%) reported they sometimes stopped themselves, and 30.3% never stopped themselves.

Figure 20: Stopped themselves from advocating because nothing would happen
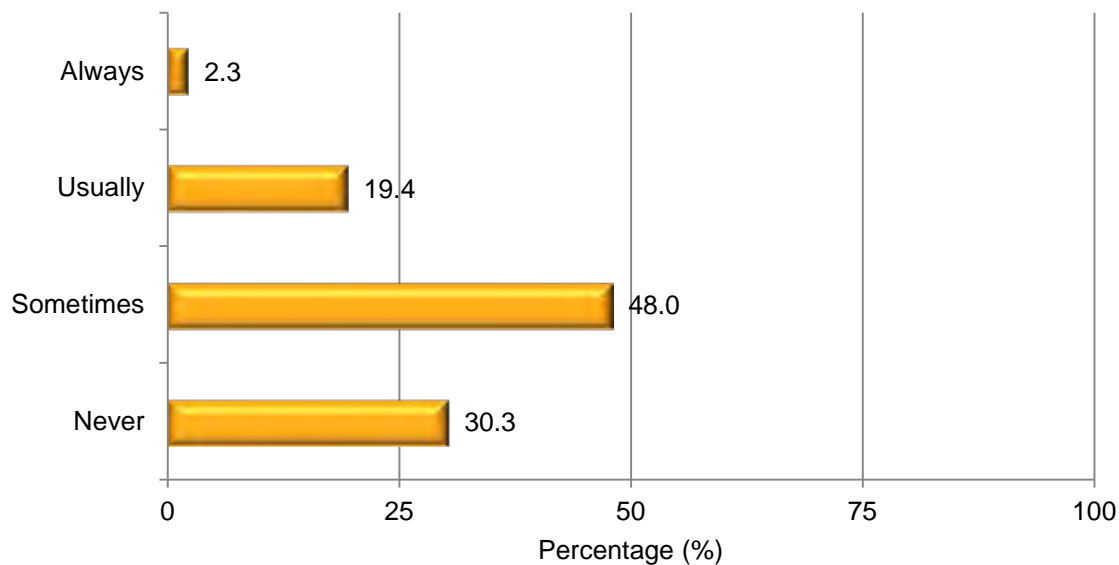
N= 1,990

Eight point eight per cent (8.8%) reported they always (2%) or usually (6.8%) stopped themselves from advocating for fear of negative repercussions for them as a physician. Twenty-six point three per cent (26.3%) sometimes stopped themselves and 64.9% never stopped themselves.

Figure 21: Stopped themselves from advocating for fear of retribution
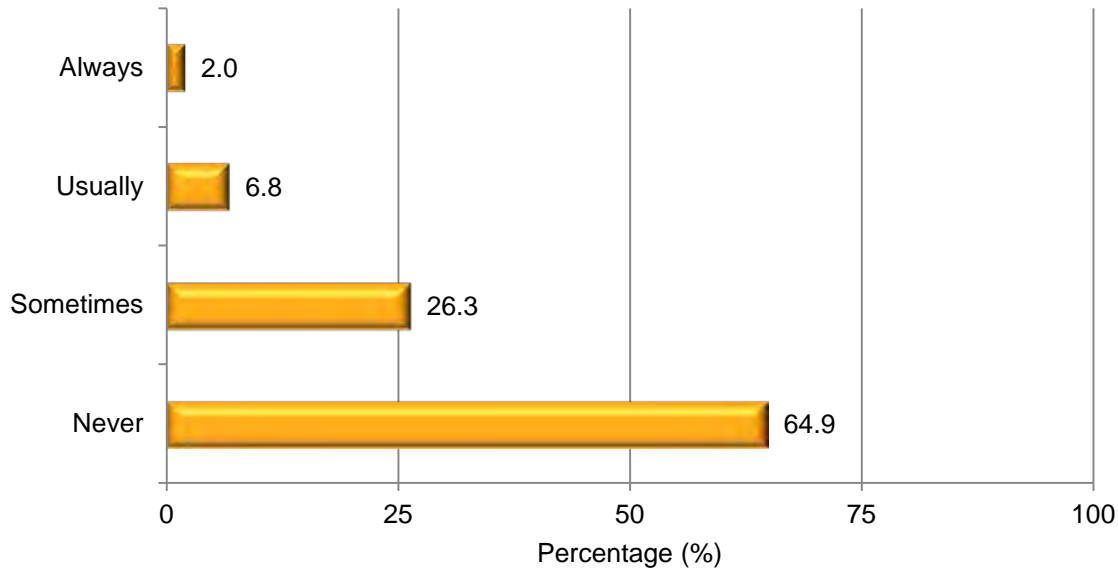
N= 1,990

Considering their "professional responsibility for advocacy" in the past year, 30.3% of physicians reported they were somewhat (22.1%) or greatly (8.2%) obstructed, 33.1% reported they were neither supported or obstructed and 36.5% reported they were somewhat (31%) or greatly supported (5.5%).

Figure 22: Extent to which obstructed or supported in advocacy role
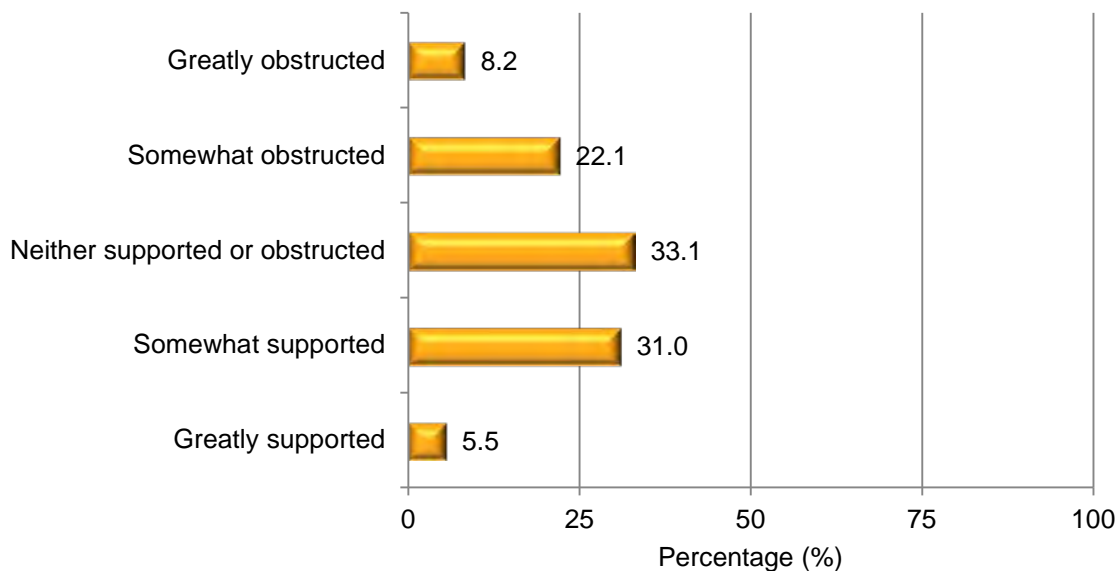
N= 1,748

Fourteen point five per cent (14.5%) of physicians reported being pressured to withdraw a request in the last year and 14.6% reported being intimidated. In addition 8.0% reported being censored, 5.2% threatened, and 3.1% punished. Considering all the listed responses (multiple mentions allowed), 18% of responding physicians experienced at least 1 of the above listed experiences in the past year.

Figure 23: Negative responses to advocacy (closed ended responses only)
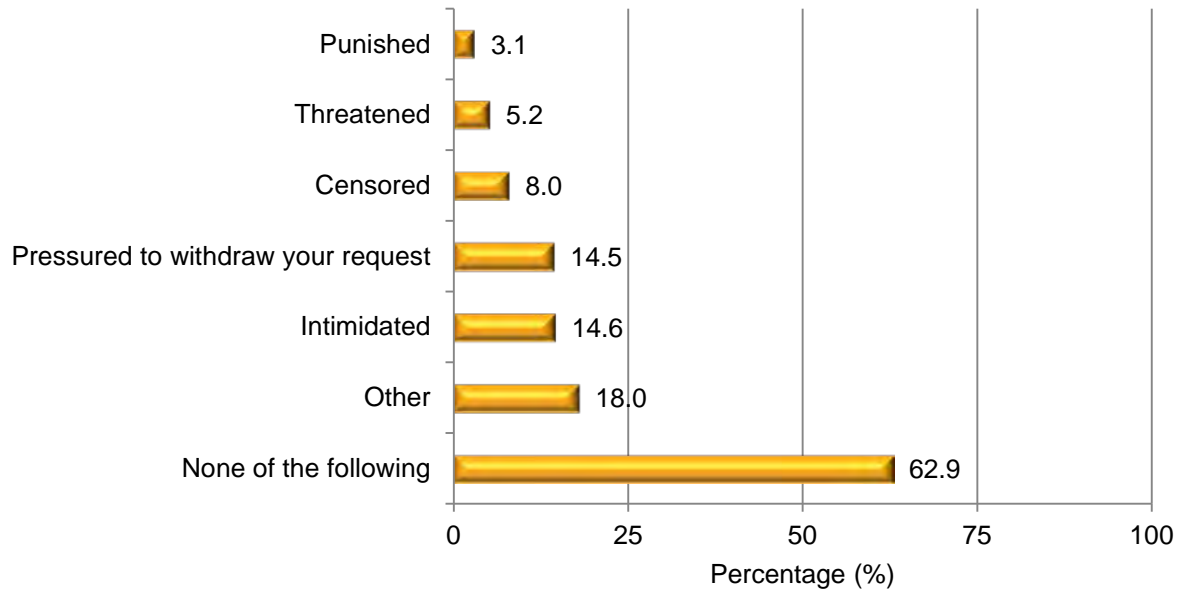
N= 1,737
Note: Respondents could choose more than one answer. Totals sum to more than 100%

An additional "open ended" category was selected by 18% of physicians, and their experience was coded into categories. These categories were combined with the closed end responses (Figure 24). Combining closed and open responses, 20% of physicians experienced what the HQCA defined as *active harmful obstruction*. This includes such things as threats, intimidation, censorship, punishment, ridicule, being bullied, and in rare cases, termination or punishment of their patients.[xiii] Of the 15% who said they were pressured to withdraw their request, 10% also experienced *active harmful obstruction* (already counted above); leaving 5% who uniquely reported being pressured to withdraw their request. On the basis of open ended responses alone, 15% of physicians experienced some form of what the HQCA defined as *passive obstruction*. This includes: 4% who said they were discouraged, patronized, minimized, or outright refused; 10% who said they were simply ignored, and 1% who reported being limited by policy, process, or organizational resources. When all categories are combined, 37% of physicians experienced either *active harmful obstruction*, being

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[xiii] This 20% is based on those who responded to the question. If the base is taken to be all physicians who completed a survey, the proportion is 17%.

pressured to withdraw their request, or some form of *passive obstruction*. In contrast, 63% did not report these negative experiences.

