"Wait" Watchers III: *Order & Speed...*

Improving Access to Care through Innovations in Patient Flow

March 2009

ACAHO

Association of Canadian Academic Healthcare Organizations

Who We Are...

The Association of Canadian Academic Healthcare Organizations (ACAHO) is the national voice of Teaching Hospitals, Academic Regional Health Authorities (RHAs) and their Research Institutes. The Association represents over 45 organizations, with members ranging from single hospitals to multi-site, multi-dimensional regional facilities (also known as “Research Hospitals”).

Members of ACAHO are leaders of innovative and transformational organizations who have overall responsibility for the following integrated activities:

- Provision of and timely access to a range of specialized and some primary health care services.
- Provision of all of the principal clinical teaching sites for Canada’s health care professionals including partnerships with all 17 Faculties of Medicine and Faculties of Health Sciences.
- Infrastructure to support and conduct health research in its dimensions — medical discovery, knowledge creation, knowledge translation, and innovation and commercialization.

There are no other organizations in the health system that provide the unique combination of health services that our members do. We consider our institutions to be vital “hubs” in the health system — in addition to being a national resource.

Our Mission...

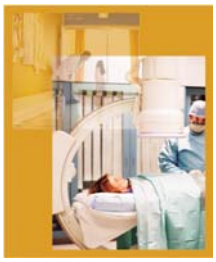
The mission of ACAHO is to advance and promote excellence in the delivery of quality health services, the teaching and educational experience, and the health research and innovation enterprise.

Our Mandate...

The mandate of ACAHO is to provide effective national leadership, advocacy, and policy representation in the following three related areas of the:

- Funding, organization, management and delivery of highly specialized tertiary and quaternary, as well as primary health care services.
- Education and training of the next generation of Canada’s health care professionals.
- Infrastructure to support and conduct basic and applied health research, medical discovery, innovation and commercialization.

For more information on the activities of the Association, please visit our website at **www.acaho.org**.



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Acknowledgements

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ACAHO would like to acknowledge each of these individuals and organizations. Thank you for telling your story, allowing us to use it as part of the dataset for *Order & Speed*, and allowing us to share your innovation with the broader community through ACAHO's website: www.acaho.org.

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* In collaboration with The Hospital for Sick Children

This report was authored by Ms. Tina Saryeddine (Assistant Vice-President, Research & Policy Analysis), and Mr. Glenn G. Brimacombe (President & CEO). The webpage containing the case studies was developed by Ms. Alexandria Tougui (Executive Assistant to the President & CEO) who also formatted the cases. Ms. Mary Sarsfield formatted the report.

Message from the President & CEO and Chair of the Board

If there is one indicator that Canadians link to the performance of the health system, it is timely access to a range of health services. More specifically, in a world of increasing accountability and the desire for public disclosure on system performance, wait times are the barometer by which Canadians perceive the performance of the health system.

The purpose of this report is to "shine a light" on many of the important pockets of innovation in facilitating timely access to care that have been introduced in ACAHO member institutions. They focus on improving the *order* with which care is delivered and the *speed* at which patients move through the system.

Using case studies (which are available online at www.acaho.org), *Order & Speed* identifies a number of innovative practices across the health care continuum, that are having a positive impact on Canadians' access to care.

Over the past decade, the future of our health system has, arguably, been the most pressing public policy priority on the minds of Canadians – with the pointed question being "will the system be there for me and my family in times of need"?

To advance the discussion around improving wait times, in September 2004, the Firsts Ministers met in Ottawa to discuss how the country could develop a shared agenda to reinvigorate our health system. From these meetings "*A 10-Year Plan to Strengthen Health Care*" emerged with all levels of governments supportive of the Accord.

A central feature of the Accord was a focus on reducing wait times and improving access to care in five identified areas – cancer, heart, diagnostic imaging, joint replacements and sight restoration. More importantly, all governments agreed to establish a series of wait time benchmarks by December 31, 2005, and implement multi-year targets to achieve the benchmarks by December 31, 2007.

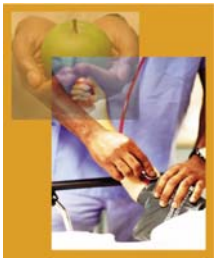
While governments have agreed to establish benchmarks and set targets, the central policy issues at play are through what *policy means* are we going to achieve these defined *policy ends*? That is, what are the innovative strategies that are going to be implemented at the local level that will make a difference in the lives of Canadians?

Order & Speed builds on our two previous reports "*Wait" Watchers…Weighing in on Wait Time Initiatives Across ACAHO Members* (2005), and *"Wait" Watchers II…Measuring Progress on Wait Time Strategies Across ACAHO Members* (2006).

In closing, we welcome your comment on the content of this report. In this regard, feel free to contact Ms. Tina Saryeddine, Assistant Vice-President, Research & Policy Analysis at Saryeddine@acaho.org.

Glenn G. Brimacombe
President & CEO

Jack Kitts, MD, FRCPC
Chair of the Board



EXECUTIVE SUMMARY

In September 2004, the First Ministers met in Ottawa to discuss how the country could develop a shared agenda to reinvigorate our health system. From these meetings "*A 10-Year Plan to Strengthen Health Care*" emerged with all levels of governments supportive of the Accord – with a specific focus on reducing wait times and improving access to care in five identified areas – cancer, heart, diagnostic imaging, joint replacements and sight restoration. All governments agreed to establish a series of wait time benchmarks by December 31, 2005, and implement multi-year targets to achieve the benchmarks by December 31, 2007.

Since that time, the conversation on wait times has not only broadened to other areas – such as the emergency department, paediatrics, and mental health – but it has evolved. With the establishment of priority areas and benchmarks, a focus on *patient flow* has moved up in the lexicon of wait time strategies. For the purpose of this report, patient flow is defined as any "clinical or operational approach that facilitates the progression of a patient from an identified entry or starting point in a health system to a chosen or final exit point through a path connecting them".[1]

"Patient flow is defined as any clinical or operational approach that facilitates the progression of a patient from an identified entry or starting point in a health system to a chosen or final exit point through a path connecting them."

Order & Speed features 45 cases across 23 ACAHO members that highlight a range of innovative practices across the continuum of care that are having a positive impact on Canadians' access to care. All of the cases exemplify efforts to optimize the use of existing resources. The cases are organized along the very same journey that a patient may take in accessing the health system and full versions of the cases can be obtained on-line at www.acaho.org.

ACAHO members play a leadership and collaborative role within their respective jurisdictions. This synthesis report "shines a light" on many of the important pockets of innovation that have been introduced by member institutions that focus on improving the *order* in which services are delivered, and the *speed* at which patients move through the system.

It is also important to point out that these innovations in patient flow could not occur without the leadership and collaborative partnerships that have been established between a range of health care providers, administrators, and funders.

STRATEGIES TO IMPROVE PATIENT FLOW: *What do the case studies tell us about patient flow and the health care system? Why do providers and organizations make the efforts they do in patient flow? What difference does it make?*

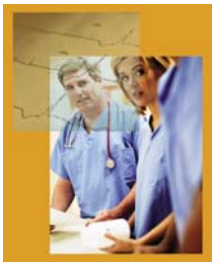
Each of the 45 initiatives discussed in this report was designed to ensure that patients can access timely care, where and when they need it. The cases themselves demonstrate with both quantitative and qualitative measures the ability to:

- **Save more lives by addressing emergencies quickly and correctly**
- **Serve more patients within the same resources and physical constraints**
- **Reduce unnecessary days from the length of hospital stay for patients**
- **Improve patient and family satisfaction and participation in the care process**

"The results of these initiatives highlight many important goals and outcomes, often achieved within the existing operating resources or capacity of the organization."

The strategies discussed for improving patient flow and achieving important health and health system outcomes include a suite of innovations involving process mapping, the implementation of new staffing roles, the use of care pathways, communication tools and new protocols, collaboration between different sectors and organizations within the health system, and the active and deliberate involvement of patients and families in the care process.

The results of these initiatives highlight many important goals and outcomes, often achieved within the existing operating resources/capacity of the organization. Detailed quantitative and qualitative measures of the outcomes are provided in the cases themselves and outlined in the case discussion section of this report, but are generally summarized as follows:



- ***Ensuring access to primary care*** by improving access to clinics and developing a broad-based system level change in the way specialized medical care is accessed. Sample outcomes included: (1) better integration between physicians and specialists; (2) the ability to see more patients; and (3) better disease screening and better prevention.

- ***Preventing more emergencies where and when we can*** by facilitating access to screening and assessment within an emergency department and in community settings using nurse practitioners. Sample outcomes included: (1) the reduction or avoidance of emergency department visits and hospital re-admissions; (2) better pain and risk management; and (3) more appropriate utilization of resources.

- ***Helping to get patients from 911 to the Emergency Department*** by ensuring that ambulances reach hospitals that have sufficient institutional capacity to take patients immediately or by providing expedited treatment protocols. Sample outcomes included: (1) a reduction in the number of times an ambulance is re-directed to another hospital; and (2) faster ambulance offload times to hospitals.

- ***Moving patients through the emergency department*** by rethinking physical space, mapping processes and making improvements. Sample outcomes included: (1) an increase in the number of patients that can be seen per month; (2) the length of time it takes to attend to each patient, the percentage of patients that are seen within a specific target among other improvements.

- ***Addressing emergencies that occur elsewhere in hospital*** by reducing the time needed to complete urgent consults and improving the flow of patients into and out of the Intensive Care Unit (ICU), sample outcomes included: (1) the ability to safely care for patients in need of ICU services; and (2) faster times for the completion of urgent consults.

- ***Taking a system-wide approach to improving access/discharge planning*** by using metrics and measures, improving communication, coordinating the journey and the support services required, implementing new staffing roles, and facilitating inter-organizational collaborations. Sample outcomes included: (1) the reduction of alternate level of care (ALC) days; (2) a reduction in paperwork; and (3) better coordination through the health care system.

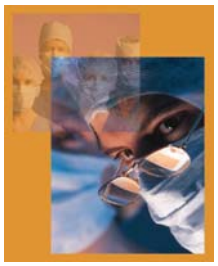
- ***Taking a condition-specific approach*** to patient flow by setting benchmarks, developing care-pathways and protocols for paediatric surgery, mental health, cancer, cardiac services, bariatric clinics, and musculoskeletal services. Sample outcomes included: (1) more appropriate utilization; (2) better screening; (3) improved patient and family participation; and (4) increased capacity.

TAKING IT TO THE NEXT LEVEL: *What factors are critical for achieving the next level of excellence?*

ACAHO asked the case authors to discuss what is necessary to achieve the next level of excellence by identifying limiting factors. These issues are likely to need policy or system-level considerations but may be facilitated through a combination of one-time targeted and/or ongoing strategic investments:

1. ***Access to care in the community:*** A number of cases noted that the lack of community supports for patients leaving hospital is a limiting factor in achieving further improvements. For example, while a patient may no longer require acute care or in-patient rehabilitation, the hospital may not be able to discharge a patient safely to the home setting because it is not considered safe for the patient to live alone or manage a staircase, etc.

2. ***Bed and staffing capacity:*** As may be expected, many of the initiatives represent the optimization of existing capacity and resources. That said, many of the organizations are also operating at very high levels of occupancy. This can often mean that the opportunity for further improvement within the existing structure is limited. The next step may therefore be to increase bed capacity and the ability to staff those beds.



3. ***Physical space and infrastructure issues:*** A number of the cases discussed how organizations reconsidered the limitations of physical space. In some cases, the use space, such as conference rooms and solariums were carefully reconsidered as opportunities to deliver safe and effective care in emergent situations. For situations where health infrastructure has exceeded its natural lifespan; there is a need to re-invest in physical plants so that their design is better aligned with the needs, technology, and environmental and practice standards of today and the future.

4. ***Health information technology:*** In many cases the availability of communication technologies and electronic health records were noted as limiting factors to making future improvements and introducing innovation.

5. ***Data and evidence to guide decision-making:*** A critical success factor in many of the initiatives was the collection of data and information that could facilitate decision making, identification of root causes, and form an evidence base for more innovations. Many cases cited the need to generate and utilize new knowledge to address the increasing complexity of generating the right questions and data to inform next steps.

