
Transforming Adult Critical Care Service Delivery in Ontario

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Introduction

This chapter is about how we are going to achieve our dreams of the ‘ICU of the future’. By writing in the first person, I hope that it will spark some ‘first person’ reflections in you. As a jumping off point, I want to pose a somewhat rhetorical question: in order to realize the ‘ICU of the future’, what will be more difficult: the challenge of scientific discovery or the challenge of changing human behavior? That may seem like an odd question. Obviously, scientific progress is essential but so is change. I believe that health professionals and health system managers need to take change as seriously as we do scientific discovery. To achieve the promise of the ‘ICU of the future’, change will be required at several levels. I will touch on changes in our personal behavior, changes in our institutional cultures, and changes at the level of our health care systems. In particular, I want to talk about leadership in creating the conditions for positive change in health care settings. Throughout, I will refer to the work we are leading in Ontario as we try to put in place the foundations of our ICU of the future.

In Ontario, we recently had an experience that exposed the extent to which we do not really have a health care *system*. Our battle with severe acute respiratory syndrome (SARS) tore up some of our illusions in this regard. Nowhere was this more evident than in our critical care services. SARS also revealed our strengths, primarily in terms of the dedication, resourcefulness and bravery of our people. Perhaps most importantly, it brought us together and got us talking in a new way. Our crisis has become an opportunity for transformation. In terms of the provision of adult critical care services, we are experimenting with innovative service delivery options and have developed a blueprint for system-level transformations. At the core of this initiative, we are explicitly recognizing the need to cultivate the leadership potential in our clinicians and administrators.

Health Care in Ontario

A Sketch of the Health Care Delivery System in Ontario

Before describing Ontario’s critical care transformation initiative, I want to provide you with some sense of the context that we are working in and sketch out some of our key challenges. In particular, I want to focus on one aspect of our

health human resources challenge, which underscores the many linkages between leadership and critical care.

Canada's health care system is governed by the five principles of the Canada Health Act (CHA). This Act is enforced by the federal government and is designed to ensure that we have a universal, comprehensive, accessible, portable, and publicly-administered system. The federal government provides some funds, but it is the individual provinces that are responsible for the administration and delivery of health care services. Each provincial government sets policy, establishes legislative and regulatory frameworks for health professions and other services (e.g., public hospitals) and transfers funding to the organizations that actually deliver most services. Ninety seven percent of health care programs in Ontario are provided by transfer payment organizations, not by the government. The provision of services is by both 'for-profit' organizations (e.g., independent health facilities, pharmacies) and 'not-for-profit' entities (e.g., hospitals). Private sector financing (approximately 32%) includes third-party insurers (e.g., insurance companies), out-of-pocket expenses, concentrated on drugs, vision care, dental services and homecare.

The Ontario health care system is complex. It serves the needs of approximately 12 million people and can be understood as the largest and most comprehensive Health Management Organization (HMO) in North America. Our system is analogous to an HMO in that it has a similar financial structure in which a single funding body manages the provision of a range of health care services for plan subscribers. In our case, the funding body is the provincial government and the plan subscribers are the taxpayers of Ontario. However, unlike many HMOs, our plan covers everyone, ensuring all members of our communities have equal access to health care services.

Ontario has over 230,000 regulated health care providers including 23,000 physicians and over 135,000 nurses. There are currently 152 hospital corporations across the province operating 228 sites. We fund approximately 32,714 beds in all hospitals of which 20,522 are considered 'acute care beds' and of which about 1100 are intensive care beds capable of supporting mechanical ventilation. Government transfers to hospitals are the largest single transfer payment in Ontario, amounting to approximately \$11.3 billion in 2004/05. These funds, representing 85% of the total hospital sector spending, cover all core health services. Hospitals also generate revenue from other sources, including private and semi-private accommodation, chronic care co-payment, workers' compensation and fundraising. This additional funding is used for ancillary costs such as research projects.

System-Level Challenges – Health Human Resources

The Ontario health care system faces a variety of key systems-level challenges leading to widespread concerns that our publicly funded system is not sustainable. Funding increases of between 8 to 9.5% per year have been required to maintain services. Cost drivers include population growth and aging, emergence of new diseases, increasing pharmaceutical costs, accelerated use of new and

existing technologies and the need for infrastructure investments. Additional challenges include a shortage of health care workers, an aging workforce, silo-based delivery and funding, ethnic diversity and changing public expectations. I cannot explore all these issues in this chapter, but I draw attention to one issue that is of vital importance to critical care and emphasizes the many interesting linkages between leadership and our critical care transformation agenda.

We must remind ourselves that 65 to 70% of the asset value of our healthcare delivery system is human capital. Only 30 to 35% of the value we offer are our capital assets of building and equipment plus supplies and drugs. As leaders, we need to be responsible for creating healthy workplace environments for our human capital assets, the people who self-selected to work in healthcare. Healthier work environments increase the resiliency, adaptability, creativity, satisfaction, morale and productivity of individual workers. At the organizational level, this translates into improved performance, decreased costs and increased quality. In other words, employee and workplace health is inextricably linked to productivity, high performance and success. All of this is especially relevant for adult critical care services where there are high staff/patient ratios, inherently stressful working conditions and potential exposure to infections. As we look forward to meeting increased demands for critical care services in the future, we will need to demonstrate improved employee and workplace health in order to recruit and retain the required personnel.

SARS – Ontario’s “Burning Platform”

The Concept of the Burning Platform

The concept of the “burning platform” as an impetus for change was introduced by Darryl Conner [1] and is based on an incident involving an oilfield driller who jumped 50 meters into the freezing North Sea from a burning oil drilling platform. When asked how he found the courage to leap, the worker replied: “I could go into the water and have a minimal chance of survival, or I could stay on the platform and face certain death as my coworkers did. It took no courage at all.”