Figure 24: Obstruction of advocacy

Passive obstruction 14.7
Pressured to withdraw request 14.5
Active harmful obstruction 20.0

Percentage (%)
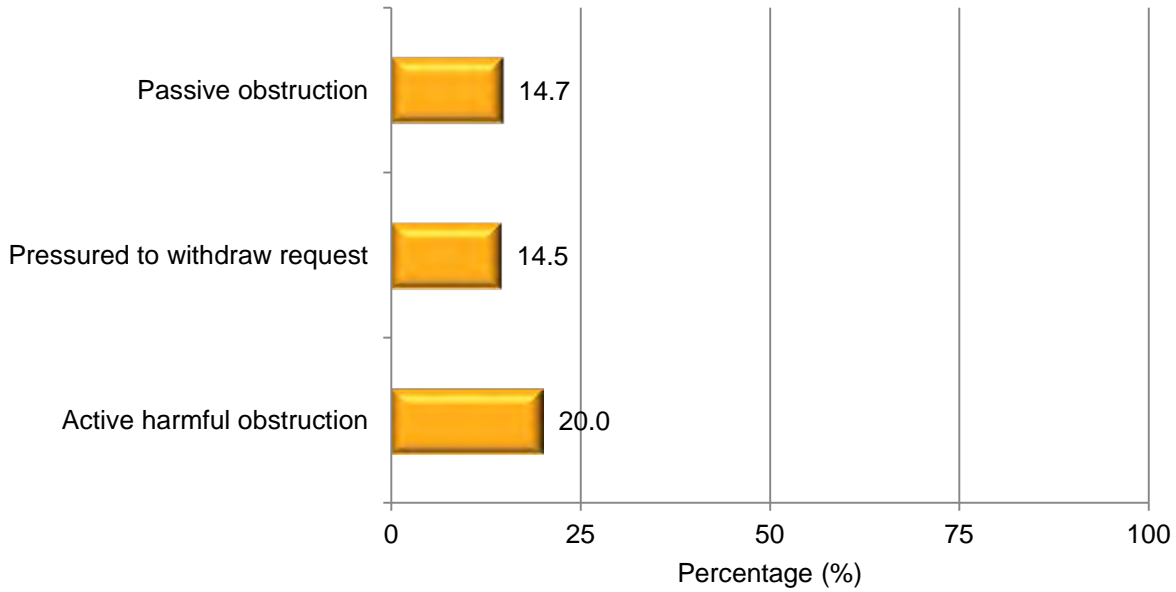
N= 1,737

Figure 25: Breakdown of passive obstruction

Limited by policy or resources 1.3
Ignored 9.7
Dismissed, discouraged or patronized 3.7

Percentage (%)
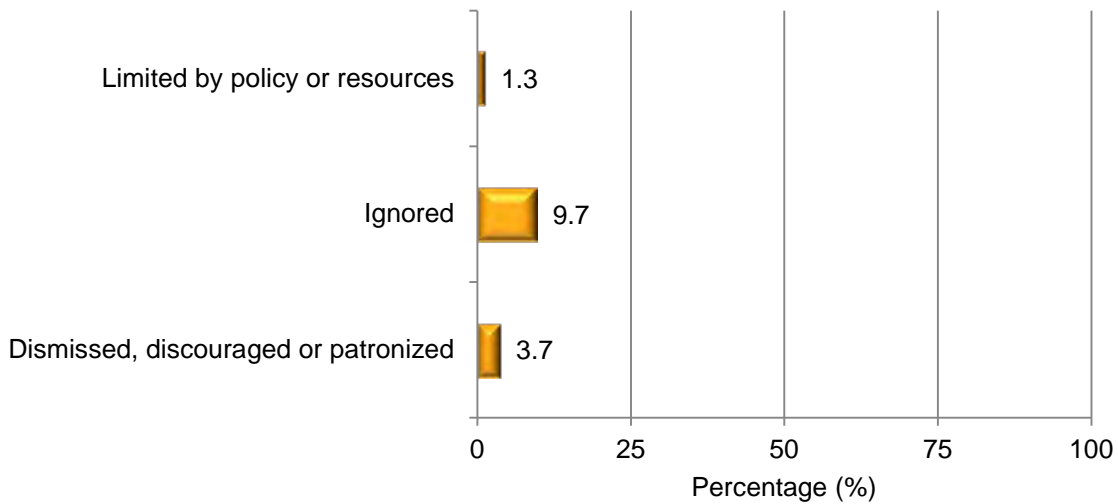
N= 1,737

Considering negative advocacy experiences in different time periods, approximately 13% of physicians reported having a negative experience in each of the following periods: longer than 10 years ago (13.1%), 6 to 10 years ago (12.7%), and 3 to 6 years ago (13.2%). More notable, 32.1% reported having a negative experience in the last 3 years. In addition, 48.1% of respondents reported not having a negative experience in any time period.

Figure 26: Negative advocacy experience in past
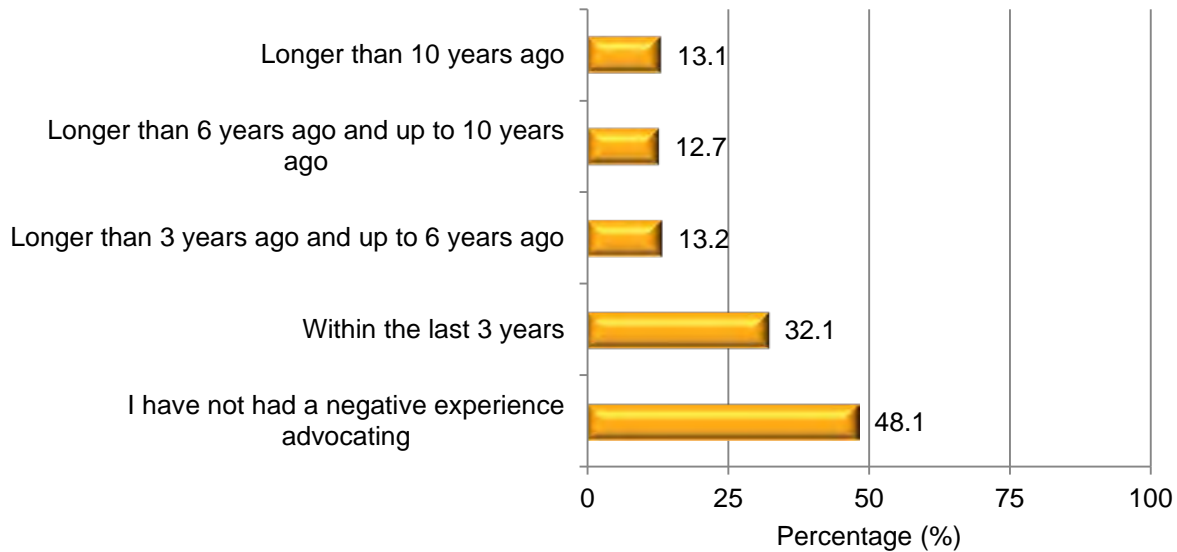
N= 1,929
Note: Respondents could choose more than one answer. Totals sum to more than 100%

Of the 88% of physicians who advocated in the past year, 18.2% reported their "suggestions" were never acted upon in a meaningful way when they advocated for patients; whereas 64% reported that sometimes their suggestions were acted upon in a meaningful way. Only 17.9% reported their suggestions were usually (16.6%) or always (1.3%) acted upon.

Figure 27: How often were suggestions acted upon in meaningful way
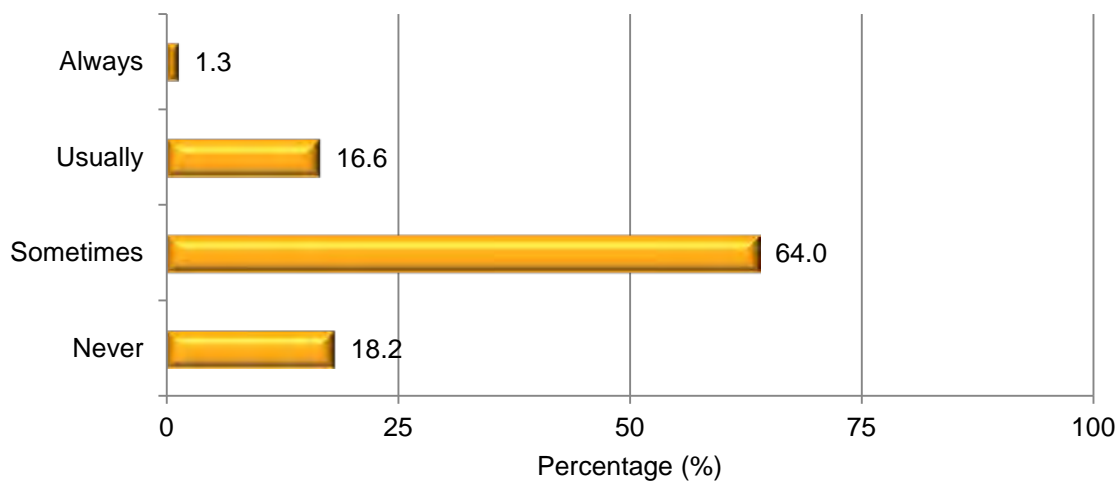
N= 1,746

Twenty-three point six per cent (23.6%) of physicians reported their advocacy usually (21.5%) or always (2.1%) had a positive outcome for their patients, 66% reported it sometimes had a positive outcome, whereas 10.4% reported it never had a positive outcome for their patients.

Figure 28: Advocacy had positive outcome for patients
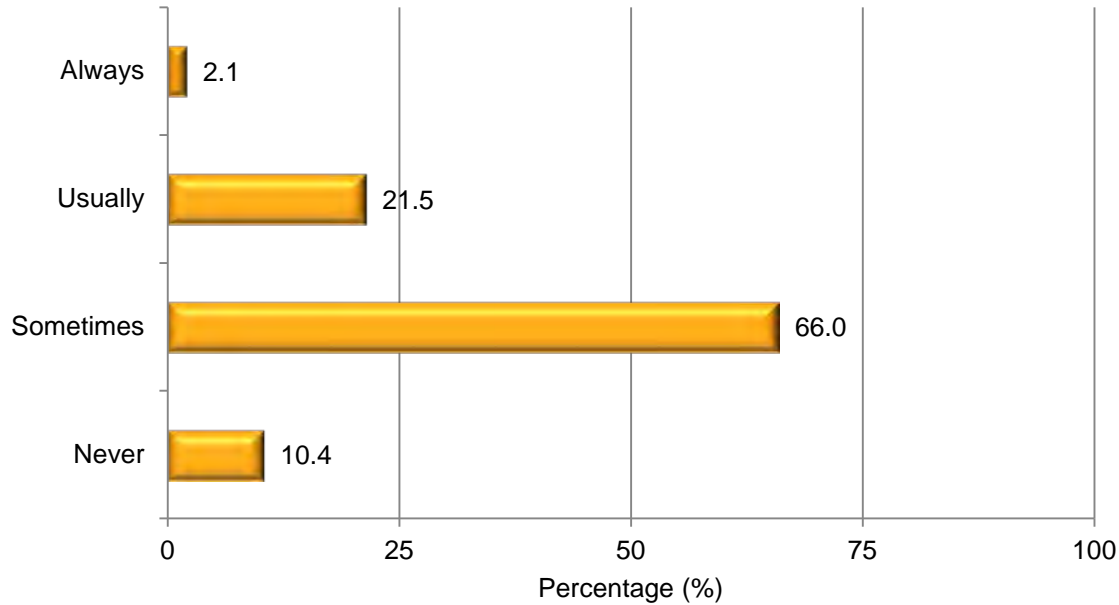
N=1,743

Thirty-two per cent (32%) of physicians reported their role as an advocate for patients never had a positive outcome for them as a physician. Forty-nine point one per cent (49.1%) reported it sometimes had a positive outcome and 18.9% reported it usually (16.0%) or always (2.9%) resulted in a positive outcome.