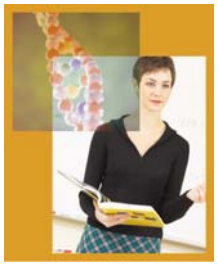
6. ***Alignment of incentives:*** Many of the cases acknowledged leadership from senior level administrators and providers at their organization. However, in instances where a system-wide collaboration is needed between providers in different organizations, or who operate independent clinics, the need to align incentives to better facilitate collaboration, compliance, and sustainability was identified.

Conclusion

Consistent with initiatives in countries such as the United States, the United Kingdom and Australia, the cases submitted to this call for leading practices in patient flow show that Canada has made large-scale system-wide commitments to improve wait time management and patient flow strategies. A number of the initiatives in this study reflect the outcomes of federal and provincial investments and have been made possible by funding earmarked for this purpose. In other cases, the leadership of the organization and commitment of its staff facilitated important improvements in patient flow.

What do we learn about innovations in patient flow from across Canada? The case studies demonstrate many of the values of teaching and research hospitals through: (1) the application of existing and new evidence and best practices; (2) the translation of knowledge into patient-specific products and innovations to improve patient flow; (3) the ability to make the most of existing resources; (4) the integration of the human element for both patients and providers by empowering each to achieve their potential as practitioners or as participants in the health care decision-making process; and (5) demonstrating accountability through a focus on evaluation and results.

1. SETTING THE STAGE



Of all of the strategic policy issues that are part-and-parcel of the discussion around the future of the health care system (e.g., sustainable funding, adequate number of health providers, scope of practice issues, patient safety and quality of care, innovative delivery models, public-private interface, to name a few) it is clear that the public reporting of wait times is the most important barometer by which Canadians perceive the performance of the system.

This is not unexpected given that it is an easily understood indicator that speaks to the most important concern facing Canadians in relation to the health system; having timely access to a range of quality health services in times of need.

As much as we focus on wait times as an important performance indicator, we know that it is an *output* measure that is dependent on a number of *inputs* within the system. For example, the lack of available physicians, nurses and other health providers at the primary care level can impact on access, diagnosis, referral and subsequent treatment. Fixed operating revenues can impact on the availability of operating suites and the volume of in-patient and out-patient surgeries. Limited capital budgets restrict the purchase of innovative technologies that can improve patient outcomes and reduce their stay in hospital.

"As much as we focus on wait times as an important performance indicator, we know that it is an output measure that is dependent on a number of inputs within the system."

To better understand some of the relationships between inputs and outputs and their connection to patient flow and improved access, ACAHO surveyed its members using a case-study approach. Importantly, the case studies that have been summarized in this report reflect real-world innovations that are occurring at different points along the continuum of care and at the local level within ACAHO member institutions. In some cases, specific results are available and noted, in others, the patient flow processes are underway with an assessment to follow.

In other words, as much as there has been an appropriate focus on the amount of time one waits for care, there are a combination of policy inputs related to the overall capacity of the system that must also be considered.

However, given the size of the current investment in health care, the state of the economy, and concerns over sustainability in the face of a changing demographic, health care leadership and providers are strengthening their efforts to meet the expectations of Canadians and assist policymakers and funders in demonstrating the optimization of resources. Patient flow is one such resource optimization strategy.

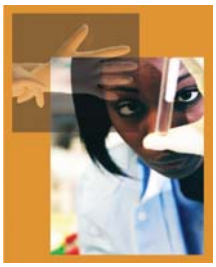
"The case studies that have been summarized in this report reflect real-world innovations that are occurring at different points along the continuum of care and at the local level within ACAHO member institutions."

Patient flow examines not only the relationships between inputs and outputs, but also uses clinical and operational insights to reduce and eliminate redundancies and inefficiencies. By looking at where and how patient flow is optimized, it is possible to garner greater clarity and insights on the policy levers needed to achieve the goals of timely access to health services.

It is also important to point out that these innovations in patient flow could not occur without the leadership and collaborative partnerships that have been established between a range of health care providers, administrators, and funders.

While this report is a synthesis and discussion of the case studies reported by ACAHO member organizations, in the spirit of promoting knowledge exchange, all case studies are accessible from our website (www.acaho.org). We view these case studies as the beginning of a repository of innovations that can facilitate our understanding of policy directions and enable providers and organizations to share innovations and best practices across jurisdictions and with the rest of the health care system.

Order & Speed builds on ACAHO's previously released documents in this area – *"Wait" Watchers…Weighing in on Wait Time Initiatives Across ACAHO Members* (2005), and *"Wait" Watchers II…Measuring Progress of Wait Time Strategies Across ACAHO Members* (2006). In the former, the report focused on the development of a number of wait time strategies by ACAHO members shortly after the 2004 First Ministers Accord. In the latter, the report focused on the range of specific wait time initiatives undertaken by ACAHO members designed to improve Canadians' access to a range of health services.



Knowing that we think of Medicare being a national program, the reality is that we have 13 health systems that are led by our respective provincial and territorial governments. Furthermore, given the increasing degree of accountability and scrutiny that is being placed on the public dollars that are invested in our most cherished social program, it is crucial, now more than ever, to better understand the "depth" and "breadth" of local innovations that are occurring across the country and share our successes, in addition to our "attempts" at success.

Given the leadership role that members of ACAHO play within their respective jurisdictions, this report is intended to facilitate the sharing of knowledge that can promote news ways in which to improve patient flow and timely access to quality health care.

2. Background

Objectives

The purpose of ACAHO's call for leading practices in patient flow is to take stock of progress and innovations in the management of wait times, with a specific focus on patient flow strategies. While not intended as a research project, the objectives of this initiative were to:

- Identify successes from experiments or innovations in patient flow that can be shared and implemented across ACAHO members and other health jurisdictions.
- Demonstrate the application of knowledge and best practices and showcase the contribution of Canada's teaching and research hospitals to the rest of the health care system in the area of patient flow.
- Discuss examples of how local, provincial, and federal initiatives and investments translate at the organizational and patient care levels.

"Operations management types of approaches to patient flow often include a holistic view of an organization as the interaction of structures, processes, and people. They integrate both technical and human factors to find out what is truly of value to the client and then seek opportunities to achieve this value while reducing redundancies and unnecessary activities."

Brief Overview of Patient Flow[2]

For the purpose of this report, patient flow is defined as any "clinical or operational approach that facilitates the progression of a patient from an identified entry or starting point in a health system to a chosen or final exit point through a path connecting them".[3] As such, patient flow is both an observable phenomenon and an approach or toolbox for moving patients through the health system.

As an observable phenomenon, patient flow represents the journey through the health care system. A decision or incident may set off a chain of planned or unplanned encounters with health care services. The patient will then transition through various stages of health and various parts of the health system. For example, a patient may move from surgery to post-operative care; from rehabilitation in an inpatient hospital setting to receiving rehabilitation in the home; from an acute care hospital to a long term care home, etc.

As an approach to health services, patient flow has its roots in operations management.[4] Through such lenses, patient flow often involves the idea that as one patient moves from one point of the health care system to another, the patient not only attains the care he or she needs, but also frees capacity for the next person to obtain care.

This considers the linkage between supply and demand but also introduces the notion of timing. The objective is to smooth out overall variation between supply and demand so that the timing of the transition between different parts of the health care system is not hampered by delays, bottlenecks or backlogs.

Operations management types of approaches to patient flow often include a holistic view of an organization as the interaction of structures, processes, and people. They integrate both technical and human factors to find out what is truly of value to the client and then seek opportunities to achieve this value while reducing redundancies and unnecessary activities.

The Institute for Healthcare Improvement (IHI) is an example of a resource that is widely cited in many of the cases that were submitted in this call for leading practices.[5] IHI has been widely engaged across Canada and internationally.[6] Exhibits 1 and 2 show some commonly known strategies that have been shown to improve patient flow internationally.

Exhibit 1
Examples of Patient Flow Strategies

Adapted from the Victoria Patient Flow Collaborative in Australia[7]

Focusing on referrals in and out of the health system

- Appropriateness of triage
- Appropriateness, timing, pathways, documentation of referrals

Using workforce strategies for patient flow

- Better engaging allied health services
- Ensuring training and skill sets
- Redefining clinical roles
- Providing necessary education
- Re-examining professional boundaries
- Ensuring the availability of medical staff

Models of care

- Aligning incentives through innovative funding models
- Substitution/Diversion of health services
- Automatic patient review
- Managing chronic illness

Communication & information

- Facilitating hospital-wide communication
- Leveraging health services provided in Community
- Providing information for GP's
- Proving information for Hospitals
- Facilitating GP communication

Bookings & waiting lists

- Impact on surgical waiting list
- Customer service documentation
- The use of interpreters
- Addressing the needs of Do Not Admit Patients
- Rethinking physical facilities
- Private Clinics
- Scheduling, booking
- Facilitating transport

Improvement methodologies

- Lean
- Theory of constraints
- Six sigma
- Whole systems thinking
- Breakthrough methodology

Exhibit 2
Sample Framework of Patient Flow Improvement Strategies

Adapted from the Institute for Healthcare Improvement in the United States[8]

Identify patient flow problems[9]

- Asking critical questions to reduce flow variation
- Exploring opportunities to improve the chain of health services

Measure and minimize flow variation

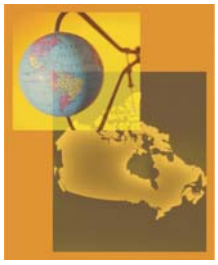
- Clinical variation (types of patients)
- Professional variation (ability of different providers to give care)
- Flow variability (the ebb and flow of patients during the day)

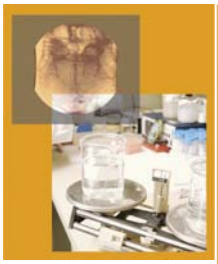
Test changes within the hospital

- Using space to cluster like patients together
- Facilitating the movement of patients by providing information, communication, coordination of the discharge planning process
- Synchronizing other transitions to the discharge schedule

Extend the chain of patient flow

- Work with other organizations and providers to ensure access to care outside of the hospital





3. APPROACH

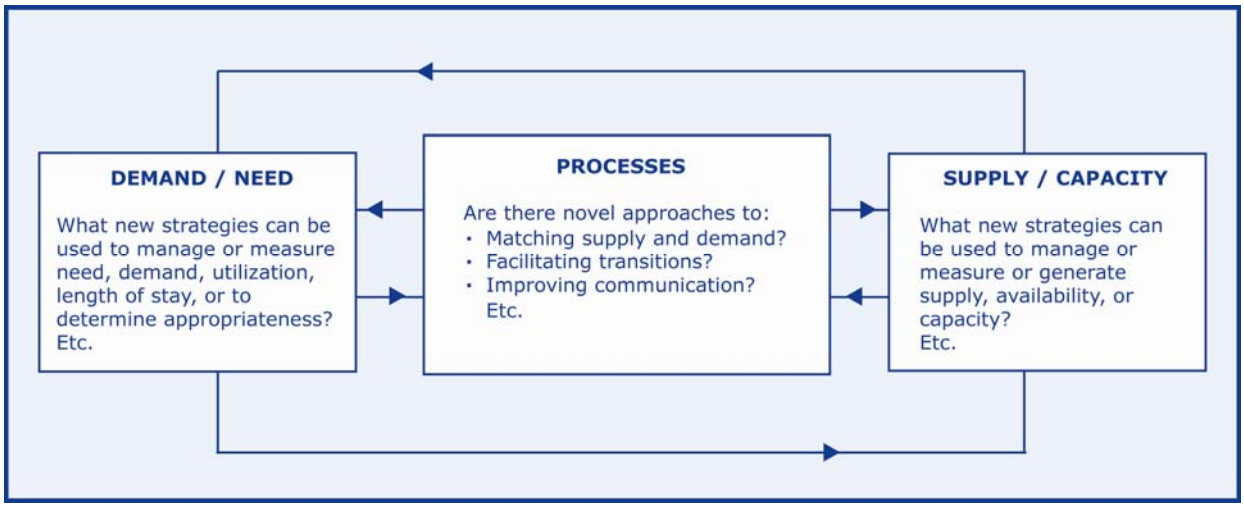
Order & Speed is based on a call for leading practices in patient flow. Through the call for leading practices, ACAHO invited clinicians, researchers and policy/management professionals from its member organizations to showcase organizational innovations that have improved patient flow or wait times (see appendix A).

The definition of patient flow was kept very broad in order not to exclude submissions of innovations that may not be part of the popular repertoire. Initiatives were welcomed that either focused on patient flow specifically or that could be seen to have a demonstrable influence on patient flow (see Figure 1).

Figure 1

Depiction of Possible Factors that May Influence Patient Flow

Adapted from F. Markel as cited in Rafferty et al, 2002[10]



The call for leading practices was disseminated through ACAHO member Presidents & CEOs across their respective organizations.[11] Teams within these organizations with an innovation in patient flow were invited to prepare a submission that reflected their leading practice, with the following headings:

- Title, problem statement, context and population group
- Resources required and sources of funding
- Start-point and end-point for the patient flow journey
- Measurement and evaluation approach
- Sample outcomes
- Discussion and observations
- Success factors and barriers to further improvements

"The cases are available on the ACAHO website at www.acaho.org"

Forty-five cases were received from 23 ACAHO member organizations and analyzed using content areas that were outlined in the submission form and that formed the outline of each case. Emerging themes across the submissions were used as a basis for organizing a discussion and synthesis. The cases are available on the ACAHO website (www.acaho.org) and are listed in Exhibit 3.

It should be noted that ACAHO welcomed research-practice collaborations and pilot or demonstration projects. For this initiative however, the focus was on initiatives that were at the implementation phase and in most cases, with evaluation results.

Exhibit 3

List of Leading Practices in Patient Flow

by Theme and Organization

Ensuring access to primary care

1. Alberta AIM (Access. Improvement. Measures)—*Alberta Health Services Board, Edmonton, AB*

2. Medical Access to Service—*Alberta Health Services Board, Calgary, AB*

Preventing Emergency Where and When We Can

3. Expediting Ambulatory Services Access to Reduce Emergency Department Visits and Hospital Admissions—*Alberta Health Services Board, Edmonton, AB*

4. Evolution du repérage a l'urgence des personnes âgés en perte d'autonomie avec le questionnaire PRISMA-7—*Centre hospitalier universitaire de Sherbrooke, Sherbrooke, QC*

5. Impacte d'une formation sur l'évaluation de la douleur au triage (urgence)—*Centre hospitalier universitaire de Sherbrooke, Sherbrooke, QC*

6. Emergency Department Nurse Practitioner Outreach—*The Ottawa Hospital, Ottawa, ON*

Getting from 911 to the Emergency Department

7. From 911 to Balloon: Reduction of Ischemic time in primary angioplasty by implementation of an expedited transfer pathway—*Alberta Health Services Board, Calgary, AB*

8. Ambulance Destination Coordination (ADCC)—*Alberta Health Services Board, Edmonton, AB*

9. Electronic selection of EMS destination to enhance capacity and flow management—*Alberta Health Services Board, Calgary, AB*

10. Improving Access and Service in Academic Emergency Departments—*London Health Sciences Centre, London, ON*

Getting Through the Emergency Department

11. Peter Lougheed Hospital Calgary Six Sigma ED CTAS3—*Alberta Health Services Board, Calgary, AB*

12. Emergency department pay-for-performance pilot—*Vancouver Coastal Health Authority (Vancouver General Hospital), Vancouver, BC*

13. Reducing Time from Triage to MD Assessment—*Alberta Health Services Board (Children's Hospital), Calgary, AB*

14. Improving patient flow in the ED—*Providence Health Care, Vancouver, BC*

15. Implementation of an overcapacity protocol—*Providence Health Care, Vancouver, BC*

Emergencies that occur elsewhere in hospital

16. Decreasing delays for inpatients who have urgent consultations ordered—*Regional Health Authority B, NB*

17. Medical Emergency Team Resuscitation Bay (METRB)—*Alberta Health Services, Edmonton, AB*

Whole System / Hospital Wide Approach to Improving Access

18. Changing a culture though strategic planning and Accreditation Canada—*St. Joseph's Healthcare, Hamilton, ON*

19. Corporate Patient Flow Performance—*St. Michael's Hospital, Toronto, ON*

20. Creating an ELOS Culture: Piloting Rapid Rounds in General Internal Medicine—*St. Joseph's Healthcare, Hamilton, ON*

21. Improving patient flow and caregiver communication using an e-nurse report—*London Health Sciences Centre, London, ON*

22. The use of daily patient access metrics to improve system performance—*London Health Sciences Centre, London, ON*

23. Analysis of Random Demand Compared to the Schedule of Portering resources—*Regional Health Authority B, NB*

24. Synchronizing admissions, discharges and transfers—*Hamilton Health Sciences, Hamilton, ON*

25. Improving patient flow in an acute inpatient medicine program—*London Health Sciences Centre, London, ON*

26. Improving patient flow in a paediatric hospital—*London Health Sciences Centre, London, ON*

27. Improving the Home Discharge Process from Acute care Neurosciences Unit—*Alberta Health Services Board, Calgary, AB*

28. Introduction of an innovative methodology and process for evaluating length of stay opportunity and monitoring improvement—*Hamilton Health Sciences, Hamilton, ON*

Discharge Planning

29. Facilitating the Transfer from Acute Care Units to a Rehabilitation Unit—*Alberta Health Services Board, Calgary, AB*

30. Impact of a Rehabilitation Patient Flow Facilitator in the Acute Care Setting—*Toronto Rehab & University Health Network, Toronto, ON*

31. Kids in Transition - The Rehab Experience—*Bloorview Kids Rehab & The Hospital for Sick Children, Toronto, ON*

32. Discharge Planning Model, TOH complex discharge planning—*The Ottawa Hospital, Ottawa, ON*

33. Piloting a Care and Discharge Coordinator Role to Improve Patient Flow—*Hamilton Health Sciences, Hamilton, ON*

34. Introduction of a Dedicated Admissions Nurse to Improve Access to Care for Surgical Patients—*Hamilton Health Sciences, Hamilton, ON*

Condition Specific Patient Flow Cases

35. Canadian Paediatric Surgical Wait Times (CSPWT) Project—*The Hospital for Sick Children, Toronto, ON with 16 other organizations*[12]

36. Mental Health Patient Flow Improvement Project—*Alberta Health Services, AB*

37. Facilitating the Timeliness and Appropriateness of Referral from the Short Stay Unit to Outpatient Mental Health Services—*Alberta Health Services, AB*

38. A Systematic Approach to Improving Flow in Mental Health—*St. Joseph's Healthcare, Hamilton, ON*

39. Colorectal Screening Referral Process—*Hotel Dieu Hospital, Kingston, ON*

40. Implementation of a Regional Cancer Surgery Assessment Model for he Champlain Local Health Integration Network—*The Ottawa Hospital, Ottawa, ON*

41. Lean Discharge and Collaborative Nursing Practice—*Alberta Health Services, Calgary, AB*

42. Bariatric Surgical Assessment Clinic—*Regina Qu'Appelle Health Region, Regina, SK*

43. Improving hip fracture patient flow – one component of an orthopedic trauma improvement—*Alberta Health Services, Edmonton, AB*

44. Musculoskeletal screening clinic (MSK clinic)—*Regina Qu'Appelle Health Region, Regina, SK*

45. Hip and Knee Pathway—*Regina Qu'Appelle Health Region, Regina, SK*

4. OVERVIEW OF SUCCESS STORIES

This section provides a journey through the success stories of ACAHO member organizations in patient flow. The cases are organized along the very same route that a patient may take in seeking access to the health care system beginning with preventing emergency visits, to getting emergent care, through the hospital and across the system and wherever possible, back to the home or community.[13] The cases are therefore grouped sequentially as follows:

1. Ensuring access to primary care
2. Preventing emergencies where and when we can
3. Getting from 911 to the Emergency Department
4. Through the Emergency Department
5. Managing emergencies that occur in Hospital
6. Taking a whole system and hospital wide approach to improving access
7. Discharge planning
8. Condition specific initiatives

"The cases are organized along the very same route that a patient may take in seeking access to the health care system."

Figure 2 shows some of the most common journeys through the hospital system, but as will be described in the cases, there are many others, some novel and unexpected.

What are some of the journeys a patient may take through the health care system? Sometimes the pathway is limited between a clinic and the community setting in which the person resides. In other cases, a journey to the emergency department is required, either by ambulance or through the emergency department doors. If emergency services are sufficient to resolve the care issues, the person may return to the home or community and may access out-patient or community services to help manage the condition that may have been identified. In other cases, emergency department visits set off a chain of in-patient stays at a hospital that may provide acute care services and then post-acute care services such as rehabilitation or complex continuing care. In some cases, the encounter with the health system is the catalyst that leads an elderly individual or an individual with severe disabilities to consider placement in a long term care home.

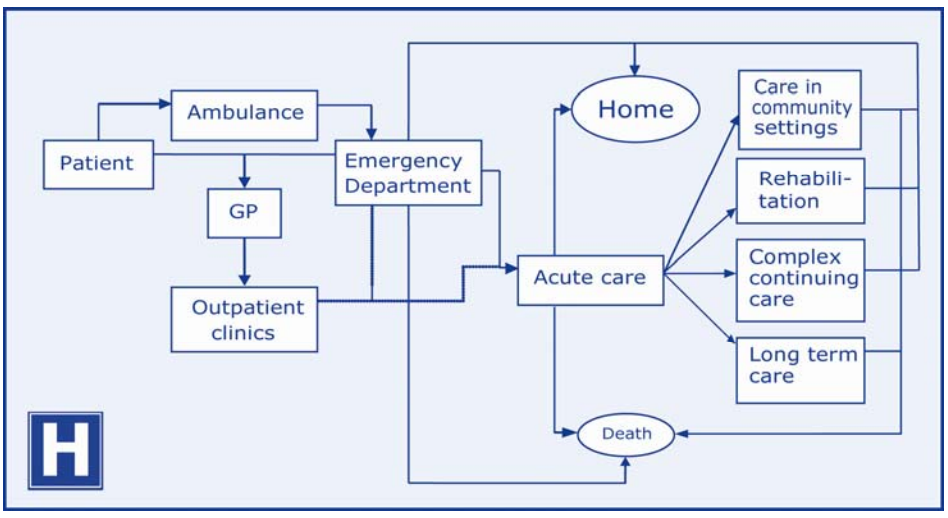
In spite of these numerous examples, these are only a small sample of the pathways through the health care system. In fact, many of the innovations that will be discussed in this report challenge the notion of existing pathways and create new ones that help a patient remain in the community setting and avoid hospital stays.

"Many of the innovations challenge the notion of existing pathways and create new ones that help a patient remain in the community and avoid hospital stays."

Figure 2

Sample of Common Pathways through the Hospital System

Adapted from a presentation by P. Blackstien-Hirsch[14]



5. Case Study Discussion by Theme

1. Ensuring Access to Primary Care

One of the least expensive ways to deliver health care and improve patient flow is to focus on health promotion and the prevention of disease and disability that can result in emergency visits and prolonged encounters with the health care system.

This often means ensuring that Canadians have timely access to a range of primary health care services before a condition deteriorates or manifests itself. The first two cases, both from Alberta Health Services, focus on how residents were provided with greater access to their family physicians and to specialist consultations.

"One of the least expensive ways to deliver health care and improve patient flow is to focus on health promotion and the prevention of disease and disability that can result in emergency visits and prolonged encounters with the health care system."

The ***Alberta AIM (Access Improvement Measures)*** initiative seeks to improve access by reducing delays to see physicians, improve office efficiency by minimizing delays during the office visit and improve clinical care processes and outcomes for patients. The initiative is part of a formalized and funded improvement process in Alberta. The process requires the formation of clinic improvement teams who participate in a collaborative learning process, develop improvement aims, map current processes, test changes and track key quality measures. Many clinics have demonstrated reduced wait times for and at appointments, reduced no show rates and improved rates for health screening. As a specific example**, one clinic was able to increase its screening rates from 66% to 90% of clients.** Several partner organizations work together on this initiative. Alberta Health Services is the provincial health authority responsible for planning and delivering health supports and services for more than 3.5 million adults and children living in Alberta. Its mission is to provide a patient-focused health system that is accessible and sustainable for all Albertans.