Figure 29: How often has advocacy had positive outcome for physician
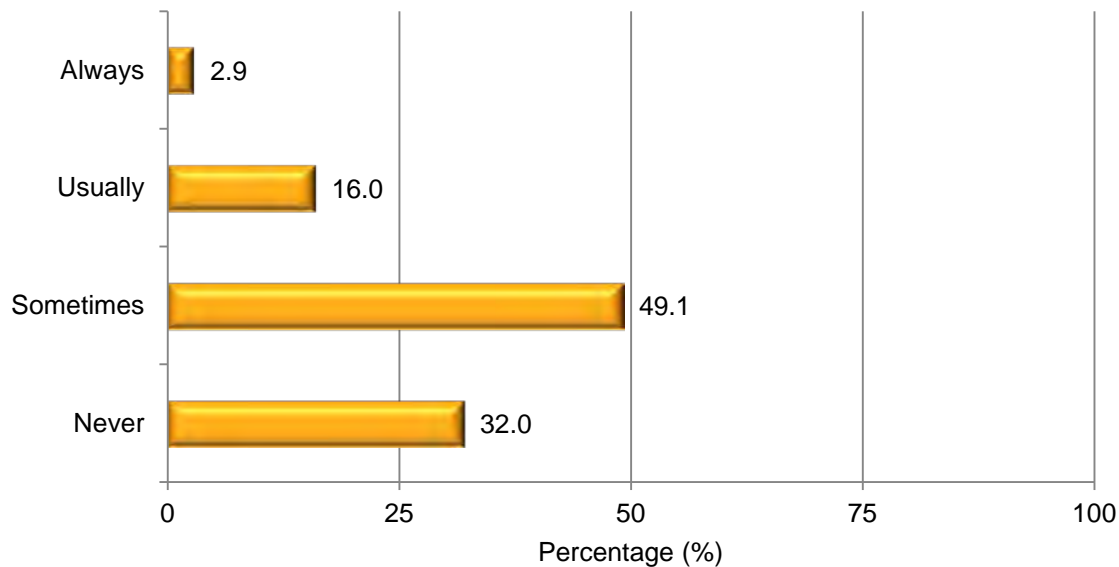
N= 1,728

When asked to whom they advocated (multiple responses permitted), 74% reported advocating to physician peers or colleagues, 54.6% to their department or division and 34.2% to the executive of the healthcare organisation. Seventeen point four per cent (17.4%) of physicians advocated to Alberta Health and Wellness, 14.3% to MLAs, politicians, or related bodies and 7% to the media. In addition, 9.8% reported advocating to the Alberta Medical Association and 7.4% to the College of Physicians & Surgeons of Alberta.

Figure 30: To whom have you advocated for your patients in the past year
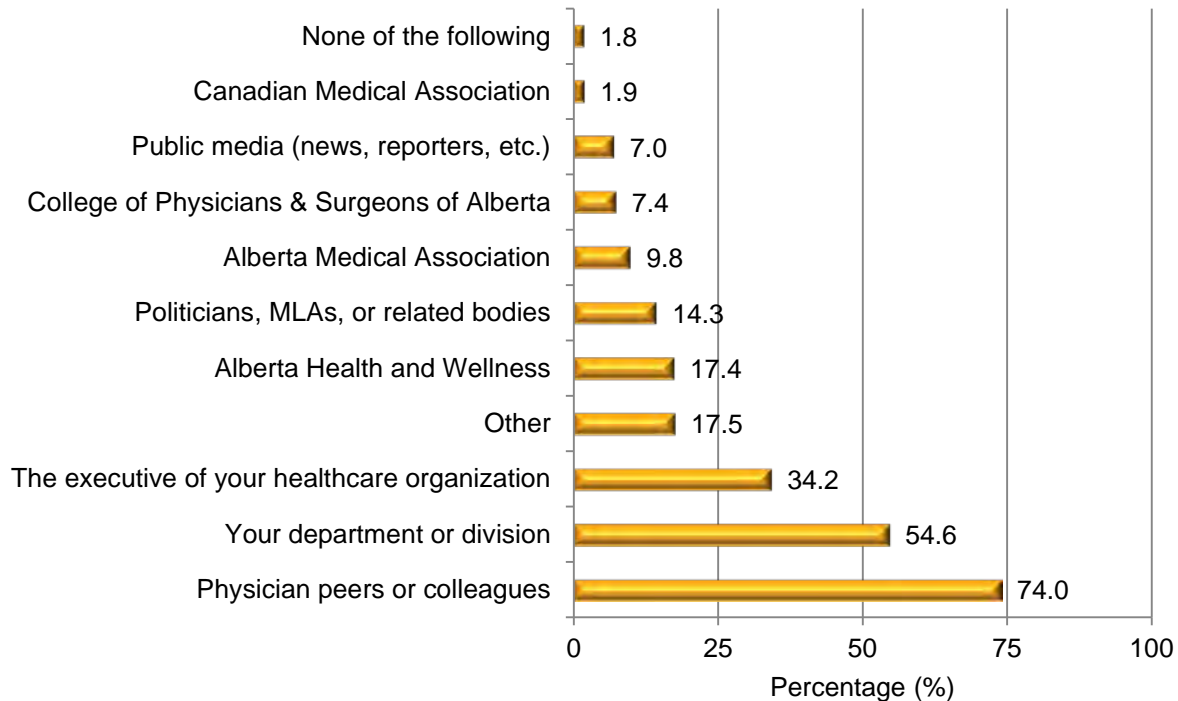
N= 1,755
Note: Respondents could choose more than one answer. Totals sum to more than 100%

5. Bivariate Results – Physician Specialty

Select variables are reported by physician specialty where there appear to be large differences between physician specialty types.[xiv] While differences between specialties for these results are notable, caution in interpretation is warranted given sample size for these groups are relatively small and other variables may contribute to, or account for, these differences.

[xiv] Bivariate results are only provided for physician specialty because this was not controlled for in the multivariate analysis. It was not possible to control for individual specialties in the multivariate analysis due to sample size. In the multivariate analysis, specialty is collapsed to GP versus Specialist.

Figure 31 shows that only 28.8% of GPs/family physicians reported they have the necessary skills to advocate. This contrasts sharply with 67.6% of emergency medicine specialists, 52.6% of general internal medicine specialists and 49.7% of pediatric specialists.

Figure 31: Physician has the necessary skills to effectively advocate (% Yes)
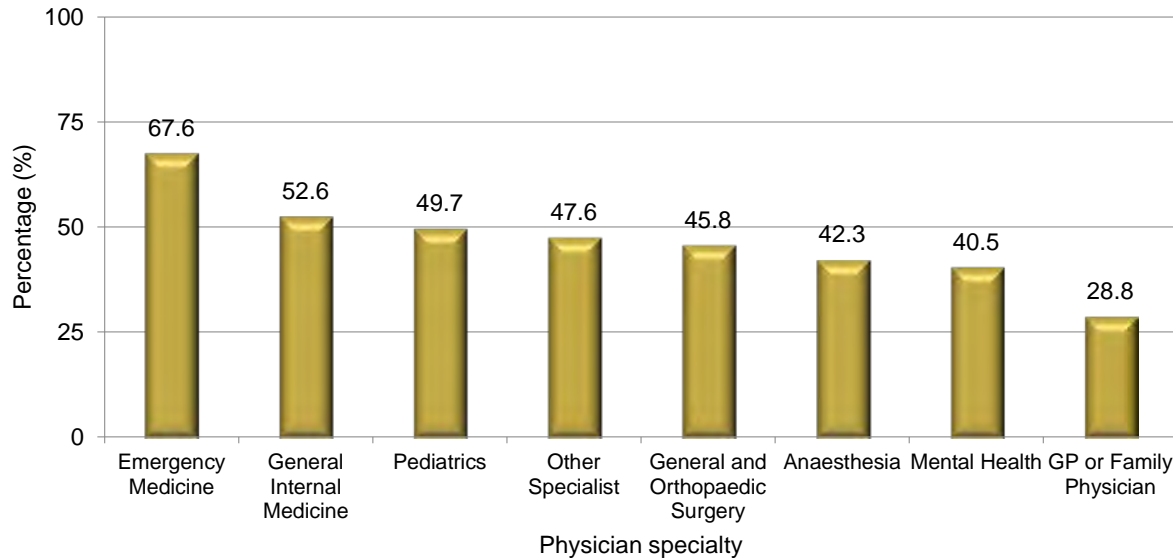
Figure 32 shows that the proportion of physicians who reported their ability to advocate was limited in the past year is highest for mental health specialists (60.3%) and general or orthopedic surgery specialists (57.7%) as compared with anesthesia specialists at 42.3%.

Figure 32: Physician's ability to advocate was limited in past year (% Yes)
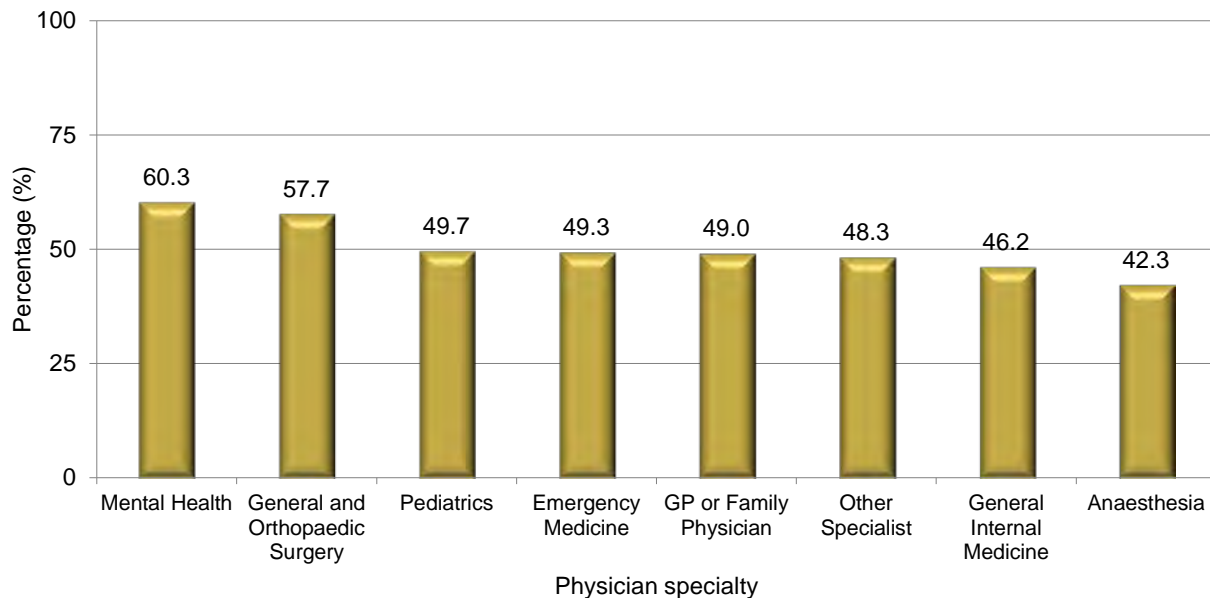
General and orthopedic surgery specialists reported they stopped themselves from advocating in the past year because nothing would happen to address the issue most frequently at 35.9%. This is followed by 31% of anesthesia specialists and 30.6% of mental health specialists. This compares with pediatric specialists at 14.5% and 11.5% of general internal medicine specialists.

Figure 33: Physicians who stopped themselves from advocating because nothing would happen to address the issue (% "usually" or "always")
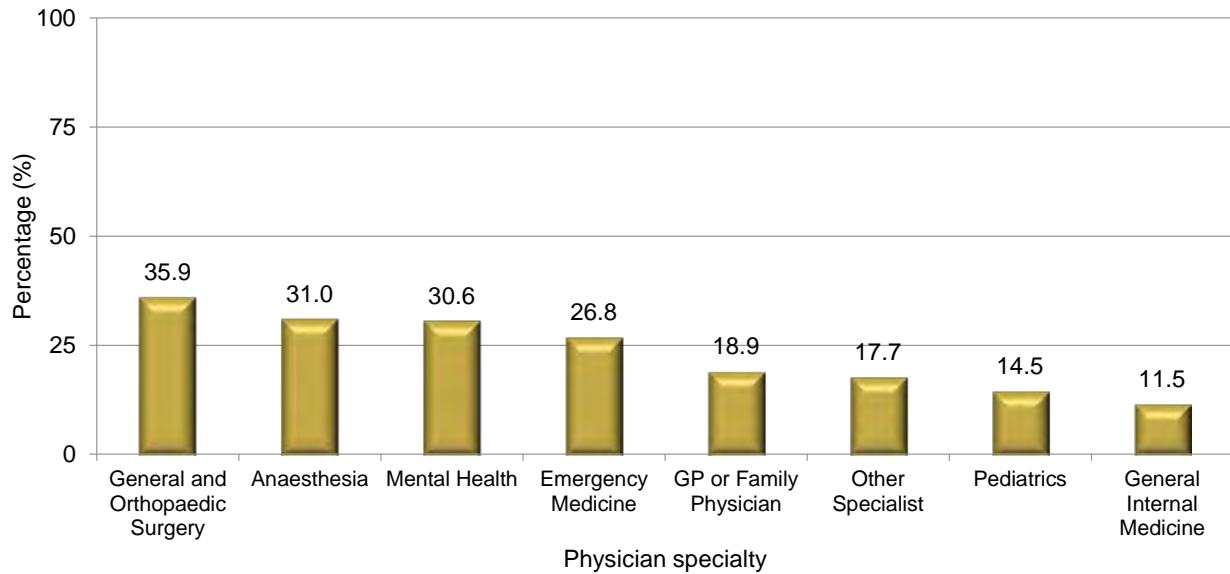
About forty percent of anesthesia (40.4%), general and orthopedic surgery (39.7%) and mental health (38.4%) specialists reported that advocacy was greatly or somewhat obstructed in the past year. This contrasts with pediatric specialists and GP/family physician at 24.8%.

Figure 34: Extent to which obstructed or supported in advocacy role (% "somewhat" or "greatly" obstructed)
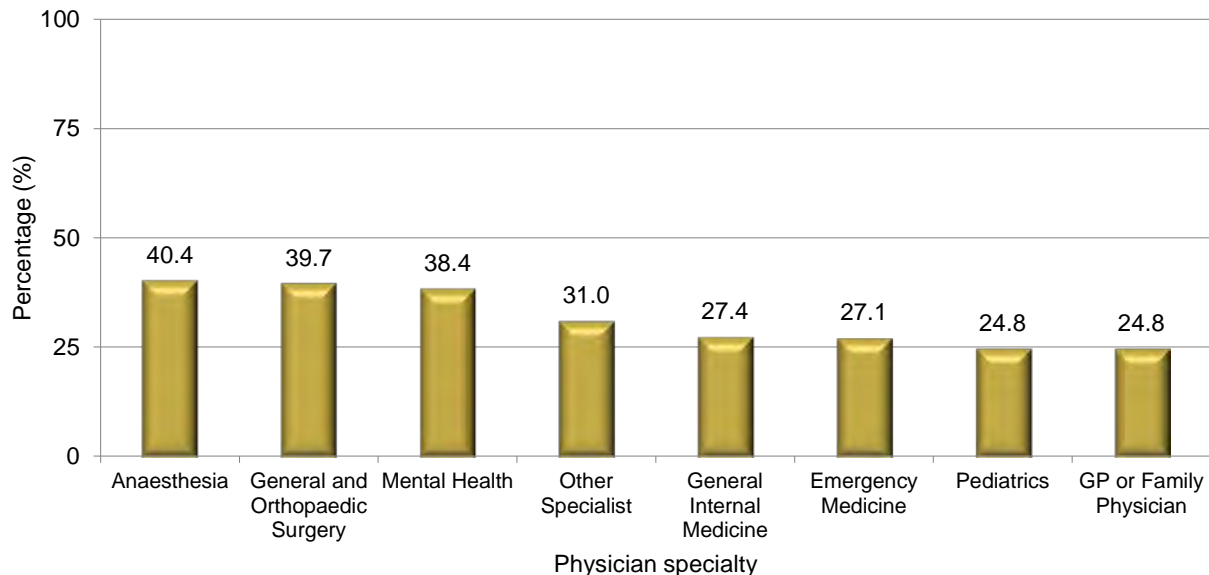
The proportion of respondents experiencing *active harmful obstruction* varies between physician specialty with mental health (28.2%) and general and orthopedic surgery (25.4%) specialists at the higher end compared with GP/family physician (17.8%) and emergency medicine specialists (15.7%) at the lower end. 25.4% of general and orthopedic surgery specialists reported being pressured to withdraw a request in contrast to general internal medicine specialists at 7.1%. *Passive obstruction* is most often reported by mental health (21.8%) and emergency medicine specialists (20.0%) in contrast to general internal medicine specialists' at 11.4%.

Figure 35: Obstruction of advocacy

	Mental Health	General and Orthopaedic Surgery	Anaesthesia	Pediatrics	Other Specialist	General Internal Medicine	GP or Family Physician	Emergency Medicine
Active Harmful Obstruction	28.2	25.4	21.8	21.1	18.8	18.6	17.8	15.7
Pressured to withdraw request	19.1	25.4	16.4	12.8	13.5	7.1	12.2	12.9
Passive Obstruction	21.8	18.9	14.5	12.8	13.5	11.4	14.1	20.0
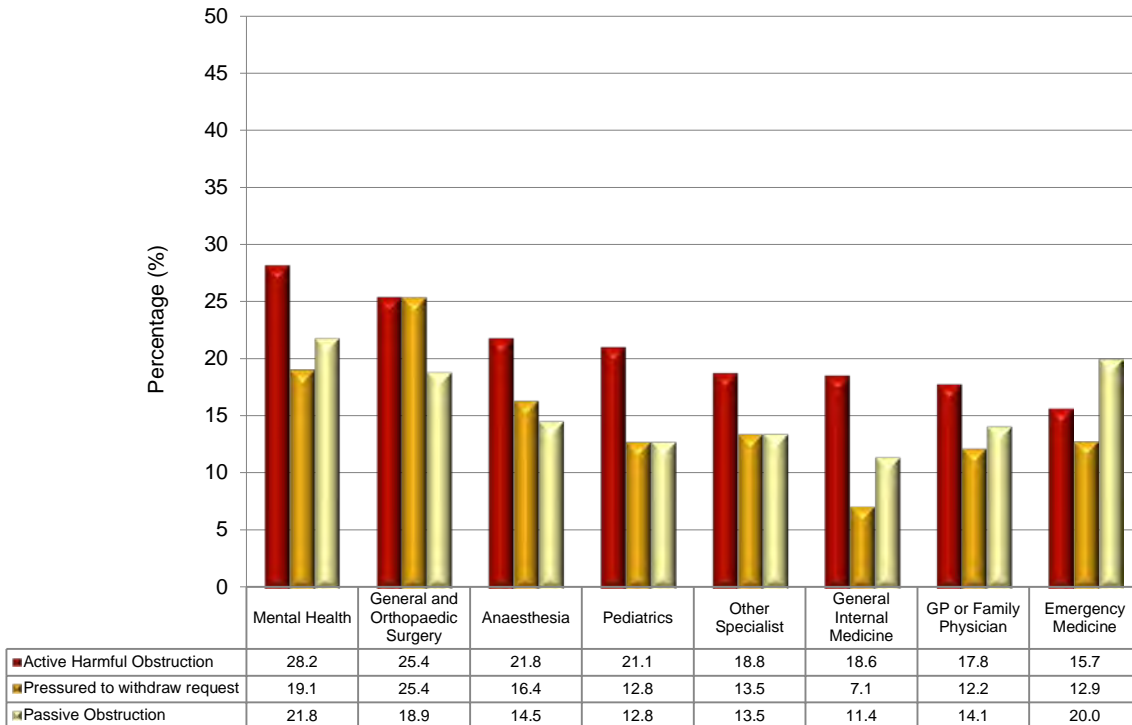
6. Multivariate Analysis

Key outcome variables for experiences reported for the last 12 months were used as dependent variables for multivariate analysis. Each of these and respective findings are represented by the headings below:

- Physician has stopped themselves from advocating due to fear of negative repercussions for them as a physician (Q15).

- Physician's ability to advocate on behalf of his/her patients was limited in some way (Q22).

- Physician has experienced some negative repercussions when advocating (Q22).

- Physician has been pressured to withdraw their request when advocating (Q22).

- Physician has been censored when advocating (Q22).

- Physician has been intimidated when advocating (Q22).

- Physician has been punished when advocating (Q22).

- Physician has experienced *active harmful obstruction* when advocating (any instance of pressured to withdraw, censored, intimidated, punished, threatened, or other similar – recoded from Q22).

- Physician has experienced *passive obstruction* when advocating (any instance of ignored, delayed, patronized, or other similar – recoded from Q22).

Findings below (1 - 8) were based on the results of logistic regression and multinomial logistic regression (9 and 10). Separate models were run for GP/family physician respondents, versus specialist and other physician types. The models for findings 1 - 3 included whether or not the respondent was a member of an organization, whether they were under contract, gender, years of practice, and AHS zone as independent variables. The remaining models (findings 4-10) included gender, years of practice, AHS zone, who the physician advocated to, area of work, and method of physician funding as independent variables[xv]. Statistical significance is defined by a probability value of less than or equal to 0.05 ($p \leq 0.05$), and the strength of evidence is based on the methodology outline by Raferty (1995)[xvi].

1. (Q14) Physician has stopped themselves from advocating for their patients because they felt nothing would happen to address the issue.

Specialists[xvii] working in[xviii] an organization are 1.845 (95%CI = 1.104- 3.088) times as likely to stop themselves from advocating for their patients because they felt nothing would happen as

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[xv] Detailed regression models are available upon request.

[xvi] Weak: |t statistic|>Sqrt (logN); Moderate: |t statistic|>Sqrt (logN) +2); Strong: |t statistic|>Sqrt (logN) +6); Very Strong |t statistic|>Sqrt (logN)+10);

[xvii] Specialists include open ended responses for such areas as laboratory medicine, where formal specialty training is suggested

compared with specialists not working in an organization; controlling for gender, years of practice, physician specialty, and AHS zone (moderate evidence).

Specialists who believe they have the necessary skills to effectively advocate for their patients are 0.602 (95%CI = 0.372 – 0.975) times as likely to stop themselves from advocating for their patients because they felt nothing would happen, as compared with specialists who do not believe they have the necessary skills; controlling for gender, years of practice, and AHS zone (moderate evidence).

Family doctors[xix] working in an organization are 1.843 (95%CI = 1.232 – 2.756) times as likely to stop themselves from advocating for their patients because they felt nothing would happen; as compared with family doctors not working in an organization; controlling for gender, years of practice, and AHS zone (strong evidence).

Family doctors who believe they have the necessary skills to effectively advocate for their patients are 0.537 (95%CI = 0.319 – 0.889) times as likely to stop themselves from advocating for their patients because they felt nothing would happen, as compared with family doctors who do not believe they have the necessary skills; controlling for gender, years of practice, and AHS zone (moderate evidence).

Male family doctors are 0.599(95%CI = 0.416 – 1.142) times as likely to stop themselves from advocating for their patients because they felt nothing would happen as compared with female; controlling for gender, years of practice, physician specialty and AHS zone (moderate evidence).

2. **(Q15) Physician stopped themselves from advocating for their patients due to fear of negative repercussions for them as a physician.**

No statistically significant findings.

3. **(Q9) Has a physician's ability to advocate on behalf of his/her patients been limited in anyway?**

Specialists working in an organization are 2.462 (95%CI = 1.257 – 4.821) times as likely to claim that his/her ability to advocate on behalf of his/her patients has been limited in some way in the past year; as compared with specialists not working in an organization; controlling for gender, years of practice, physician specialty and AHS zone (moderate evidence).

For specialists, for every year they have practiced, he/she is 0.977(95%CI = 0.962 – 0.993) times as likely to claim that his/her ability to advocate on behalf of his/her patients has been limited in

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[xviii] Working within, or being associated with, an organization by virtue of being on a clinical or academic ARP
[xix] or physicians trained as GPs

some way; controlling for gender, years of practice, physician specialty and AHS zone (moderate evidence). Their ability to advocate is reduced by a factor of 0.977 for each year they practice.