In ***Medical Access to Service,*** the objective was to develop a broad-based system level change in access to specialized medical care. The authors describe an initiative that involved centralizing access and standardizing triage procedures. Prioritization tools were introduced as well as the ability to monitor and track key indicators. The system-wide nature of this collaborative effort **resulted in the ability to engage over 700 urban physicians with 250 medical specialists in order to better integrate, plan and deliver services.** Patients reported enhanced communication and participation in their own care.

The opportunity for preventing illness and disability however occurs not only at the physician or specialist's office. Often, an emergency encounter with the health care system can be the opportunity for putting in place measures to prevent further decline in health. The next two examples focus on how an encounter with the health care system redirects patient flow by focusing on prevention and integrates the health care system from physician or emergency visits to the return home.

2. Preventing Emergencies Where and When We Can

"Often, an emergency encounter with the health care system can be the opportunity for putting in place measures to prevent further decline in health."

In ***Expediting Ambulatory Services Access to Reduce Emergency Department Visits and Hospital Admissions,*** the Calgary Stroke Program at Foothills Medical Centre encourages referrals to the Stroke Prevention Clinic from General Practitioners, the Emergency Department, and even from within the hospital. The Stroke Prevention Clinic has developed and streamlined the process through which patients are identified and referred so that more patients can access its services. It increased capacity by re-examining internal clinic processes. Finally, they empowered patients and families to take an active role in the care process. **The improvement initiative resulted in the ability to meet a two day wait time for 88% of patients referred where previously it was about 50%.**

In ***Identifying elderly persons with loss of autonomy using PRISMA-7 questionnaire in the Emergency Department*** the Centre Hospitalier Universitaire de Sherbrooke and the Research Centre on Aging partnered to develop a brief questionnaire (Prisma-7) that could be used to identify individuals over the age of 75 who upon return to the home, may need home care support in order to obviate eminent risks or losses of autonomy**. By initiating an assessment, the risks of hospital readmission are reduced which relieves pressures on the system and helps the**

individual remain in the home. A paper on the development of the questionnaire was recently published in the *Archives or Gerontology and Geriatrics* and the brief 7-item questionnaire which is simply answered using yes or no as responses is included as part of the triage tool.

The emergency department also presents an opportunity to address other issues that are known to cause delays in transitions through the health care system.[15] Pain management, while considered the 'fifth vital sign', is generally very poorly assessed and treated, especially in elderly individuals. Fear of adverse events, drug dependence, and the inability to understand how people express and experience pain often reduces the likelihood that pain will be properly addressed.[16] The next case study focuses on improving patient flow by improving pain assessment and management beginning in the emergency department and going right through the health system.

"The emergency department also presents an opportunity to address other issues that are known to cause delays in transitions through the health care system."

In ***Impact of training on triage pain assessment (Emergency Department)*** an initiative at the Centre Hospitalier Universitaire de Sherbrooke, the team conducted focus groups and a literature review to select a standardized pain assessment tool that could be used within the context of an emergency department and that would also apply in the journey through the health system. Nurses were trained to use the tool**.** Upon implementation, the team **succeeded in increasing the rates of pain assessment and management by 22% resulting in close to 65% of all patients having a complete pain assessment recorded in their charts.**

The physical transition through the health care system can often be a complex undertaking, especially for individuals who may be in a compromised state of health. In the next initiative, the physical visit to the emergency department is obviated by bringing emergency services directly to the patient.

"The physical transition through the health care system can often be a complex undertaking, especially for individuals who may be in a compromised state of health."

In ***Emergency Department Nurse Practitioner Outreach,*** the Ottawa Hospital has a Nurse practitioner providing coverage to three nursing homes five days a week. Before a decision is made to send a patient to an emergency department, the nurse practitioner will see the patient in the Long Term Care Home. The nurse practitioner is supported by 10 covering Emergency Physicians who have also assisted in the development of clinical pathways and protocols. The Nurse Practitioner also has advanced skills and access to point of care lab tests. For an individual in long term care, most often an elderly individual or an individual with severe disabilities, this prevents what can be a very traumatic experience. To get a sense of the success of this initiative, over the past 11 months, **the nurse practitioner saw 169 patients and was able to avert approximately 60% of these patients from an emergency department visit.** Of the 40% that went to the emergency department more than 60% were admitted to hospital, supporting that referral to the hospital was the appropriate action for these cases. An independent emergency physician was asked to review all charts and determined that there were no unexpected deaths, confirming the safety of the initiative.

3. Getting from 911 to the Emergency Department

The last few cases describe innovative ways to avoid the emergency department, but each year in Canada, approximately 1.1 million or 60% of all patients admitted to hospital come through emergency department.[17] There are generally two ways that patients physically access emergency departments:

1. They come through the front door on their own or with family, friends, neighbors or community members that witnessed their need, or

2. They come in an ambulance after calling 911.

"Usually an unplanned event, the journey from ambulance to an emergency department can often be a race against time."

We begin the discussion of cases with that call to 911. Usually an unplanned event, the journey from ambulance to an emergency department can often be a race against time. Mere minutes can be the difference between a life saved or lost; function recovered and permanent disability. In the success stories that fall into this grouping, the authors address two types of problems: (a) maximizing the use of time between ambulance and offload; and (b) ensuring that the ambulance can offload the patient.

In ***From 911 to Balloon: Reduction of Ischemic Time in Primary Angioplasty by Implementation*** the team from Calgary Health Region worked with Emergency Medical Services (Ambulance), the Emergency Department and the Cardiac Care Unit to initiate an expedited protocol for the diagnosis and treatment of individuals who may be having a heart attack. The

protocol begins when a call is made to 911 for a patient with chest pain. By using an expedited transfer protocol, the teams were able to streamline and shorten the time between diagnosis and treatment. **The pathway enabled the teams to shave close to a full hour off of the median time required from 911 to treatment, improving chances of both survival and recovery.**

A critical success factor in this initiative was the ability for the ambulance to offload a patient at the Emergency Department. There are times however in the health care system, where a hospital is over capacity and an ambulance can not offload the patient. This can be a dangerous situation with potentially severe consequences.[18] The next two success stories focus specifically on the issue of redirecting ambulances with a view to ensuring both the safety of the patient in the ambulance as well as the availability of ambulances for other emergent cases in the community.

"There are times however in the health care system, where a hospital is over capacity and an ambulance can not offload the patient."

In ***"Ambulance Destination Coordination Centre"*** a team from Capital Health, describes an initiative through which an Ambulance Destination Coordination Centre was established to monitor the capacity of emergency departments in the region. The Centre uses agreed upon indicators, measures and information screens. Instead of an ambulance looking for a suitable destination, the centre directs the ambulance to the most appropriate receiving emergency department. The initiative is currently being evaluated, but has already **succeeded in reducing the number of hours per month in which there are no ambulances available to respond to the community from more than five hours a month to less than 25 minutes per month.** The critical success factors involved collaboration, communication, data, and joint ownership of the problem and solution.

In ***Electronic Selection of Emergency Medical Services (EMS) Destination to Enhance Capacity and Flow Management,*** the teams at three hospitals from the Calgary Health Region used a web based program that analyzes numerous parameters of capacity and acuity in all Calgary ED's. The analysis provides visual cues for where patients can be off-loaded quickly and safely. Using this approach, the three hospitals collectively **achieved a reduction in the number of times ambulances had to be redirected from 102 times to 38 times over a 9 week period.** This saved close to 70 more people from the consequences of being redirected before reaching an emergency department, presenting a reduction of 63%.

"Canadian Triage Assessment Standards allows Emergency Departments to prioritize patient care requirements and examine patient care processes, workload, and resource requirements."

4. Getting through the Emergency Department (ED)

Once a patient presents, the ED needs to ensure that each patient is assessed and addressed in a timely fashion. This is a complex undertaking for at least two reasons.

1. Patients may not always be able to truly characterize or describe what is happening to them for a variety of reasons.

2. The presence of multiple patients means they must be appropriately prioritized according to need and urgency. What may be an inconvenient delay for one patient could save the life or limb of another.

The challenge, therefore, is how to make the determination - quickly and correctly. The field has developed protocols that can assist EDs in reducing the risk of error in this process. One such protocol is known as the Canadian Triage and Acuity Scale (CTAS). CTAS allows Emergency Departments to prioritize patient care requirements and examine patient care processes, workload, and resource requirements relative to case mix and community needs.[19] The next set of cases describe innovations that marry the use of CTAS with innovations in patient flow.

In ***Improving Access and Services in Academic Emergency Departments,*** the London Health Sciences Centre implemented an improvement initiative to address the needs of patients who present to the emergency department but who meet the Canadian Triage Assessment Standards (CTAS) of 'less urgent' or 'non urgent' (CTAS scores of 4 or 5). By addressing the needs of these patients they benefit and capacity becomes available to address more urgent needs. Under the umbrella of a larger corporate initiative, the team used the services of an external consultant and

tools such as value and process mapping as well as a 'rapid assessment zone' towards the goal of reducing the length of stay of CTAS 4 or 5 patients to under 4 hours. As a result of the initiative, length of stay has decreased in all emergency departments involved. **The opening of a fast track area also lowered the wait for patients with more urgent needs as well.**

In ***Peter Lougheed Hospital Calgary's Six Sigma ED CTAS 3 Streaming Project***, of Alberta Health Services, a focus was put on patients who present to the Emergency Department and who are considered 'urgent' or 'less urgent' according to the Canadian Triage Assessment Standards. These patients account for 75% of all patients at the Emergency Department so an improvement in this group would have a high impact overall on the ED capacity. The objectives were to ensure that 80% of these cases are completed within 3.25 hours. Strategies such *Lean Six Sigma* was used to understand the value of each step in the process and identify the opportunity to reduce inefficiencies. A 'Rapid Assessment Zone' was also used within the Emergency Department. The result was an average cycle time improvement of 10% or 19 minutes per case. What does this mean? **An additional 276 people could be treated per month because staff can see five people in the time it used to take to see four people.**

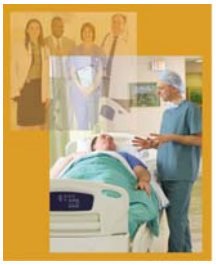
In the ***Emergency Department Pay-for-Performance Pilot Project***, the objective of the project was to increase the number of emergency patients meeting targeted ED transit times. The initiative involved a number of operational process redesign strategies, but there was also an additional factor. For each non-admitted patient above a baseline number who received ED care within the target time, the Government of British Columbia provided VCH a $100 payment to help fund additional ED improvements. These targeted transit times were 2 hours for CTAS 4 and 5 patients (less urgent and non urgent), and 4 hours for CTAS 1, 2 and 3 patients. For patients admitted to an inpatient bed within 10 hours of emergency department presentation, the organization received $600. **The improvements included an overall 21% increase in patients (3434 cases) whose care was delivered within the specified targets.** In this initiative, the authors note that since the funding received was for the Health Authority and not for individuals, the general motivation was the ability to enhance patient care with the tangible reminder of the importance of the process changes that the pay for performance funding enabled.

In ***Reduce Time from Triage to MD Assessment***, the team at Alberta Children's Hospital focused on children presenting to the emergency department needing 'urgent' emergency care as categorized through the Canadian Triage Assessment Standards. This group accounted for 50% of all patients presenting to the Emergency Department. Using techniques such as Six Sigma and Lean improvement methodologies, the group identified the need to shorten the time between nurse assessment and physician treatment in order to reduce the total length of time required to complete each case. Three zones were created within the emergency department based on patient acuity. This allowed provider teams to work together and reorganize equipment and physical space. **The result was a 25% improvement in cycle time with no negative impact on other patients and a 29% improvement in consistency of the process.**

In ***Improving Patient Flow in the ED,*** Providence Health Care in British Columbia discusses how a variety of strategies such as clustering like patients, using standardized referral and assessment tools; streamlining processes and protocols; and developing electronic systems to support best practices, resulted in an overall improvement to the Emergency Department length of stay from 2.8 hours to 2.3 hours. The initiative also enabled a reduction in the time needed to receive an ECG from 16 minutes to 10 minutes; a decrease in time in Urinalysis tests from close to 90 minutes to close to 45 minutes; and **a decrease in the time needed to have usable CT results (from order to dictation), from an average of 30 hours to under 5 hours.**

The establishment of 'rapid assessment zones' within most of the last four cases is consistent with the operations management tenet of grouping like patients together in order to minimize variation. However, the physical nature of the 'zones' also challenges us to think about how space is used within an emergency department. In the face of aging infrastructure and the design of hospitals which dates back 20 to 40 years or more, what we know about patient flow and how we use space to optimize access and reflect changing demographics has not yet been reflected in physical plant construction. The relationship between the use of physical space and access to care is reflected in the next case.

"In the face of aging infrastructure and the design of hospitals which dates back 20 to 40 years or more, what we know about patient flow and how we use space to optimize access and reflect changing demographics has not yet been reflected in physical plant construction."



In ***Implementation of an Overcapacity Protocol,*** Providence Health Care in British Columbia rethought the limitations of physical space in order to care for the most urgent cases during periods of overcapacity. They identified "zones" in non-traditional areas of the hospital which were identified as "overcapacity spaces". Each ward within the hospital designated such a space so that nursing and medical attention could be safely provided to urgent cases provided that the patient did not have any of the conditions or requirements that were identified on a checklist. **The deliberate use of space in this manner coupled with safety and staffing considerations, allowed for a reduction in Emergency Length of Stay (LOS) between 5-7 hours** depending on the group of patients. During the evaluation period, there were no adverse events indicating that the policy is a safe way to improve access during period of overcapacity.

5. Emergencies that Occur in Hospital

The cases described so far focus on what happens prior to, within and through the emergency department. However, there are also instances where emergencies happen in other areas of the hospital. The next two cases focus on success stories in dealing with emergencies that occur on patient wards.

In ***Decreasing Delays for Inpatients Who Have Urgent Consultations Ordered***, Regional Health Authority B in New Brunswick tested a method that was successful in increasing the rate at which urgent physicians consultations were completed. By mapping out the process and engaging the services of a dedicated transcriptionist who could complete the paperwork to provide necessary information and facilitate the request, **the rate of urgent consultations completed within a 24 hour period was 92% for the test group compared to 76% in the control group.** This result of this success is the ability to keep the care plan moving forward and in many cases, emergencies to be averted.

"Fourteen percent of all acute care patient days are attributable to patients who have completed the acute care part of their journey, but who for safety or other reasons, wait in acute care for post-acute services."

In ***Medical Emergency Team Resuscitation Bay (METRB),*** a team from Capital Health, Alberta Health Services Board describes an initiative designed to increase the capacity to move patients who are identified during a MET call and are in need of the Intensive Care Unit (ICU) when there is no ICU bed available. To achieve this, **each morning the ICU group identifies a current ICU patient who is ready to transfer to a regular ward.** This involves ensuring that the necessary transfer orders and processes have been completed and that the patient is physically ready to transfer immediately upon identifying an urgent MET patient admission requirement. This creates capacity to treat and stabilize the patient in the most appropriate environment. If such a transfer is not possible, the team will continue emergency services in the ward until the transfer can be made, but the process is in motion and the care is ultimately safer. Evaluation data on this initiative is still in progress.

This last case is a good example of how the ability to move a patient through the health care system allows another patient to have access to care. The next set of success stories focus on a whole hospital and system wide approach to improving access.

6. Taking a Hospital and System-Wide Approach to Improving Access

To understand the notion of a hospital-wide approach to relieving emergency department pressures, consider CIHI's findings that about 5% of all hospitalizations and 14% of all acute care patient days are attributable to patients who have completed the acute care part of their journey, but who for safety or other reasons, wait in acute care for post-acute services.[20]

Waiting in an acute care bed once the acute care phase is completed is known as alternate level of care (ALC). More than half of all ALC stays exceeds 10 days. Sixty percent of ALC patients wait more than one week and 20% wait more than one month. Considering that 83% of these patients come through the emergency department, it is a clear indication that problems in the emergency department are not simply emergency department problems.[21]

The ability to improve patient flow across an organization rests in a complex array of factors that have to come together; structures and processes; time and resources; shared goals and common understanding; among many other factors.

In at least two cases, the ability of organizations to make fundamental changes and improvements in patient flow involved deliberate activities designed to introduce a culture change that would bring a spotlight on each staff person's role in improving the patient journey.

In ***Changing a culture though strategic planning and Accreditation Canada,*** St. Joseph's Healthcare in Hamilton Ontario describes how the organization used the opportunity of preparing for hospital accreditation to also prime different parts of the organization for a shift in thinking about patient flow. As a result of accreditation planning, strategic areas were identified for which expected length of stay coordinators were hired. The organization asked for feedback from the team of individuals who conducted the accreditation, utilized the methodology and tools through the Institute of Healthcare Improvement (IHI), and reviewed the existing literature to identify strategies and benchmarks. **Led at the executive level with the support of the Board as well as patient and family groups, the organization succeeded in implementing a number of changes** in the hospital that resulted in improved patient flow. The case provides numerous examples of strategies and tools that were implemented across the hospital.

In ***Corporate Patient Flow Performance*** St. Michael's Hospital (SMH) describes the impact of an internal change management and performance office catalyzing improvements in organizational patient access/flow. There are three objectives: (1) to create the conditions for staff to make the best decisions for flow; (2) to build organizational capacity, facilitating rapid process improvements using common methodology; (3) to monitor and manage performance through transparent feedback loops. Governance comprising senior management and clinical leadership was struck alongside staff engagement strategies, change management tools, a daily bed management plan with predictive indicators, escalation protocols, and broadly shared metrics and case reviews. Results have **yielded a five-fold decrease in ED volumes waiting for greater than 24 hours, 43.4% improvement in admitted ED Length of Stay, and 13.8% improvement in ambulance offload time.** Adverse outcomes on patient satisfaction, quality and other indicators have not been seen. The results are encouraging at this early stage.

"One of the results of a corporate focus on patient flow can be the development and use of metrics, indicators and information to help inform clinical and administrative decisions."

Such shifts in culture and attention to change management are often accompanied by the development of unique strategies and specific tools that result from an organization-wide shift in thinking about patient flow. These tools and strategies are the subject of the next set of cases.

In ***Creating an Expected Length of Stay (ELOS) Culture: Piloting RAPID (Review, Assessment, and Planning for Imminent Discharge) Rounds in General Internal Medicine***, St Joseph's Healthcare Hamilton fostered a culture of change promoting proactive measures to reduce the hospital's Length of Stay while ensuring that patients' care needs remained the focus. Adapted from the University Health Network, St Joseph's implemented "RAPID Rounds" as a forum in which providers review, assess, and plan for imminent discharge. Teams review each case on a daily basis to plan for the patient's clinical needs and transition through the health system. They ensure all discharge planning information is properly communicated back to the patient and family at the bedside. The initiative has resulted **in a reduction in acute care length of stay on the general internal medicine floor from 6.1 days to 5.4 days and a decrease in the total Length of Stay from 11.7 to 10.4 days.** Further, Conservable Bed days have reduced from 11.8 to 8.6. St Joseph's has also identified an increase in the percentage of patients discharged by 2:00 pm from 52% to 72%; as well as an increase in the percentage of patients referred to CCAC in advance of the day of discharge from 32% to 76% 6 months post initiation of Rapid Rounds.

One of the results of a corporate focus on patient flow can be the development and use of metrics, indicators and information to help inform clinical and administrative decisions. The information is often generated through novel technologies and applications.

In ***Improving Patient Flow and Caregiver Communication through use of an Electronic Nurse Report and Notification System,*** the London Health Sciences Centre describes how the organization coordinates the flow of patients who need to be admitted to hospital from the emergency department into an inpatient bed. Using the assistance of a designated facilitator, an electronic patient care report (ePCR) and a nurse call notification system, among other innovations, **the organization was able to reduce the delay from emergency department to inpatient bed from 3 hours to 1.5 hours, with the eventual goal of transfer within one hour.**

In ***The Use of Daily Patient Access Metrics to Improve System Performance*** a team from London Health Sciences Centre (LHSC) describes the development of four web-based suites that helps the organization monitor and make decisions regarding patient flow. There are different sets of daily metrics for different parts of the hospital, for example, one for the emergency department, another for inpatient acute care, as well as unit specific metrics and a dynamic graphic trending tool. The data is available at 7:00 AM each day. It is coupled with visual cues in the form of a **green / yellow / red traffic light system that helps to assess the metrics against given goals and alert the teams to potential difficulties.** Examples of how this data helps to achieve better patient flow and reduced wait times are discussed in a number of other success stories from LHSC, such as Improving Access and Services in Academic Emergency Departments, which was discussed earlier in the report.

In ***Introduction of an innovative methodology and process for evaluating length of stay opportunity and monitoring improvement*** Hamilton Health Sciences sought to increase access to the rest of the hospital from the Emergency Department by understanding ward level performance in patient flow. They applied process improvements as well as local and system level strategies. The methodology focused on understanding why for each case, the actual length of stay appeared to differ from the expected length of stay. An inventory of 'access to care strategies' that the organization had compiled was used to address these differences on a case by case basis. **This novel methodology allows for an understanding of specific issues to facilitate a shorter length of stay for the patient and more effective resource utilization for the organization.** The initiative was introduced in December of 2008.

In ***Analysis of Random Demand Compared to the Schedule of Portering Resources***, Regional Health Authority B used a software system that integrated "queue theory analysis" to study random demand for services from the portering staff and compared this information to the existing work schedules.[22] Portering staff assist patients in moving safely across the hospital. They assist providers by transporting equipment. **Using fifteen weeks of typical data reflecting about 37,000 requests, the group was able to predict the number of staff needed to avoid delays in service of more than 10 minutes.** The analysis revealed that while more staff was needed for certain hours of the day, less staff was needed at other times and that the use of portering service staff time could be optimized by staggering the start time of different individuals' shifts. In so doing, the goal of portering requests within 10 minutes could be more readily achieved.

"A key objective is to minimize the gap between the time at which a service is needed and the time at which it is available."

In many of the initiatives describing innovative tools and technologies, a key objective is to minimize the gap between the time at which a service is needed and the time at which it is available. This not only reduces bottlenecks but it also optimizes the use of resources. The next few cases demonstrate the importance of this principle.

In ***Synchronizing Admissions, Discharges and Transfers***, Hamilton Health Sciences describes an initiative which used a bed assignment tool, a scheduling discharge tool, a policy to transfer one admitted patient per service from the ED each morning to an unbudgeted on service unit bed, ward specific formulas and a site status communication tool to communicate information from bed management meetings. The objectives were to optimize the linkage between the time a patient is discharged and the ability to accommodate the next patient. The results were an improvement in the percentage of time patients spend being cared for in off service locations (i.e. in locations resulting from space constraints) from a mean of 9.25% to 8.88%, with smaller variability month to month and a more consistent wait time for admission once the order for hospital admission has been made in the emergency department. **Since the beginning of the initiative in October 2006, average wait times for admission (order to admit) has been within the acceptable range.**

In ***Improving Patient Flow in an Acute Inpatient Medicine Program,*** London Health Sciences Centre combines the use of information such as the 'daily metrics' (please see submission entitled *The Use of Daily Patient Access Metrics to Improve System Performance* for more information on the daily metrics project) in combination with visual cues such as a green/yellow/red colouring scheme to alert providers to status issues, the presence of a nurse manager, unique communication

protocols and lean strategies to facilitate efficient practices and better communication. **A sample result of these strategies was the ability to reduce the average length of stay for patients in the medicine program by 2.5 days.**

In ***Improving Patient Flow in a Paediatric Hospital***, Children's Hospital of the London Health Sciences Centre used process improvement methods to coordinate a child's journey through the care process more efficiently and safely with reductions in wasted time and effort. Under the umbrella of a larger corporate initiative and using the services of an external consultant, a number of process improvements were implemented that could facilitate the care of a larger number of patients by freeing capacity. The results were an increase in the ability to discharge more patients by 2:00 pm from 46% of patients to 60% of patients. The average length of stay decreased from 5.5 to 5.2 days and on 3 of the 4 units, the average length of stay in the hospital was only 2.8 days. The initiative also **reduced the amount of paperwork needed in a 24 hour period from 50-200 pages to 9-64 pages.**

In ***Improving the Home Discharge Process from Acute Care Neurosciences Units,*** Alberta Health Services used process improvement methodologies to improve throughput in inpatient care or access to ambulatory care. The initiative in the Department Clinical Neurosciences at Foothills Medical Centre used an interdisciplinary team, streamlined the care pathway, provided visual cues to discharge and patient flow, developed processes and protocols, including a discharge checklist for caregivers and patients, and provided appropriate patient education materials to the patient and family to make the necessary preparations. **The results include an improvement from 20% to 76% of patients being discharged within 1 hour of the decision and an improvement from 40% to 98% of patients being admitted within less than 1 hour.** In addition, patient and family satisfaction ratings have also improved.