Family doctors working in an organization are 1.689 (95%CI = 1.021 – 2.8) times as likely to claim that his/her ability to advocate on behalf of his/her patients has been limited in some way in the past year; as compared with family doctors not working in an organization; controlling for gender, years of practice, physician specialty and AHS zone (moderately strong evidence).

Male family doctors are 0.637 (95%CI = 0.405 – 1.00) times as likely to claim that his/her ability to advocate on behalf of his/her patients has been limited in some way in the past year; as compared with family doctors not working in an organization; controlling for gender, years of practice, physician specialty and AHS zone (weak evidence).

4. **In the past year, has the physician experienced some negative repercussions when advocating for their patients.**

   Specialists who advocated for the needs of their patients to their organizational department or division, within the past year, were 1.833 (95%CI = 1.228 – 2.736) times as likely to have experienced some negative repercussions, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

   Specialists who advocated for the needs of their patients to the executive of their healthcare organization, within the past year, were 1.972 (95%CI = 1.367 – 2.845) times as likely to have experienced some negative repercussions as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (very strong evidence).

   Specialists who advocated for the needs of their patients to Alberta Health and Wellness, within the past year, were 0.611 (95%CI = 0.373 – 1.00) times as likely to have experienced some negative repercussions as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (weak evidence).

   Specialists who advocated for the needs of their patients to politicians, MLAs or related bodies, within the past year, were 1.792 (95%CI = 1.043 – 3.078) times as likely to have experienced some negative repercussions as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (weak evidence

   Specialists, who advocated for the needs of their patients to the Alberta Medical Association within the past year, were 2.056(95%CI = 1.102 – 3.834) times as likely to have experienced some negative repercussions, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (strong evidence).

   Family doctors who advocated for the needs of their patients to their organizational department or division, within the past year, were 1.64 (95%CI = 1.008 – 2.668) times as likely to have experienced some negative repercussions, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (weak evidence).

Family doctors who advocated for the needs of their patients to the executive of their healthcare organization within the past year were 2.741 (95%CI = 1.667 – 4.505) times as likely to have experienced some negative repercussions, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (very strong evidence).

Family doctors who advocated for the needs of their patients to the public media (news, reporters, etc), within the past year were 2.875 (95%CI = 1.199 – 56.892) times as likely to have experienced some negative repercussions, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

Family doctors who advocated for the needs of their patients to the College of Physicians and Surgeons of Alberta, within the past year were 2.468 (95%CI = 1.050 – 5.799) times as likely to have experienced some negative repercussions, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (weak evidence).

Male family doctors who advocated for the needs of their patients within the past year are 0.53 (95%CI = 0.343 - .0821) times as likely to have experienced some negative repercussions, as compared with female physicians; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

5. **(Q22a) In the past year, has the physician been pressured to withdraw their request when advocating for their patients.**

Specialists who advocated for the needs of their patients to their organizational department or division within the past year were 2.794 (95%CI = 1.469 - 5.314) times as likely to have felt pressured to withdraw their request, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (strong evidence).

Specialists who advocated for the needs of their patients to the executive of their health care organization within the past year were 2.931 (95%CI = 1.728 - 4.973) times as likely to have felt pressured to withdraw their request, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (very strong evidence).

Specialists who advocated for the needs of their patients to the College of Physicians and Surgeons of Alberta within the past year were 2.667 (95%CI = 1.143 - 6.221) times as likely to have felt pressured to withdraw their request, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

Family doctors who advocated for the needs of their patients to the executive of their health care organization within the past year were 3.100 (95%CI = 1.557 - 6.172) times as likely to have felt pressured to withdraw their request as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (strong evidence).

Male family doctors were 0.406 (95%CI = 0.211 – 0.782) times as likely to have felt pressured to withdraw their request within the past year as compared with females; regardless of years practicing, AHS zone and type of practice (moderate evidence).

For every additional year of practice, family doctors were 1.031 (95%CI = 1.003 - 1.059) times as likely to have felt pressured to withdraw their request within the past year; regardless of gender, AHS zone and type of practice (moderate evidence).

6. **(Q22b) In the past year, has the physician been censored when advocating for their patients.**

Specialists who advocated for the needs of their patients to the executive of their health care organization within the past year, were 3.187 (95%CI = 1.688 - 6.015) times as likely to having felt censored, compared to specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone, and type of practice (very strong evidence).

Family doctors who advocated for the needs of their patients to the public media (news, reporters, etc), within the past year, were 4.583 (95%CI = 1.159 - 18.115) times as likely to have felt censored than other family doctors who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone, and type of practice (weak evidence).

7. **(Q22c) In the past year, has the physician been intimidated when advocating for their patients.**

Specialists who advocated for the needs of their patients to the executive of their health care organization within the past year were 2.780 (95%CI = 1.650 - 4.684) times as likely to have felt intimidated, than other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (very strong evidence).

Specialists who advocated for the needs of their patients to politicians, MLAs or related bodies, within the past year, were 2.275 (95%CI = 1.159 - 4.568) times as likely to have felt intimidated than other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

Male specialists were 0.508 (95%CI = 0.292 – 0.885) times as likely to have felt intimidated within the past year, as compared with females; regardless of years practicing, specialty, AHS zone, who they advocated to, and type of practice (moderate evidence).

Family doctors who advocated for the needs of their patients to public media (news, reporters, etc.), within the past year, were 3.575 (95%CI = 1.349 - 9.472) times as likely to have felt intimidated than other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

Male family doctors were 0.504 (95%CI = 0.283 – 0.896) times as likely to have felt intimidated within the past year as compared with females; regardless of years practicing, who they advocated to, specialty, AHS zone and type of practice (moderate evidence).

8. **(Q22e) In the past year, has the physician been threatened when advocating for their patients.**

Specialists who advocated for the needs of their patients to the executive of their healthcare organization within the past year, were 3.376 (95%CI = 1.383 - 8.239) times as likely to have

been threatened, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

Specialists who advocated for the needs of their patients to the public media (news, reporters, etc) within the past year, were 3.686 (95%CI = 1.073 – 12.655) times as likely to have been threatened, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (weak evidence).

Specialists who advocated for the needs of their patients to the College of Physicians & Surgeons of Alberta, within the past year, were 4.473 (95%CI = 1.400 - 14.290) times as likely to have been threatened, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

Family doctors who advocated for the needs of their patients to public media (news, reporters, etc.), within the past year, were 9.478 (95%CI = 2.136 - 42.046) times as likely to have been threatened, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone, and type of practice (strong evidence).

Family doctors working in a hospital based outpatient setting were 7.069 (95%CI = 1.743 - 28.673) times as likely to having been punished for advocating within the past year, as compared with family doctors working in other settings; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

9. **In the past year, has the physician experienced active harmful consequences when advocating for their patients.**

Specialists who advocate for the needs of their patients to their department or division (within the organization), within the past year, were 1.868 (95%CI = 1.116 - 3.126) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (moderate evidence).

Specialists who advocate for the needs of their patients to the executive of their health care organization, within the past year, were 2.637 (95%CI = 1.662 - 4.183) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (very strong evidence).

Specialists who advocate for the needs of their patients to Alberta Health and Wellness, within the past year, were 0.512 (95%CI = 0.273 – 0.960) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (weak evidence).

Specialists who advocate for the needs of their patients to politicians, MLAs or related bodies, within the past year, were 2.176 (95%CI = 1.157 - 4.094) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other specialists

who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

Specialists (including emergency medicine) working in an emergency department or urgent care setting were 0.484 (95%CI = 0.259 – 0.906) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, who they advocated to, and AHS zone (moderate evidence).

Specialists working an hourly rate (other than Alternative Reimbursement Plan) were 0.249 (95%CI = 0.067 – 0.925) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, who they advocated to, and AHS zone (weak evidence).

Family doctors who advocated for the needs of their patients to the executive of their health care organization within the past year, were 2.169 (95%CI = 1.175 - 4.007) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other family doctors who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

Family doctors who advocated for the needs of their patients to the public media (news, reporters, etc), within the past year, were 4.473 (95%CI = 1.633 - 12.251) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with other family doctors who advocated elsewhere, regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

Male family doctors were .0.452 (95%CI = 0.264 – 0.775) times as likely to have experienced *active harmful consequences* vs. no negative consequences, as compared with females; regardless of years practicing, AHS zone, who they advocated to, and type of practice (moderate evidence).

10. **In the past year, has the physician experienced passive obstruction when advocating for their patients.**

Specialists who advocated for the needs of their patients to their department or division (within the organization), within the past year, were 1.668 (95%CI = 1.045 – 2.661) times as likely to have experienced *passive obstruction* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (weak evidence).

Specialists who advocated for the needs of their patients to the Alberta Medical Association, within the past year, were 2.540 (95%CI = 1.214 - 5.316) times as likely to have experienced *passive obstruction* vs. no negative consequences, as compared with other specialists who advocated elsewhere; regardless of gender, years practicing, specialty, AHS zone and type of practice (moderate evidence).

Family doctors who advocate for the needs of their patients to the executive of their health care organization within the past year, were 3.697 (95%CI = 1.956 - 6.987) times as likely to have experienced *passive obstruction* vs. no negative consequences, as compared with other family

doctors who advocated elsewhere; regardless of gender, years practicing, AHS zone and type of practice (very strong evidence).

Male family doctors, were 0.504 (95%CI = 0.285 - 0.893) times as likely to have experienced *passive obstruction* vs. no negative consequences within the past year; as compared with females; regardless of years practicing, specialty, who they advocated to, and AHS zone and type of practice (moderate evidence).

Qualitative results

Introduction

The following is the thematic analysis of the responses to the final open-ended question of the survey (Question #32) which asked participants to provide "any additional comments, concerns or suggestions regarding physician advocacy issues as you have experienced them in your practice". This analysis should be considered together with the quantitative analysis to get a comprehensive perspective of survey respondents' experiences.

Experiences with advocacy and intimidation

Positive experiences

A number of respondents, some with lengthy clinical experience, indicated they had "never experienced, witnessed, or even heard" of any negative issues related to physician advocacy" nor had they ever been "intimidated" or "obstructed in any way". Some described positive advocacy experiences and the tendency to expect success "if needs are legitimate". One respondent identified that while they had not experienced any problem with administration, including physician administrators, they had experienced "difficulty and intimidation from physician colleagues".

It was acknowledged that "a lot of services, resources, programs have resulted as a result of medical advocacy as well as the community" and that 'AHS, AMA, CPSA are to be commended for their progressive support of advocacy'. Some made reference to specific circumstances that made advocacy easier – working in a Primary Care Network (PCN) or working under an Alternate Relationship Plan (ARP) were both mentioned as positive factors.

One physician noted that the system works "quite well" when advocating for individual patients but when advocating for populations of patients "the complexity, expense, and politics start to get overwhelming and this is where the controversy arises".

Some respondents indicated though they had "never felt intimidated"; they were "frustrated" at the lack of timely response re accessing necessary services. One respondent expressed regret "that this surfaced in the lay process. It does our profession a disservice."

Negative experiences

Many respondents described some degree of negative experience or belief about advocating for patients or for system change. Both the volume and the intensity of many comments are noteworthy. Some respondents described being personally advised to "not continue speaking", "stop being so outspoken" and noted that if you speak up you are "labeled negative, misinformed, or speaking out of turn". Others

commented that "intimidation is real but subtle", "not rocking the boat' is encouraged", and "people who push too hard get 'whacked', marginalized or put in their place". Other comments included "No matter what anyone says, a culture of fear, intimidation, apathy, elitism, inequality and manipulation exists and has existed for some time" and " there is obvious systemic harassment and intimidation that can/does/may have a negative effect on patient safety". The perspective of some of those who identified themselves as 'newer' graduates found "attempts to advocate meet with limited interest, minimization or frank disrespect from organizational or government bodies with the power to enact change."

The impact of intimidation on advocacy efforts was described in these terms: "It's extremely difficult to advocate due to undertones of intimidation and being told to stop being so outspoken." While some had not experienced intimidation themselves, a number described awareness of intimidation experienced by colleagues and the impact it had on those around them. One respondent stated how even the rumors of intimidation were enough to stop doctors from advocating. Specialists' offices were identified as a source of intimidation as were physicians and colleagues from other disciplines. Several responses stated that they felt intimidation has lessened recently.

There were varying aspects of 'negative' responses, such as "I was never persecuted but was certainly placated, censored, and then ignored." Other individuals reported being threatened with loss of privileges, having their mental competency questioned, and being 'fired' for advocating ("which was traumatic"). While some individuals described an 'emerging hope' in 'the past year or so', others identified that "administrators who orchestrated pervasive intimidation have simply been promoted", "trust cannot be rebuilt under these conditions", and the perception that "the way any disagreement will be handled is much the same way as in the past".

Many expressed the sentiment that physician input is "not wanted nor valued" and "when it is solicited, it is not followed". Others commented that their input was "trivialized, not taken seriously, and told that their actions were for 'self-interest". Some described similar experiences in this comment: "it's not intimidation; it's being ignored and marginalized".

While "unfortunate but understandable", some believed that "many colleagues have long since checked out…and remain disengaged". Others commented on "complacency and apathy" among their colleagues, in response to "20 years of pointless, non-productive advocacy causing advocacy fatigue." Some respondents indicated they "no longer see 'advocating' as a professional responsibility and those that do, question the impact or benefit, suggesting "the system does not accommodate change".

Some respondents indicated that within AHS, quality patient care is "given lip service", AHS managers and administrators are "far too removed from patient care issues", and believe the primary focus of AHS is on budget issues ("budget comes first in AHS"). Some respondents used the term 'substandard' care as reflected in the following comments: "we have learned to accept the unacceptable as routine", and "administrators and managers continued with that standard of care due to the lack of resources". One person specifically indicated that they made a career change due to their frustration with the inability to provide "state of the art" patient care.

Challenges identified with advocating

There were a number of areas where advocating effectively for their patients and getting the outcome desired, was identified as challenging. Respondents identified a number of clinical services *within* AHS

(mental health/*psychi*atry, laboratory services, pathology, emergency departments, newborn care, access to screening colonoscopy, ophthalmology, pediatrics) where this was the case.

A number of clinical services that are *external* to AHS were described as areas that were challenging to access the clinical services that patients needed was hard to do. These included specialists' offices (orthopedics, neurosurgery, neurology, geriatric assessments, psychiatry), WCB (mentioned numerous times, and described as a "big and persistent offender" that "sees the patient as the enemy, and pays bonuses to case workers for getting people off benefits"), Alberta Aids to Daily Living (AADL), and Persons with Developmental Disabilities (PDD).

Another challenge to advocacy efforts was the referral and coordination of healthcare organizations. "There are so many health organizations (Alberta Health and Wellness, Alberta Medical Association, CPSA, etc.)". When I have tried to advocate for change I keep getting referred to another organization to address my concerns. I do not know how best to advocate for my patients anymore."

Some of the challenges with advocacy within AHS were described as being related to a lack of stable leadership for the past four years. The initial AHS Code of Conduct created a "frosty" atmosphere, and though it was retracted and revised, it still lingers as a "sort of warning to keep silent". There was also the sentiment that "administrators who orchestrated pervasive intimidation have simply been promoted" and "trust cannot be rebuilt under these conditions".

Why some physicians choose not to advocate

The CPSA, the AMA, WCB, hospital legal departments and AHS were identified in the narrative comments as "barriers to effective advocacy". Several comments related to having "no trust" with health services organizations. This was illustrated in comments such as "any attempt to advocate for patients that challenges the establishment is met with serious reprisal".

Some described workplaces where it was difficult to advocate effectively. One respondent described their work place as a "living hell" while others expressed concerns about being "threatened" by their physician leaders or management dismissing their concerns and "branding them" as "complainers" and a "nuisance". One respondent wanted to advocate for system improvements stating there that they were concerned about patients at risk of misdiagnosis, but were fearful of job loss if they pursued any level of advocacy.

A variety of reasons were mentioned as to why some physicians chose not to advocate, including "not feeling prepared to advocate (no formal training)" and thinking "others are better at it". Others presented the view that it "won't make any difference anyhow". Respondents talked about the energy and time it takes to advocate, acknowledging that advocacy "requires time which is in short supply", is "arduous and time consuming", requires "undue personal time commitment" with no compensation for doing so, and results in "increasing lethargy to respond to patient care issues." Respondents identified potential ethical issues in advocating for one patient or group of patients at the expense of others.

Several individuals identified the contract they have signed with AHS as "muzzling" by "prohibiting them from pursuing advocacy in any manner that may damage the reputation of AHS". Others mentioned the "recent changes to the clinical ARP contracts with no negotiation and the one sided ultimatum for contract extension as threatening, coercive, and intimidating". This comment was in reference to the contract having "a dismissal without just cause clause and AHS is unwilling to remove it". Another

individual cited the "indemnity clause in the ARP contract as 'intimidation and unfair bargaining…you want a job, you sign the indemnity." Respondents cited situations where requests had been made to them by MLA's to put their concerns in writing, but they were not able to do so as that action would be in violation of that agreement. It should be noted that there are different contracts with physicians in AHS, including legacy contracts that were in place prior to the formation of AHS.

From a broader societal perspective, one individual noted that "health attracts too much attention in the wrong ways and there is too much emphasis on acute care". It was noted that there are "other social issues that would benefit from advocacy but no one advocates for them".

Education regarding advocacy

Several individuals noted that advocacy is difficult to teach and evaluate, and "not all advocacy activities were actually labeled advocacy". A number of respondents indicated that more education (in medical school as well as Continuing Medical Education) on how to advocate effectively would be beneficial, and many expressed interest in having the opportunity to learn more advocacy skills. One respondent expressed the opposite, and couldn't understand why physicians had to be taught as it "was drummed into my head at all stages of my training."

Impact of culture on advocacy

In describing the health system, one physician referred to it as operating in a "perpetual state of crisis", referring to access to inpatient beds. There was mention of "glossy magazine articles describing how well things are working while it is a totally different story on the front line". One physician leader described being "encouraged to portray how great everything was".

Survey comments identified that the current culture discourages advocacy and leads to negative consequences for those actions. There were comments that identified that physicians have developed a 'culture of silence' so as not to experience the negative consequences that may result from speaking out. On a similar note, advocacy "is not encouraged particularly if it has an impact on time efficiency (i.e., speed is more important than safety)".

Impact of restructuring of health care on advocacy

Some individuals believed significant disengagement of the health care work force started with physicians being "removed from decision making" with the initial regionalization in 1994. This year was specifically identified as a date from which advocacy for patients has been censored and ignored as exemplified by comments like "the atmosphere in Alberta has been negative in terms of advocating", and it's "well known but an unwritten rule that in Alberta, physician advocacy is not welcome".

Several issues were identified as resulting from restructuring. "Centralized care has seen a major setback as all previous regional plans and initiatives that were in the planning stages have been totally erased." Middle management's "inability to be effective leaders and decision makers" and "the inability to balance resources between hospitals and programs" had a negative effect on physician's ability to advocate. It was pointed out that various "silos of care that have formed" during restructuring have caused inefficiencies and duplication of services. "We don't necessarily need more resources, we need to be more efficient and effective with the resource we currently have."

Commenting on their perception of physician advocacy issues, one respondent stated, "the problem is on a greater scale and deeply rooted in the structure of today's health care delivery."

Enabling effective advocacy

The most frequent comment in the narrative responses related to suggestions that would make the system better for physicians advocating for their patients, as exemplified by the "need for a system that encourages physicians to tell administration about their problems without losing their jobs, careers, and reputations." This kind of safe and 'enabling' environment or supportive culture where individuals can speak openly is considered foundational for a safety culture. Such a culture would support the perspective that "disagreement is natural, vigorous debate is good and there is an oversensitivity to being "offended". Numerous respondents indicated that the "avenues" and "processes" to advocate within AHS and to the media needed to be clearer with many individuals indicating they often didn't know who to go to either within AHS or outside of their own facility to deal with identified issues. Many respondents commented on difficulties working through the "behemoth and unresponsive organizations challenging health care providers' ability to provide quality care" and "labyrinth of bureaucracy" in AHS, which was perceived to be "remarkably disconnected from actual care delivery". Some expressed frustration with the "bureaucratic challenges" in advocating within AHS noting the "many individuals one had to speak with to raise a concern". Others identified the local administration as being receptive to concerns but having "limited ability to make meaningful decisions". Some individuals provided suggestions for making advocacy more effective and affirmed their belief in 'constructive advocacy'. They identify that the "approach is everything". A number offered pragmatic suggestions to "only advocate when it is the right thing to do", "develop relationships that allow one to make a case, know how to make a case with well thought out and logical arguments presented unemotionally, and be prepared for debate and discussion". Others advise to advocate in a "responsible, balanced way, and carried out in partnership". Suggestions for increasing advocacy effectiveness included "putting patients first and communicating effectively with the party that will help", and advocacy is "best done in conjunction with patient led or disease specific advocacy organizations". The latter "includes the voices of patients (read voters), which resonates more loudly than those of physicians who can be seen as self-interested".

Others presented a different perspective, suggesting that activities of physicians labeled as advocacy was really physicians "having trouble managing within the limits of a capitated healthcare system". They suggest that "clearly stated objectives, priorities and limitations as to what a national and provincial healthcare system can and cannot provide" would be helpful.

There were several suggestions for structures or processes that would improve advocacy. One specific suggestion for improved advocacy was having access to an "independent body" (one person used the term 'health ombudsman') that physicians "can go to when medical leaders are compromising patient care". This body would "have authority to investigate the complaint and if legitimate, correct the situation". Another suggestion was an "online service where advocacy challenges and potential improvements could be recorded with a quarterly report on the most frequent issues pertaining to advocacy could be available". Someone suggested that AHS needed to "develop a system with the AMA and CPSA to ensure there was no fallout financially, legally or professionally for physicians advocating on behalf of their patients, and the CMPA did not have to be the 'go-to' response". The "need for whistleblower

protection if we're ever going to risk speaking out" was specifically mentioned. A few individuals specifically stated that a judicial inquiry was needed.

Experiences advocating with specific organizations

Elected officials (Minister of Health and Wellness) and the Department of Health and Wellness

As mentioned above, "physicians have the duty to advocate and government has an electoral duty to listen". However, there were a number of respondents that commented on "bureaucratic and political interference" with "increasing control among unelected deputy ministers and assistant deputy minister". Respondents voiced concerns about politicians using health care as an issue for "political gain" or for "pushing personal agendas". Some respondents described being "frustrated by individual physicians… doing an 'end run' to the Minister of Health and having 'one off' decisions made in support of individuals". These 'one-off' decisions" were identified as "detrimental" to others in the health system. Comments were made about how "advocacy has become political" and "there is clear political interference in the functioning of AHS" and were described as "counter productive". The survey respondents described how this political involvement has impacted the effective use and distribution of health care resources, resulting in "injustice to some and the 'waste' of resources on relatively ineffective strategies for those with a political voice".

Concerns were also expressed about the "non-responsive" approach of AHW.

Alberta Health Services (AHS)

Frustration was expressed with the "bureaucratic challenges" or "indifference to advocating within AHS" and the "non-responsive approach" or "inability to make decisions". Respondents commented on difficulties working through the "behemoth" and "unresponsive organizations" that challenge "healthcare providers' ability to provide quality care" and that "the present structure makes it impossible to find a contact so that you can advocate". One respondent labeled the "monopoly power (of one provincial region) as extremely intimidating".

College of Physicians & Surgeons of Alberta (CPSA or College)

Several respondents spoke to the 'fear' associated with the CPSA. They felt "intimidated" and said that physicians were "afraid to speak out" because the expectation was that you would "be in trouble and punished". Some described punishment for speaking out as "having charts audited" and then being "blamed for not advocating enough when patients had received poor care".