7. Discharge Planning from Acute Care to the Next Phase of Care

"While some hospital readmissions may be unavoidable, they may also speak to the need for post-acute care services before returning to the home or community."

While the time at which a patient is discharged is very important because it influences whether or not it will be possible to admit another patient in a timely manner, discharge planning is not only focused on getting a person directly home, but also on ensuring the appropriateness of the discharge destination. To illustrate, consider the Canadian Institute of Health Information's findings that approximately.[23]

1. 17% of ALC patients who are discharged home end up being readmitted to hospital at least once within 30 days of being discharged.

2. 22% of patients who are discharged home after hospitalization and who were not considered ALC patients also end up visiting the emergency department within 30 days of discharge.

While some hospital readmissions may be unavoidable, they may also speak to the need for post-acute care services before returning to the home or community. The first three cases in this series will focus on accessing rehabilitation services, an important part of the recovery process for many different conditions that can result in physical or neurological impairments.

In ***Facilitating the Transfer from Acute Care Units to a Rehabilitation Unit***, a team from Alberta Health Services at Foothills Medical Centre also used process improvement methodologies to improve the transition to rehabilitation for patients with neurological conditions. As a result of the initiative, partnering the departments of Clinical Neurosciences and Rehabilitation and Specialized Clinical Services, 87% of patients received enhanced therapy in acute care; 77% of patients continued their intense rehabilitation within one day of transfer which is up from 17%; and **95% of patients received a patient and family consultation within two weeks of transfer.**

In ***Impact of a Rehabilitation Patient Flow Facilitator in the Acute Care Setting*** a staff person with clinical background works between the acute care organization (University Health Network) and a rehabilitation and complex continuing care hospital (Toronto Rehab) to facilitate the flow of patients between the two settings. Using interpersonal skills, assessment tools, protocols, policies, and clinical insight, the facilitator helps both organizations discharge patients from acute care who are appropriate for either rehabilitation or complex continuing care. The results were seen across many different population groups, such as musculoskeletal patients, stroke patients,

"Achieving seamlessness in care can involve anything from inter-organizational collaboration to care pathways, and innovative models of care."

and acquired brain injury patients. Depending on the population, there was a **decrease in the number of days spent waiting in acute care for the next level of care, (Alternate Level of Care days) between 9 and 20 days depending on the population group.** This results in significant cost savings to the system and a better experience for the patient.

In ***Kids in Transition – The Rehab Experience*** teams from The Hospital for Sick Children and Bloorview Kids Rehab worked together to create a seamless transition for children with acquired brain injury. Observing delays in the transition process, the teams used the Model of Improvement from the IHI to review their processes and protocols. They developed pathways, policies, forms, and visual cues to support the process. **They succeeded in achieving a 71% reduction in unnecessary days, equivalent to about a week for each patient awaiting transfer.** In addition, they were able to reduce staff workload in the preparation of referral materials from 4 people over 72 hours to 1 person in 1 hour.

In ***Discharge Planning Model*** a team from The Ottawa Hospital describes an initiative designed to provide safe and timely discharges for hospital patients in transition to the community. Social Work has the lead role in developing and carrying out discharge plans for patients who have complicating factors. Advanced social work skills, a proactive approach and concrete information are combined to effect discharges. The result is safe, timely and effective discharge from hospital to the most appropriate community setting. **Discharge plans are achieved within the context of a relationship among the social worker, patient, family and multidisciplinary team.**

In ***Piloting a Care and Discharge Coordinator Role to Improve Patient Flow*** Hamilton Health Sciences Centre developed an initiative to test whether dedicated discharge planning roles on three inpatient units could improve patient flow within one year by assisting the units to identify, understand and address challenges and barriers to flow and timely discharge or transition to other levels of care. The units used a combination of approaches including methods from the IHI, data and communication tools. The results included as much as **a 62% improvement in conservable bed opportunity; 18.5 % improvement in bed turns; a 67% improvement in ED wait times;** and 23% improvement in ALOS variance to ELOS on one medical floor. For one surgical floor the team achieved an 8% improvement in bed opportunity; 5% improvement in bed turns and a 69% improvement in ED wait times.

In ***Introduction of a Dedicated Admissions Nurse to Improve Access to Care for Surgical Patients***-Hamilton Health Sciences Centre piloted a dedicated admissions nurse who could facilitate the transfer of patients into the organization. Using a series of process improvements along with this new role, **the introduction of the Dedicated Admissions Nurse resulted in a 28% reduction in average length of stay in post anesthetic care unit (PACU)** for Ward E2 patients from the time they were identified as ready for transfer and a 15% reduction in average wait time in the emergency department. All of the Registered Nurses (RNs) surveyed felt that their workload for admissions-related tasks was reduced and that all RNs surveyed in PACU agreed with the statement: "The Dedicated Admissions RN role has improved patient flow related to transferring patients to E2."

8. Condition-Specific Examples

In the last set of cases, several organizations looked across their own boundaries to provide care that would feel seamless to the patient. Achieving seamlessness in care can involve anything from inter-organizational collaboration to care pathways, and innovative models of care. In the next set of cases, the focus is on specific conditions for which may of these approaches have been applied.

The first case is an inter-organizational collaboration to establish benchmarks and care pathways for pediatric surgery. The initiative was a collaborative effort involving many organizations from across the country.

Paediatric Surgery

The ***Canadian Paediatric Surgical Wait Times Project*** was the **first project to use standardized national access targets to measure and manage wait times for children and youth waiting for surgery across Canada.** The project is an unprecedented collaborative venture of 16 children's hospitals in eight provinces. The initiative was funded by Health Canada and resulted in national benchmarking, best practice sharing and improved access to care at participating hospitals. The project achievements were based on both consensus and the use of comparable data. The establishment of national standards and accompanying strategies for managing wait times are the foundation for significant future improvements.[24]

Mental Health

In the ***Mental Health Patient Flow Improvement Project,*** the team from Alberta Health Services focused on the entire continuum of adult mental health services from illness prevention and to community reintegration. Recognizing that the mental health system often involves multiple organizations and support, **the initiative is focusing on integrating a network of providers.** The project has only recently been initiated and will be evaluated and monitored as it progressed.

In ***Facilitating the timeliness and appropriateness of Referral from the Short Stay Unit to Outpatient Mental Health Services,*** Alberta Health Services describes **a pilot project in which a centralized intake service is implemented for mental health**. A liaison staff member helps process referrals and helps to gather and disseminate referral information. The liaison attends the unit rounds and is available to staff through out the week. This allows the staff liaison member to develop a better understanding of regional service needs and service availability in the community. The pilot includes an evaluation process.

In ***A Systematic Approach to Improving flow in Mental Health*** a team from St. Joseph's Healthcare in Hamilton Ontario, describes a multi-pronged approach to moving mental health patients through the health system. The approach integrates the centralized access service, the standardization of policies and procedures between units, and examines protocols for reducing wait times for ambulatory services. A mental health utilization manager coordinates daily conferences on bed availability and **visual cues are used to identify areas in which further communication or exploration is required to resolve flow issues.** Results of this initiative are being monitored and evaluated.

Cancer

In ***The Colorectal Screening Referral Process,*** the objective at the Hotel Dieu Hospital was to reduce wait times for colonoscopy procedures. The initiative was part of the Ontario Ministry of Health and Long Term Care colorectal cancer screening program. The group implemented a best practice guideline which has allowed the team to meet increased demand and reduce wait times. Between April and December 2008, the team succeeded in meeting and exceeding provincial benchmarks and in **achieving a 118% improvement in meeting the colorectal screening target for patients with a family history of colon-rectal cancer, among other outcomes.**

In ***Implementation of a Regional Cancer Surgery Assessment Model for the Champlain Local Health Integration Network,*** The Ottawa Hospital describes how a centralized waiting list for the region's cancer services as well as revised referral practices, policies and protocols have helped to reduce the wait time between referral and the decision to treat. **The group used the development of regional 'Communities of Practice' to develop clinical guidelines that standardized not only patient flow but also helped to enhance the quality of care.**

Cardiac Services

In ***LEAN Discharge and Collaborative Nursing Practice,*** a team from Calgary Health Region describes an initiative to help patients move more swiftly through the cardiac sciences system. The initiative involved the application of process improvement methodologies to examine all processes

in the care continuum for cardiac services. The focus of this initiative was on separating personal care tasks which the patient would do on his or her own if the illness burden requiring hospitalization was not present and which they will resume upon discharge, from those professional care tasks which had to be completed by a health care professional. **This will optimization provider skills and time, enabling the provider with the appropriate skill set to be providing required care.** The initiative forms the baseline for evaluation and future improvements.

Bariatric Clinic

In ***Bariatric Surgical Assessment Clinic (BSAC)*** the Regina Qu'Appelle Health Region provides assessment, consultation, patient education and preparation for surgery for individuals who suffer from severe weight issues. **This program has seen a decrease in overall depression levels and an increase in the percentage of patients who attain their goals to 96%.** The results were achieved by developing standardized protocols for assessment and care and by involving the patients as more active participants on the health care team. The result is the ability to treat more patients in a more effective way.

Musculoskeletal Conditions

In ***Improving Hip Fracture Patient Flow – One Component of Orthopedic Trauma Improvement***, a team from Alberta Health Services, Edmonton used a variety of change strategies including an algorithm for central triage, care guidelines, and patient and family education materials for improving the journey of hip fracture patients. To date the evaluation has shown a decrease in the length of stay of hip fracture patients in acute care from over 17 days to 13.5 days. The process also allowed a 13 percent increase in the number of patients receiving post acute care services, immediately. In the post acute care setting, the length of stay dropped from more than 20 days to under 14 days. **By instituting these changes, the program is expected to at minimum, double the capacity of 157 patients to over 300 patients annually.**

In ***Musculoskeletal screening clinic (MSK clinic)*** at the Regina Qu'Appelle Health Region, a pilot involving patients with knee pain and four orthopaedic surgeons was implemented. The objectives were to explore strategies that would not only address wait times but that would also assist in anticipating and accommodating increasing demand. **By streamlining the process, each of the 196 patients in the pilot study was able to access at least one assessment in the time normally taken to have a first meeting with the surgeon.**

In ***Hip and Knee Pathway,*** Regina Qu'Appelle Health Region used a number of different strategies including a review of current pathways and processes; the establishment of an MSK assessment centre; enhanced pre-operative education sessions; the use of weekend coverage for therapy; and a knew hip and knee coordinator position to make improvements for hip and knee patients. The initiative resulted in **a decrease in length of stay from 7.2 days to 5.7 days; a reduction in the need to cancel surgery because of bed availability issues from 8.6% to 6.3%; a decrease of length of stay for patients who attended an education session from 6.51 days to 5.51 days; and an overall increase in surgeries performed by 17%.**

6. SYNTHESIS AND DISCUSSION

Based on the case studies contained in the report, there are a number of innovative projects underway that were designed, implemented and evaluated at the local level to not only improve patient flow, but the quality of care provided to patients and health outcomes.

In many ways, through the diversity of initiatives described, we see "win-win-win-win-win" opportunities for patients, the public, providers, the health system and funders. The case studies on patient flow reflect not only the application of knowledge, measurement of outcomes, and stewardship of resources, they also reflect true system-wide leadership and collaboration.

That said, a key policy question is whether these innovations can be extended or "translated" to other areas of the health system, or to other parts of their respective organization(s), institution(s), region(s), province or the rest of the country?