Limitations

The following limitations should be considered when interpreting the results.

Survey questions

The survey development was guided by a review of the literature and any existing questionnaires conducted by the University of Calgary, W21C Research and Innovation Centre and preliminary thematic information gained from initial interviews conducted under section 9 of the *Alberta Evidence Act*. Ideally, more extensive pilot testing or cognitive and psychometric testing could also have been conducted and

would perhaps have generated more focus and clarity in the questions; however the review timelines were such that this work could not be considered.

Given the varied interpretation and experience of the physician advocacy role and lack of a detailed and well recognized definition of advocacy, an in-depth qualitative study in advance of a quantitative survey would have been preferred. Consequently, it is possible that important issues may have been overlooked or inadequately represented in the survey. However, there is considerable convergence of the survey findings with the results of the qualitative analysis of the interviews, which were conducted concurrently.

Respondent comments on the survey

Several respondents provided feedback on the survey format. These included:

- Need for a clearer definition of advocacy in order to respond appropriately
- Some terminology was perceived to be too general for consistent interpretation
- A focus on the past year for many questions was thought by some to be too limited, potentially failing to capture issues that had occurred prior to that period.
- Consideration of other (non-physician) care providers in that the full spectrum of advocacy issues may not have been captured

Survey sample

The survey sample is potentially limited by response rate and possibly by selection bias. A raw response rate of 26% for physicians is very respectable for surveys of physicians in general; however this response rate is not sufficient to generalize to the entire population of Alberta physicians. While all Alberta physicians were theoretically given the opportunity to respond, the representativeness of the resulting sample is not proven and self selection bias may be a concern if the experience of responding physicians is different than the 74% who did not or could not respond. In the open-ended question (question 32), several respondents expressed fear of punishment for completing the survey, and concern over the confidentiality of their responses. We have no way of determining how many physicians chose not to complete the survey as a consequence of such concerns.

Discrimination between different contexts for advocacy challenges in quantitative data

The quantitative survey results do not adequately discriminate between the issues that have made advocating for individual patients challenging as compared with issues that are organizational in nature. It is difficult to draw conclusions with respect to these more singular aspects of advocacy. This survey has captured a broad view of advocacy, but the responses are variable with respect to the context in which the advocacy occurred. Future research is required and should strive to parse out these different contexts. Note: this limitation applies less to the qualitative analysis.

Qualitative responses to open ended questions

While the narrative responses to the final open-ended question (question 32) and other open response categories are rich, they are limited by the focused scope of the question and the proportion of respondents who provided a qualitative response. A formal qualitative study of advocacy and related issues would likely have yielded even more information. In addition, qualitative analysis was limited to coding and summary of key themes. Given the nature of this data, use of more rigorous or structured qualitative methods was not feasible.

METHODOLOGY REPORT:

**ROLE AND PROCESS OF PHYSICIAN ADVOCACY
SURVEY**

January 17, 2012

Prepared for:

Health Quality Council of Alberta

Table of Contents

Methodology

The Health Quality Council of Alberta (HQCA) undertook a survey of Alberta physicians about their role and process of physician advocacy in Alberta. The HQCA hired PRA to manage the survey process, including survey distribution, management, and data collection.

Methodology

The HQCA sent PRA a database of names and mailing addresses for 7,964 Alberta physicians. The database was given to the HQCA by the Alberta College of Physicians and Surgeons and contained the physicians' names and mailing addresses.

PRA removed seven physicians from the database because they were missing mailing address information and information could not be verified through secondary sources (i.e., telephone books, Internet searches). In total, PRA mailed surveys to 7,957 physicians.

The process for mailing and follow-up is outlined below.

- The 7,957 invitation letters and surveys were mailed to physicians on October 20 and 21, 2011. The letter can be found in Appendix A.
- On November 15, 2012, PRA mailed reminder postcards to 6,948 physicians to encourage them to complete the survey. PRA removed physicians from this second mailing who had completed their survey, withdrawn from the study, or whose invitation letter had been returned to the HQCA as undeliverable. The postcard can be found in Appendix B.
- PRA mailed a second survey package, including a letter and another copy of the survey, to 6,523 physicians between November 29 and 30, 2011, again removing completes, withdrawns, and undeliverables. The final letter can be found in Appendix C.

Outcomes

In total, 2,055 surveys were completed by mail or online. Among these, 18 were completed twice, that is, surveys with the same ID were completed more than once (14 completed twice by paper and 4 completed online and by paper). Duplicate surveys were removed based on the date of completion: the first survey to be returned to PRA by mail or completed online was kept for each physician who completed the survey more than once. This yielded a total sample size of 2,046.

In total, 36 physicians contacted PRA to withdraw from the study, yielding a refusal rate of 0.5%.

In total, 212 survey packages were returned to the HQCA as undeliverable, yielding a total unusable sample of 2.7%.

Of the 2,046 completes, 1,589 were completed and returned by mail and 457 were completed online. This yielded a completion rate of 25.7%.

Appendix A – Invitation Letter

<SURVEY NUMBER>

Dear Dr. <FIRST> <LAST>:

I would like to invite you to participate in a confidential survey about the role and process of physician advocacy in Alberta. The Health Quality Council of Alberta (HQCA) is conducting this survey as part of an independent *Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care Surgery and the Role and Process of Physician Advocacy*. Both the Alberta Medical Association and the College of Physicians & Surgeons of Alberta support and encourage participation in this survey.

The important information you and other physicians provide will allow us to better understand physician knowledge and experience related to advocacy in Alberta, and the extent to which your advocacy for patient care is supported or obstructed by health care provider organizations, government, professional colleges and others.

Your participation is voluntary and you need not answer all of the questions. We hope you will participate and provide as much information as possible. Your answers will be kept strictly confidential and will be combined with those of other physicians in the final report. Individual survey answers will not be shared with anyone.

To manage the survey process and to ensure confidentiality, the HQCA has engaged Prairie Research Associates (PRA) Inc. PRA is an independent, national research firm that is under contract to the HQCA to conduct the survey according to Alberta privacy legislation.

The questionnaire should take about 10 minutes to complete. Once complete, please return it in the enclosed pre-paid return envelope or fax it to PRA at their toll-free at 1-800-717-6744.

You may also choose to complete the survey online at www.prasurveys.com/HQCA. This secure site will require you to enter your unique passcode code. This code is used only to manage the survey process and to verify legitimate participation. Your passcode is shown below.

PASSCODE: <PASSCODE>

We would appreciate it if you would take the time now to complete and return your questionnaire. If we do not receive anything from you soon, you may receive a reminder notice by mail. If you would like more information about the survey or have questions on how to complete the questionnaire, please do not hesitate to call Nicholas Borodenko of PRA at 1-888-877-6744 or by email at HQCAsurvey@pra.ca.

Thank you in advance for your participation.

Sincerely,

John Cowell, MD CCFP FRCP
Chief Executive Officer
Health Quality Council of Alberta

The HQCA was created in 2006 by the *Health Quality Council of Alberta Regulation* under the *Regional Health Authorities Act*. The HQCA has a legislated mandate to promote and improve patient safety and health service quality in Alberta. Part of this mandate includes monitoring and reporting on the quality, safety and performance of the health care system and helping health care providers improve the quality of the care and services they provide.

Appendix B – Reminder Postcard

HQCA
Health Quality Council of Alberta

<SURVEY NUMBER>

DR. <FIRST> <LAST>

<ADDRESS1>

<ADDRESS2>

<CITY>, <PROV> <POSTAL CODE>

Recently the Health Quality Council of Alberta sent you a questionnaire. If you have already completed and returned it to us, please accept our sincere thanks. If not, please do so at your earliest convenience.

The number of physicians likely to participate in the survey is small so it is important that your responses are included.

The information collected from this study will assist us to establish a better understanding of physician advocacy roles, and the extent to which you are supported or obstructed in advocating for the care of your patients.

If, by some chance, you did not receive the questionnaire or it was misplaced, please call Nicholas Borodenko of PRA Inc. at 1-888-877-6744 and another package will be sent to you.

Sincerely,

John Cowell

John Cowell, MD

PRA

Appendix C – Final Letter

<SURVEY NUMBER>

Dear Dr. <FIRST> <LAST>:

We recently sent you a survey the Health Quality Council of Alberta (HQCA) is conducting on the role and process of physician advocacy as part of an independent *Review of the Quality of Care and Safety of Patients Requiring Access to Emergency Department Care Surgery and the Role and Process of Physician Advocacy.* Both the Alberta Medical Association and the College of Physicians & Surgeons of Alberta support and encourage participation in this survey.

The important information you and other physicians provide will allow us to better understand physician knowledge and experience related to advocacy in Alberta, and the extent to which your advocacy for patient care is supported or obstructed by health care provider organizations, government, professional colleges and others.

Your views are important, and as we have not received your response, we are providing you with a second copy of the questionnaire. If you have already replied, please ignore this letter and accept our thanks for your participation.

Your participation is voluntary and you need not answer all of the questions. We hope you will participate and provide as much information as possible. Your answers will be kept strictly confidential and will be combined with those of other physicians in the final report. Individual survey answers will not be shared with anyone.

The questionnaire should take about 10 minutes to complete. Once complete, please return it in the enclosed pre-paid return envelope or fax it to PRA at their toll-free at 1-800-717-6744.

You may also choose to complete the survey online at www.prasurveys.com/HQCA. This secure site will require you to enter your unique passcode code. This code is used only to manage the survey process and to verify legitimate participation. Your passcode is shown below.

PASSCODE: <PASSCODE>

If you would like more information about the survey or have questions on how to complete the questionnaire, please do not hesitate to call Nicholas Borodenko of PRA at 1-888-877-6744 or by email at HQCAsurvey@pra.ca.

Thank you in advance for your participation.

Sincerely,

John Cowell, MD CCFP FRCP
Chief Executive Officer
Health Quality Council of Alberta

The HQCA was created in 2006 by the *Health Quality Council of Alberta Regulation* under the *Regional Health Authorities Act.* The HQCA has a legislated mandate to promote and improve patient safety and health service quality in Alberta. Part of this mandate includes monitoring and reporting on the quality, safety and performance of the health care system and helping health care providers improve the quality of the care and services they provide.

Role and Process of Physician Advocacy Questionnaire

Taking part in this survey is voluntary

Completing the questionnaire

For each question, please fill-in one bubble, using a black or blue pen, or a soft-led pencil. Don't worry if you make a mistake; simply cross out or erase the mistake, and fill-in the correct bubble.

Sometimes you will find the bubble you have filled-in has an instruction to go to another question. For example: ○ Yes [Go to 12]

By following the instructions, you will only complete questions that apply to you.

Completing the questionnaire online

If you would rather complete this survey online, you can do so at: www.prasurveys.com/HQCA.

This secure site will require you to enter your unique passcode, which can be found on the letter enclosed with this survey. This code is used only to manage the survey process and to validate participation.

If you do not wish to participate in this survey, you can do so by simply contacting the Project Manager at PRA Inc. below.

Questions or help?

If you have any questions, please call Nicholas Borodenko of PRA Inc. at 1-888-877-6744 or by email at HQCAsurvey@pra.ca.

Your answers will be confidential and anonymous.

The information you provide will be kept strictly confidential and will only be used and/or disclosed in aggregate form. Individual survey responses will not be shared with anyone. The information is collected under the authority of the Health Quality Council of Alberta Regulation 130/2006, section 13.