To reflect on the potential opportunity for applying the approaches, tools, and strategies from the cases presented in *Order & Speed* to other jurisdictions, we discuss the following three synthesis-based policy questions that focus on the 45 case studies presented in the report:

1. Why do providers and organizations make the efforts they do in patient flow?
2. What are the benefits of patient flow initiatives to Canadians?
3. What is required to achieve the next level of excellence?

"A key policy question is whether these innovations can be extended or "translated" to other areas of the health system…"

WHY DO PROVIDERS AND ORGANIZATIONS MAKE THE EFFORTS THEY DO IN PATIENT FLOW?

The initiatives submitted to this call for leading practices were all designed to ensure that patients can access timely care, where and when they need it. They do so by looking at clinical or operational opportunities to reduce variations and eliminate redundancies with a view to maximizing the use of resources. However, at a system level these goals were achieved by focusing on specific objectives which when viewed by theme can be described as follows:

Ensuring access to primary care…

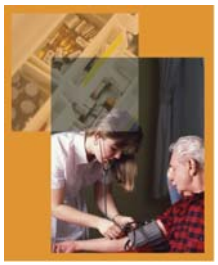
- To reduce wait times in ambulatory care
- To develop a broad based system level change in accessing specialized medical care
- To more effectively triage the care that needs to be provided
- To fully leverage the scope of practice of each provider

Preventing emergencies where and when we can…

- To prevent hospital readmissions and keep elderly patients in their homes longer
- To increase the rate of pain assessment and management

Improving flow in the emergency department (ED)…

- To reduce overcrowding in emergency departments
- To improve the triage, diagnosis, and treatment time for chest pain patients
- To reduce ambulance offload times
- To improve the availability of ambulances in the community
- To address adverse events
- To meet the guidelines for the triage of children



Addressing emergencies that occur elsewhere in hospital...

- To reduce the time needed to complete urgent consults
- To facilitate the movement of patients into the Intensive Care Unit

A system wide approach to improving access / discharge planning...

- To improve access and flow through the system
- To coordinate the patient journey through the care process
- To provide data and information to support daily decision making
- To increase transparency and accountability
- To reduce the amount of time needed to transfer patients
- To address communication issues
- To address Alternate Level of Care issues in acute care by improving access to post acute care
- To improve efficiencies, handovers, reduce duplication
- To improve communication and timeliness of referral
- To provide safe and timely discharges for hospital patients to the community
- To test whether dedicated discharge planning roles could improve patient flow

"...The ability to save lives; the capacity to provide access to more patients using existing resources; the ability to reduce hospital lengths of stays; and the improvement of patient and family satisfaction."

Condition specific initiatives ...

- To develop appropriate standards and targets for *paediatric access* to care and wait times
- To identify opportunities to improve patient flow for *mental health* patients
- To reduce wait times for *colonoscopy* procedures
- To improve integration and flow of *cancer services*
- To create nursing capacity to implement change ideas for *cardiac patients.*
- To improve patient flow and demand management for *bariatric surgery*
- To reduce wait times for access for patients with *hip fracture*
- To improve patient flow and assessment process for *elective hip and knee replacement patients*

What Are the Benefits of Patient Flow Initiatives to Canadians?

While the measurement and evaluation of outcomes can often be complex, this call for leading practices, has identified a number of concrete benefits that accrue to patients, public, providers, the health system and funders.

In this section we describe these benefits in four broad categories: the ability to save lives; the capacity to provide access to more patients using existing resources; the ability to reduce hospital lengths of stays; and the improvement of patient and family satisfaction. A set of examples are given for illustrative purposes only, but a much large set of results can be seen in the full listing of cases.

Theme 1: The ability to save more lives by addressing emergencies quickly and correctly

- An increase in the ability to correctly identify the most urgent cases that present to the emergency department through the use of care pathways and guidelines
- A decrease in the amount of time per month that an ambulance spends trying to find an emergency department with capacity to safely accommodate a patient by publishing and coordinating information on hospital capacity. For example, in one case the time was reduced from 25 hours to 5 hours per month.
- The ability to give emergency treatment to individuals in long term care homes without requiring an emergency department visit, through coverage by nurse practitioners
- Increased ability to admit patients to the Intensive Care Unit (ICU) by facilitating the care of an existing ICU patient in a ward when necessary and the care of a potential ICU patient by an emergency response team until safe admission to the ICU is possible.
- An increase in the percentage of patients at high risk for stroke who are correctly screened and identified, by integrating referral to the stroke prevention clinic from other parts of the hospital.

Theme 2: The capacity to serve more patients within the same resources

- The ability to serve more patients per month in an emergency department by reviewing policies and practices and eliminating duplication. For example in one case this approach increased access to emergency department for an additional 300 patients.
- The ability to increase the number of hip and knee surgeries by using a care pathway. For example, one case demonstrated an increase the number of surgeries performed by 17%
- The ability to double the number of hip fracture patients accommodated per month by rethinking processes and care design.
- The ability to reduce demand by identifying and providing alternate pathways for patient who are not considered appropriate for bariatric surgery. For example, one initiative noted a 20% reduction in cases.
- An increase in the ability to admit more patients from the emergency department into the hospital by facilitating the safe and appropriate discharge of patients who are ready to go home earlier in the day.

Theme 3: The ability to reduce unnecessary days from the length of hospital stay for patients

- A decrease in amount of time spent in emergency departments by least urgent patients by designating a rapid assessment zone. In one example, rapid assessment zones were used to reduce lengths of stay in the emergency department by as much as 60%.
- A decrease in the amount of time needed to plan and implement the transition of a patient from acute care to rehabilitation by instituting unique staffing roles for the process of coordinating inter-organizational relationships or discharge planning relationships. In one example, such an approach resulted in a three week reduction in wait times for rehabilitation.
- A decrease in the number of alternate level of care days or waiting in an acute care bed with acute care is no longer necessary, by facilitating a transition to post acute care.

Theme 4: An increase in satisfaction and participation of patients and families

- An increase in patient and family involvement in the care process through better communication. For example, in one case focusing on the transition of children, parents indicated a 80% satisfaction rate while the hospitals reduced the delay in transition by 1 week.

- An increase in compliance with care requirements through better education processes, for example in the case describing a bariatric assessment clinic, patients' better understood the expectations of their own commitment and participation in achieving program goals.

- An increase in the ability to assess and treat pain by implementing standard assessment protocols in the emergency department and through the hospital. For example in one case educating nurses in the use of a common assessment tool significantly increased the percentage of patients receiving assessment and treatment for pain.

WHAT IS REQUIRED TO ACHIEVE THE NEXT LEVEL OF EXCELLENCE?

The strategies discussed so far for improving patient flow and achieving important health and health system outcomes include a suite of strategies ranging from process mapping, the implementation of new staffing roles, the use of pathways and protocols, synchronizing admission and discharges and the involvement of patients and families. However, in each case, ACAHO asked providers to discuss what is necessary to achieve the next level of excellence by identifying limiting factors. These issues are likely to need policy or system-level considerations but may be facilitated through a combination of one-time targeted and/or ongoing strategic investments:

"ACAHO asked providers to discuss what is necessary to achieve the next level of excellence by identifying limiting factors."

- ***Access to care in the community:*** A number of cases noted that the availability of community supports for patients leaving hospital is a limiting factor in achieving further improvements. For example, while a patient may no longer require acute care or inpatient rehabilitation, the hospital may not be able to discharge a patient safely to the home setting because it is not considered safe for the patient to live alone or manage a staircase.

- ***Bed and staffing capacity:*** As may be expected, many of the initiatives represent the optimization of existing capacity and resources. Many of the organizations are also operating a very high levels of occupancy. This can often mean that the opportunity for further improvement within the existing structure is limited. The next step may therefore be, in many cases, to increase bed capacity and the ability to staff those beds.

- ***Physical space and infrastructure issues:*** A number of the cases discussed how organizations reconsidered the limitations of physical space. In some cases, the use space, such as conference rooms and solariums were carefully reconsidered as opportunities to deliver safe and effective care in emergent situations. For situations where health infrastructure has exceeded its lifespan; there is a need to re-invest in physical plants so that their design is better aligned with the needs, technology, environmental and practice standards of today and the future.

- ***Health information technology:*** In many cases the availability of communication technologies and electronic health records were noted as limiting factors to making future improvements.

- ***Data and evidence:*** A critical success factor to many of the initiatives was the collection of data and information that could facilitate decision making, the identification of root causes, and form an evidence base for more innovations. In many cases however, further support is needed to generate and utilize new knowledge to address the increasing complexity of generating the right questions and data to inform next steps.

- ***Alignment of incentives:*** Consistent with what is required to make system-wide changes, many of the cases acknowledged the importance of leadership support from senior level administrators and providers. In instances where a system-wide collaboration is needed between providers in different organizations or who operate independent clinics, the need to align incentives to facilitate both compliance and collaboration was identified.

CONCLUSIONS

Consistent with initiatives in countries such as the United States, the United Kingdom and Australia, the cases submitted to this call for leading practices in patient flow show that Canada has made large-scale system-wide commitments to improve wait time management and patient flow strategies.[25] A number of the initiatives in this study reflect the outcomes of federal and provincial investments and have been made possible by funding earmarked for this purpose. In other cases, the leadership of the organization and commitment of its staff facilitated important improvements in patient flow. What do we learn about innovations in patient flow from across Canada? A few broad themes emerge which are consistent with the cultures of teaching and research hospitals:

1. Demonstrating the application of existing evidence and best practices

Most of the cases in this initiative demonstrated the application of existing knowledge, evidence and best practices. The translation of knowledge into practice can be complex because it requires not only an awareness and synthesis of the evidence, but also attention to contextual factors. Indeed the generation, translation and application of knowledge and evidence is one of the promises and expectations of a teaching and research hospital. What type of knowledge and evidence is applied in these patient flow studies? In most cases, knowledge of operations management principles and practices are integrated with knowledge and evidence-based practices to optimize clinical outcomes.

2. Development of patient specific products and innovations for patient flow

In addition to the application of existing practices the cases also demonstrate innovative uses of this knowledge. In many cases, the initiatives resulted in new pathways, protocols, forms, algorithms, policies, and even software that can aid in decision support and be shared across jurisdictions. The translation of knowledge into useful and useable products was not necessarily the primary goal of the initiative, but has resulted in important contributions to the field. By sharing these tools across the health care system there is the capacity to bring knowledge into practice at a faster rate. Some of these tools have been fostered by and with Canadian companies that focus in this area.[26]

"The leadership of the organization and commitment of its staff have facilitated important improvements in patient flow."

3. Integrating the human element for both patients and providers

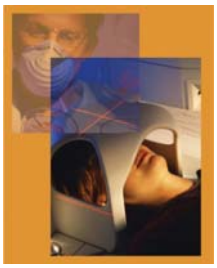
Across the cases, a common element was a focus on the human factors involved in patient flow. Communication and collaboration among health care providers considered a critical success factor in achieving the noted improvements. However, the human element to improving patient flow was also collaboration between patients and the health care system, a strategy that does not appear explicitly in the inventory of approaches listed by other international sources. In many of the Canadian case studies, patients and family members were identified as a critical part of the improvement strategy. Their role in becoming aware and active participants in the care process, through their commitment to adhering to care plan; preparing for discharge, or informing themselves of next steps, were associated with tangible results in terms of patient flow.

4. Making the most of existing resources and working within limits of the system

None of the success stories in this inventory simply called for an increase in existing resources. Rather, they demonstrated a daily and consistent effort and commitment on the part of health service leadership, providers, staff and in some cases patients and families to optimize the use of existing resources in order to provide timely access to care. Over time, it will be necessary to monitor at what point it becomes necessary to review the availability of resources.

In each of the case studies, providers were asked to discuss limiting factors to making even more improvements in the area of focus. Common themes included:

- The availability of community based services and supports
- Bed capacity and the ability to staff the beds
- Physical infrastructure limitations and the limits of physical space



- The availability of research, data, evidence and technology to support decision making
- Leadership, time, support and incentives that facilitate and sustain voluntary collaborations

While providers and organizations embrace the philosophies of continuous quality improvement and strive for the effective and efficient use of resources, at some point, their efforts must be met with the ability to address these broader and more systemic issues. In many cases one time strategic investments in health human resources; infrastructure; home care will be essential to overcome limiting factors and meet the care needs of a changing population.

5. Demonstration and focus on evaluation and results

Finally and consistent with the values of many ACAHO member organizations, the effort teams made to measure and evaluate the outcomes of these initiatives, whether qualitatively or quantitatively or from a process or outcomes perspective, were impressive. In spite of the complicating factors of measuring and demonstrating outcomes, most of the initiatives were able to provide a concrete and tangible description of the outcomes that were achieved.

NOTES

1. Côté, M.J. 2000. *Understanding Patient Flow*. Decision Line, March 2000

2. This section is intended to provide brief context only and is not intended as a comprehensive overview of patient flow strategies or literature.

3. Côté, M.J. 2000. *Understanding Patient Flow*. Decision Line, March 2000

4. Operations management can be defined as "*the field of study that focuses on the effective planning, scheduling, use, and control of a manufacturing or service organizations through the use concepts and functions*". (Association for Operations Management http://www.apics.org/default.htm)

5. For more information on the Institute for Healthcare Improvement (IHI), please go to the following website: www.ihi.org.

6. IHI served as the key resource for initiatives such as the Patient Flow Collaborative funded by the Ontario Government www.chqi.org/flo/flo_pilots.html.

7. For more information on patient flow activities in Australia, please visit the following website: www.health.vic.gov.au/patientflow/resources.htm.

8. *Optimizing Patient Flow: Moving Patients Smoothly Through Acute Care Settings.* IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2003. (Available at www.IHI.org)

9. Examples include: (1) Are more than 2% of patients parked waiting for care at some point in the hospital more than 50% of the time? (2) Does hospital have a midnight census of 90% or more of bed capacity more than 50% of the time? *Optimizing Patient Flow: Moving Patients Smoothly Through Acute Care Settings.* IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement; 2003. (Available at www/IHI.org)

10. Rafferty, C., Markel, F., MacMillan, I., Rodgers, J., *How Do Patients and Physicians Rate Urgency of Care? A Comparison of Urgency Ratings for General Surgery* Healthcare Quarterly, 5(3) 2002: 34-40

11. Submissions reflecting initiatives conducted in partnership with non-ACAHO members were also encouraged, however these cases had to come from the ACAHO-member organization.

12. BC Children's Hospital, Stollery Children's Hospital, Alberta Children's Hospital, Saskatoon Health Region, Winnipeg Children's Hospital, McMaster Children's Hospital, Children's Hospital of Eastern Ontario, Kingston General Hospital, Montreal Children's Hospital, CHU Sainte Justine, Centre hospitalier universitaire de Sherbrooke, Janeway Children's Health and Rehabilitation Centre, IWK Health Centre, IBM Canada Ltd.

13. In this section, each case is featured once according to its emphasis, however, the case study may actually apply under multiple themes. In many case studies, the success described is one part of a larger corporation wide initiative.

14. Adapted from Patient 'Flo' and Patient Flow: Lessons from the Field, presentation slides of Paula Blackstein-Hirsch Centre for Healthcare Quality Improvement, Toronto, Ontario. www.oha.com/Client/OHA/OHA_LP4W_LND_WebStation.nsf/resources/ER=ALC+conference/$file/PaulaBlackstienHirsch.pdf

15. Coleman EA, Smith JD, Eilertsen TB, Frank JC, Thiare JN, Ward A, and Kramer AM. *Development and Testing of a Measure Designed to Assess the Quality of Care Transitions.* International Journal of Care Integration. 2002:2 April-June.

16. Brummel-Smith, 2002; Egbert, 1996; Ardery et al, 2003; McDonald and Hilton, 2001;Adunsky et al, 2002; Forester et al, 2000; Herr 2004 as cited in Ryan, D et al, *Exploring the Applicability of the RNAO Best Practice Guidelines for Pain Assessment and Management in Hip Fracture Patients*, GTA Rehab Network. 2009.

17. CIHI, 2007. Understanding Emergency Department Wait Times: Access to Inpatient Beds and Patient Flow (Available at www.cihi.ca)

18. Drummond, A.J. No Room at the Inn: Overcrowding in Ontario's emergency departments. Canadian Journal of Emergency Medicine. March 2002.

19. Canadian Association of Emergency Physicians. (Available at www.caep.ca)

20. Canadian Institute for Health Information. *Alternate Level of Care in Canada, 2009.* (Available at www.IHI.org)

21. Canadian Institute for Health Information. *Alternate Level of Care in Canada, 2009.* (Available at www.IHI.org)

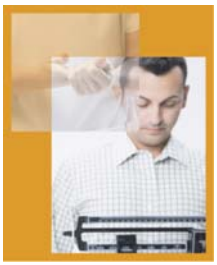
22. Portering is the service which ensures safe transfer of patients and necessary equipment across the hospital.

23. Canadian Institute for Health Information. *Alternate Level of Care in Canada, 2009.* (Available at www.IHI.org)

24. BC Children's Hospital, Stollery Children's Hospital, Alberta Children's Hospital, Saskatoon Health Region, Winnipeg Children's Hospital, McMaster Children's Hospital, Children's Hospital of Eastern Ontario, Kingston General Hospital, Montreal Children's Hospital, CHU Sainte Justine, Centre hospitalier universitaire de Sherbrooke, Janeway Children's Health and Rehabilitation Centre, IWK Health Centre, IBM Canada Ltd.

25. See Exhibits 1 and 2

26. Examples of Canadian companies delivering patient flow technologies include Strata Healthcare Solutions and XWave.



APPENDIX A

ACAHO'S CALL FOR LEADING PRACTICES IN PATIENT FLOW

The following submission requirements were requested for each case study.

ACAHO

Patient Flow At Canada's Teaching & Research Hospitals:
Call for Leading practices

— SUBMISSION CONTENTS*—

Please review the instructions on page 1 and 2. Your submission should contain each of the following under separate heading

1. Initiative title: (max. 1 line)
2. Organization name:
3. Province:
4. Name of contact person:
5. Email address for contact:
6. Team/authors: For each person, include: last name, initials, credentials, position, and affiliation
7. Resources: Please estimate the minimum operating dollars/FTEs needed to replicate this initiative.
8. Source of resource: Where did funding for this initiative come from?
9. Purpose: What specific problem was this project was designed to address? How did you know there was a problem?
10. Context: Use this space to describe any other contextual elements essential to understanding the initiative.
11. Population group: Please describe the population group and or setting(s) relevant to this initiative.
12. Patient flow entry and end points: Please state the point from which the patient is starting in this initiative and the point to which the patient is intended to arrive (example ER to diagnostics or acute to home or rehabilitation to long term care).
13. Description/approach: What methods, materials, and principles did the project involve? How were these developed or used?
14. Tools and tactics: Did this initiative result in any tools, forms, policies, or guidelines etc. that might be shared or applied across the industry? If yes, please describe them.
15. Measurement approach: What measures or indicators (quantitative or qualitative) did you use to monitor or evaluate the impact on patient flow?
16. Impact/evaluation: What was the impact of this project using the measures you identified directly above?
17. Observation/Discussion: Summarize other reactions or responses encountered or lessons learned when the program was implemented.
18. Critical success factors/lessons: List the most important success factors needed to replicate the initiative
19. Limiting factors: In order to make even further improvements, what, if any, system-level barriers would need to be addressed?

*You may use up to 3 pages (in 12 pt Times New Roman Font) to present your submission.
Submissions are due February 5, 2009 (new deadline)

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Appendix B

MEMBERS OF ACAHO - 2009

While members of the Association are the institutions or regional health authorities, they are represented by the President and CEO of that organization.

Newfoundland and Labrador

Ms. Louise Jones
Eastern Health
www.easternhealth.ca

Nova Scotia

Ms. Anne McGuire
IWK Health Centre
www.iwk.nshealth.ca

Ms. Christine Power
Capital District Health Authority
www.cdha.nshealth.ca

New Brunswick

Mr. Donald Peters
Regional Health Authority B
http://www.rhab-rrsb.ca

Québec

Dr. Fabrice Brunet
CHU Sainte-Justine
www.chu-sainte-justine.org

Monsieur Robert Busilacchi
Institut de cardiologie de Montréal
www.icm-mhi.org

Madame Lise Denis
Association québecoise d'établissements de santé et de services sociaux
www.aqesss.qc.ca

Madame Carole Deschambault
Hôpital Maisonneuve-Rosemont
www.maisonneuve-rosemont.org

Madame Patricia Gauthier
Centre hospitalier universitaire de Sherbrooke
www.crc.chus.qc.ca

Monsieur Michel Larrivière
Hôpital du Sacré-Coeur de Montréal
www.hscm.ca

Dr. Arthur Porter
McGill University Health Centre
www.muhc.ca

Monsieur René Rouleau
Centre hospitalier universitaire de Québec
www.chuq.qc.ca

Monsieur Serge Leblanc
Centre hospitalier de L'Université de Montréal
www.chumtl.qc.ca

Madame Marie-France Simard
Institut universitaire de gériatrie de Montréal
www.iugm.qc.ca

Dr. Hartley Stern
SMBD-Jewish General Hospital
www.jgh.ca

Ontario

Monsieur Jean Bartkowiak
Bruyère Continuing Care
www.bruyere.org

Dr. Robert Bell
University Health Network
www.uhn.ca

Monsieur Michel Bilodeau
Children's Hospital of Eastern Ontario
www.cheo.on.ca

Dr. Paul Garfinkel
Centre for Addiction and Mental Health
www.camh.net

Ms. Mary Jo Haddad
The Hospital for Sick Children
www.sickkids.ca

Ms. Sheila Jarvis
Bloorview Kids Rehab
www.bloorview.ca

Dr. Jack Kitts
The Ottawa Hospital
www.ottawahospital.on.ca

Mr. Jeffrey Lozon
St. Michael's Hospital
www.stmichaelshospital.com

Mr. Joseph Mapa
Mount Sinai Hospital
www.mountsinai.on.ca

Mr. Murray Martin
Hamilton Health Sciences
www.hamiltonhealthsciences.ca

Dr. Barry McLellan
Sunnybrook Health Sciences Centre
www.sunnybrook.ca

Mr. Cliff Nordal
London Health Sciences Centre
www.lhsc.on.ca

Mr. Cliff Nordal
St. Joseph's Health Care
www.sjhc.london.on.ca

Dr. David Pichora
Hotel Dieu Hospital
www.hoteldieu.com

Dr. William Reichman
Baycrest
www.baycrest.org

Mr. Mark Rochon
Toronto Rehabilitation Institute
www.torontorehab.com

Dr. Kevin Smith
St. Joseph's Healthcare
www.stjosham.on.ca

Ms. Leslee J. Thompson
Kingston General Hospital
www.kgh.on.ca

Mr. George Weber
Royal Ottawa Health Care Group
www.rohcg.on.ca

Manitoba

Dr. Brian Postl
Winnipeg Regional Health Authority
www.wrha.mb.ca

Saskatchewan

Ms. Maura Davies
Saskatoon Health Region
www.saskatoonhealthregion.ca

Mr. Dwight Nelson
Regina Qu'Appelle Health Region
www.rqhealth.ca

Alberta

Mr. Patrick Dumelie
The Caritas Health Group
www.cha.ab.ca

Dr. Chris Eagle
Alberta Health Services Board
Www.albertahealthservices.ca

British Columbia

Ms. Lynda Cranston
Provincial Health Services Authority
www.phsa.ca

Ms. Dianne Doyle
Providence Health Care
www.providencehealthcare.org

Dr. David N. Ostrow
Vancouver Coastal Health Authority
www.vch.ca

Mr. Howard Waldner
Vancouver Island Health Authority
www.viha.ca

"WAIT" WATCHERS III: *ORDER & SPEED...*

IMPROVING ACCESS TO CARE THROUGH INNOVATIONS IN PATIENT FLOW

MARCH 2009

ACAHO

ASSOCIATION OF CANADIAN ACADEMIC HEALTHCARE ORGANIZATIONS

"Wait" Watchers III: *Order & Speed...* Improving Access to Care through Innovations in Patient Flow

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