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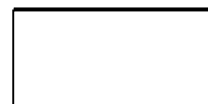
ABOUT PHYSICIAN ADVOCACY

1. The Royal College of Physicians & Surgeons of Canada states in their CanMEDS 2005 Physicians Competency Framework that: "as health advocates, physicians responsibly use their expertise and influence to advance the health and well being of individual patients, communities and populations":

   Do you believe that it is your professional responsibility to act on behalf of patients to advance the care and well being of: *(Fill in all that apply)*
   - ○ My individual patient
   - ○ My clincial population of patients
   - ○ Populations within the broader community
   - ○ Other
     (Please specify)

2. Have you ever received any professional education or training with respect to advocacy for patients? *(Fill in all that apply)*
   - ○ No, have had no formal training in advocacy
   - ○ Yes, in medical school
   - ○ Yes, in residency
   - ○ Yes, as continuing medical education (CME)
   - ○ Yes, other
     (Please specify)

3. In the past year, have you used any of the following sources for information on physician advocacy? *(Fill in all that apply)*
   - ○ College of Physicians & Surgeons of Alberta
   - ○ Canadian Medical Association
   - ○ Alberta Health Services
   - ○ Accreditation Canada
   - ○ Royal College of Physicians & Surgeons of Canada
   - ○ Medical journals or other literature
   - ○ Other
     (Please specify)
   - ○ None of the above

4. Do you believe you have the necessary skills to effectively advocate for your patients?
   - ○ Yes   ○ No   ○ Don't Know

5. In the past year, how often have you experienced care delivery issues that negatively impacted the care of your patients? (These might include quality, safety, resource, or policy related issues)?
   - ○ Never   ○ Sometimes   ○ Usually   ○ Always

6. Considering your usual work context in the past year, are you aware of a process through which you could advocate for your patients to address such issues as quality, safety, resource or policy issues?
   - ○ Yes   ○ No   ○ Don't Know

7. If you were a physician under contract, in the past year has your "contract" …
   - ○ Limited your ability to advocate for your patients in any way
   - ○ Enhanced your ability to advocate for your patients in any way
   - ○ Contract does not address advocacy directly
   - ○ I did not work under contract

8. If you work within a healthcare delivery organization; In the past year, have organizational policies ...
   - ○ Limited your ability to advocate for your patients in any way
   - ○ Enhanced your ability to advocate for your patients in any way
   - ○ Organizational policies do not address advocacy directly
   - ○ I did not work in an organization

9. In the past year, has your ability to advocate on behalf of your patients been limited in any way?
   - ○ Yes
   - ○ No *(If 'No,' go to Q12 on page 3)*

10. Which of the following (if any) have restricted your ability to effectively advocate on behalf of your patients: *(Fill in all that apply)*
    - ○ My lack of training and education in advocacy
    - ○ My inexperience in advocating for my patients
    - ○ Uncertainty of my role as an advocate
    - ○ Lack of time to advocate
    - ○ Inadequate communication between providers
    - ○ Unclear process for advocacy
    - ○ Unsupportive organizational policies
    - ○ Lack of resources to provide requested care
    - ○ Conflict over best course of care
    - ○ Other
      (Please specify)
    - ○ None of the above

11. Who of the following (if any) has restricted your ability to advocate for your patients? *(Fill in all that apply)*
    - ○ Physician peers
    - ○ Department or division administration
    - ○ Organization administration
    - ○ Organization leadership or executive
    - ○ Alberta Health and Wellness
    - ○ College of Physicians & Surgeons of Alberta
    - ○ Alberta Medical Association
    - ○ Alberta Health Services
    - ○ Other
      (Please specify)
    - ○ None of the above

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12. Which of the following (if any) have enhanced your ability to effectively advocate on behalf of your patients: *(Fill in all that apply)*

  ○ My training and education in advocacy
  ○ My experience in advocating for my patients
  ○ Supportive organizational policies
  ○ A clear process for advocacy where I work
  ○ A clear understanding of physician advocacy role where I work
  ○ Available resources to provide requested care
  ○ Agreement on the best course of care
  ○ Other
    (Please specify) _____
  ○ None of the above

13. Who of the following (if any) has enhanced your ability to advocate for your patients? *(Fill in all that apply)*
  ○ A mentor
  ○ Physician peers
  ○ Department or division administration
  ○ Organization administration
  ○ Organization leadership or executive
  ○ Alberta Health and Wellness
  ○ Alberta Health Services
  ○ College of Physicians & Surgeons of Alberta
  ○ Alberta Medical Association
  ○ Other
    (Please specify) _____
  ○ None of the above

14. In the past year, how often have you stopped yourself from advocating for your patients because you felt that nothing would happen to address the issue?
  ○ Never   ○ Sometimes   ○ Usually   ○ Always

15. In the past year, how often have you stopped yourself from advocating for your patients for fear of negative repercussions for you as a physician?
  ○ Never   ○ Sometimes   ○ Usually   ○ Always

16 In the past year, how often have you advocated for the needs of your patients? *(If 'Never,' go to Q23 on page 4)*
  ○ Never   ○ Sometimes   ○ Usually   ○ Always

17. In the past year, how often have your suggestions been acted upon in a meaningful way when you advocated for your patients?
  ○ Never   ○ Sometimes   ○ Usually   ○ Always

18 In the past year, how often has your role as an advocate for patients had a positive outcome for your patients?
  ○ Never   ○ Sometimes   ○ Usually   ○ Always

19. In the past year, how often has your role as an advocate for patients had a positive outcome for you as a physician?
  ○ Never   ○ Sometimes   ○ Usually   ○ Always

20. In the past year, to whom have you advocated for the needs of your patients? *(Fill in all that apply)*

  ○ Physician peers or colleagues
  ○ Your department or division (within organization)
  ○ The executive of your healthcare organization
  ○ Alberta Health and Wellness
  ○ Public media (news, reporters, etc)
  ○ Politicians, MLAs, or related bodies
  ○ Alberta Medical Association
  ○ Canadian Medical Association
  ○ College of Physicians & Surgeons of Alberta
  ○ Other
    (Please specify) _____
  ○ None of the above

21. In the past year, considering your professional responsibility for advocacy, which best describes your experience?
  ○ Greatly supported
  ○ Somewhat supported
  ○ Neither supported or obstructed
  ○ Somewhat obstructed
  ○ Greatly obstructed

22. In the past year, have you experienced any of the following when advocating for the needs of your patients? *(Fill in all that apply)*
  ○ Pressured to withdraw your request
  ○ Censored
  ○ Intimidated
  ○ Punished
  ○ Threatened
  ○ Other
    (Please specify) _____
  ○ None of the above

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23. Have you had a previous negative experience when advocating for your patients within any of the following time frames *(Fill in all that apply)*:
   ○ Longer than 10 years ago
   ○ Longer than 6 years ago and up to 10 years ago
   ○ Longer than 3 years ago and up to 6 years ago
   ○ Within the last 3 years
   ○ I have not had a negative experience advocating

ABOUT YOU

24. Are you male or female?
   ○ Male   ○ Female

25. What was your year of graduation from medical school? (Please write in)   e.g.,

1	9	3	4

26. What is your physician specialty?
   ○ GP or Family Physician

   ○ Other
   (Please specify)

27. In which of the following areas do you presently work? *(Fill in all that apply)*:
   ○ Community based (primary) care
   ○ Community based (specialty) care
   ○ Hospital based - inpatient
   ○ Hospital based - outpatient
   ○ Emergency department or urgent care

   ○ Other
   (Please specify)

28. In which Alberta Health Services zone do you primarily practice? (regardless of work type)

   ○ South Zone
   ○ Calgary Zone
   ○ Central Zone
   ○ Edmonton Zone
   ○ North Zone

29. Are you under contract to provide services within or under a care provider organization or corporation?
   ○ Yes ☞
   ○ No
   (If 'yes,' please specify organization)

30. Which of the following describe the ways in which you are paid for your clinical work? *(Fill in all that apply)*:
   ○ Fee for service
   ○ Clinical Alternative Relationship Plan
   ○ Academic Alternative Relationship Plan
   ○ Hourly rate (other than Alternative Relationship Plan)
   ○ Community Alternative Relationship Plan
   ○ Other
   (Please specify)

31. Can we contact you again if we have questions about your responses? If yes, please provide your

   Name: _____

   Phone number: _____

32. Do you have any additional comments, concerns or suggestions regarding physician advocacy issues as you have experienced them in your practice? *(Please specify below)*

THANK YOU FOR YOUR ASSISTANCE

Please return using the pre-paid envelope provided to you.

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LIST OF FIGURES

LIST OF TABLES

ACRONYMS

AACC	Advanced Ambulatory Care Centre
AADL	Alberta Aids to Daily Living
ACCS	Ambulatory Care Classification System
AHS	Alberta Health Services
AHW	Alberta Health and Wellness
ALC	Alternate Level of Care
ALOS	Average Length of Stay
AMA	Alberta Medical Association
APAGA	Alberta Public Agencies Governance Act
ASIR	Age-standardized Incidence Rate
ASMR	Age-standardized Mortality Rate
CADTH	Canadian Agency for Drugs and Technologies in Health
CAEP	Canadian Association of Emergency Physicians
CanMEDS	Canadian Medical Education Directions for Specialist
CCI	Cross Cancer Institute
CCS	Community Care Services
CDU	Clinical Decision Unit
CEO	Chief Executive Officer
CH	Capital Health
CIHI	Canadian Institute for Health Information
CMA	Canadian Medical Association
CMG	Case Mix Groups
CMO	Chief Medical Officer
CMPA	Canadian Medical Protective Association
COPD	Chronic Obstructive Pulmonary Disease
CPG	Clinical Practice Guidelines
CPOE	Computerized Physician Order Entry
CPR	Cardiopulmonary Resuscitation
CPSA	College of Physicians and Surgeons of Alberta
CT	Computerized Tomography
CTAS	Canadian Triage and Acuity Scale
DAD	Discharge Abstract Data
DI	Diagnostic Imaging
ED	Emergency Department
EDIS	Emergency Department Information Systems
EHR	Electronic Health Record
EIP	Emergency Inpatient
EKG	Electrocardiogram
EMLC	Expedited Management of Lung Cancer

EMS	Emergency Medical Services
ESSC	Emergency Services and Systems Capacity
FCP\OCP	Full-capacity/ Over-capacity Protocols
FMC	Foothills Medical Centre
GIM	General Internal Medicine
GN	Grey Nuns Community Hospital
GP	General Practitioner
HBR	Harvard Business Review
HPA	Health Professions Act
HQCA	Health Quality Council of Alberta
HR	Human Resources
ICU	Intensive Care Unit
LOS	Length of Stay
MAU	Medical Admission Unit
Meditech	Medical Information Technology Incorporated
MD	Medical Doctor
Mis	Misericordia Community Hospital
MLA	Member of the Legislative Assembly
MRI	Magnetic Resonance Imaging
NACRS	National Ambulatory Care Reporting System
NENA	National Emergency Nurse Affiliation
NHS	National Health Service
NICU	Neonatal Intensive Care Unit
NP	Nurse Practitioners
NSCLA	Non-small Cell Lung Cancer
OR	Operation Room
ORIS	Operation Room Information System
OU	Observation Unit
PA	Physician Advocacy
PAAL	Practitioner Advocacy Working Group
PACS	Picture Archiving and Communication System
PDD	Persons with Developmental Disabilities
PET	Positron Emission Tomography
PLC	Peter Lougheed Centre
PPEC	Provincial Physician Executive Committee
PRA	Prairie Research Association
QA	Quality Assurance
QAC	Quality Assurance Committee
QAR	Quality Assurance Review
RAH	Royal Alexandra Hospital
RAZ	Rapid Assessment Zones
RCPSC	Royal College of Physicians and Surgeons of Canada

REDIS	Regional Emergency Department Information System
RGH	Rockyview General Hospital
RHA	Regional Health Authorities
RHAA	Regional Health Authorities Act
RT	Review Team
SPSS	Statistical Package for the Social Sciences
STARS	Shock Trauma Air Rescue Society
TBCC	Tom Baker Cancer Centre
TLP	Triage Liaison Physicians
TV	Television
U of C	University of Calgary
UAH	University of Alberta Hospital
UBC	University of British Columbia
UK	United Kingdom
WCB	Worker's Compensation Board

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