The image has captured people’s imaginations for what it highlights about human nature, change and crisis. Change is inherently difficult. To achieve major innovation, we need something akin to a ‘visible crisis’. This focuses our resolve and enables us to ‘take the leap’ that we now see as vital. For Ontario’s health care system, SARS was our burning platform.

SARS and Critical Care

SARS was my introduction to public service in the Ontario healthcare system. I was given a front row seat at an incredible learning experience that was filled with genuine heroism, courage and love at the front line and genuine stewardship within the governance, managerial and public service leadership at the top of our system hierarchy.

In many ways, SARS unmasked some painful truths about our existing system. Throughout the crisis, we had to face head-on the unintended outcomes that flow from how we have historically designed the health care delivery system as a series of unconnected and relatively autonomous silos. Prior to SARS we had been discussing this and using language like ‘service fragmentation’, ‘lack of co-ordination’, and ‘silo orientation’ for years. SARS made us face the consequences of these system design choices.

Hospitals, community care access centers, community service providers and public health units all discovered that their individual silos could be dramatically impacted by other silos. In our vulnerability, we could see how interconnected we are, how like an organic system we are. Our ‘relative autonomy’ had given us the illusion of being independent but we are very connected, even if these connections are poorly designed.

While the current component parts of the system were never intentionally designed to create synergy, coordination and cooperation, individual leaders across the system pulled together, despite the disincentives and the barriers to fight and ultimately, it was as a system, that we defeated SARS. I think we succeeded because on a very human level, we were able to combine our collective intelligence to solve real problems. Many people and several organizations achieved remarkable results through actions that were executed within accelerated timeframes.

While it was a major crisis, SARS involved a relatively small number of actual patients. The outbreak – really one outbreak with two peaks – occurred from March 5 to June 12, 2003. We had about 400 probable and suspect cases and in total 44 people died. Hospital based transmission of SARS led to a majority of our cases, including patients, visitors and healthcare workers. Issues such as loss of healthcare workers to quarantine or illness resulted in enormous challenges delivering care to patients with and without SARS. Our health system was pushed to the limit. We were faced with closures of hospitals and critical care units, and cancellation of elective surgeries.

A useful article co-written by C. Booth and Dr. T. Stewart highlights the issues that SARS revealed about our critical care service delivery [2]. They suggest that the lack of a coordinated leadership and communication infrastructure was the most important limitation to Ontario’s response to SARS from a critical care perspective. For example, they noted how the critical care community had not carefully thought through nor communicated our approach to a crisis that impacted critical care beds. Hospitals, clinicians, public health, researchers and government officials were left unsure of what each other was doing.

The silo-oriented management of the critical care system meant that we did not have a clear picture of the availability of critical care beds across the province. I was the Assistant Deputy Minister of the Acute Services Division and I could not get a timely accurate number and location of critical care beds across the province. As the number of unavailable intensive care beds grew – a total of 73 intensive care unit (ICU) beds were closed at different points during the SARS outbreak [2], this gap in our critical care information system limited our ability to relocate patients with low-acuity complaints.

In the midst of all this, I discovered many people who were going through this experience with a ‘third’ eye – an eye focused on the underlying systemic issues that were being exposed on a daily basis as we moved through this crisis. Healthcare leaders I spoke with throughout the SARS crisis were asking some very probing questions about system design: about roles and responsibility; about accountability and empowerment and about the need for fundamental strategic changes that would enable us to move forward. SARS became the burning platform for our health system change, in particular for critical care.

Post-SARS Assessments and Critical Care

Democratic traditions are strong in Canada and in Ontario and following SARS, we engaged in some very honest and open discussions at a very public level. In particular, two processes helped us articulate and formulate what we had learned:

- a) The federal process led by the National Advisory Committee on SARS (the Naylor Committee) which generated the October 2003 report entitled *Learning from SARS* [3]
- b) The provincial process led by the Expert Panel on SARS and Infectious Diseases (the Walker Panel) which generated the December 2003 report entitled *For the Public’s Health* [4]

The public nature of these reports helped to give those whose ‘third eye’ had opened a chance to make their insights public. Many useful insights into how we might improve our system were recorded in these documents. Ontario’s lack of planned surge capacity in critical care was repeatedly mentioned. The key ideas from these reports were picked up in subsequent discussions and have been woven into the blueprint for transforming critical care that I will describe below.

In addition to these public discussions, I have engaged in hundreds of dialogs with hospital board members, front line staff and senior managers. The consensus view of the leadership of Ontario’s healthcare system was clear – after SARS, the system will never be the same again. The leaders were ready to jump. With respect to critical care, I gathered a group of leaders to discuss how to move forward. There was a remarkable readiness amongst the critical care leadership. There was consensus diagnosis regarding:

- Our lack of surge capacity – 90% to 95% critical care bed occupancy combined with no ‘surge’ plans left us vulnerable. We had no way to leverage the aggregate of our resources.
- Our lack of standardization – Specific concerns regarding infection control opened up into broader discussions regarding patient safety and variability in best practices in critical care units across the province.
- Our lack of data – We had not collected even a minimum dataset that would allow us to engage in accountability/knowledge transfer and quality improvement initiatives. We could not manage what we could not measure.

Leverage Actions vs. Strategic Directions

Leveraged actions are those actions we can take that:

- Create maximum impact for minimum effort;
- Provide the highest return-on-investment (ROI); and,
- Produce the ‘biggest bang-for-the-buck’ – with the least number of unintended consequences.

Senge’s *The Fifth Discipline, The Art & Practice of The Learning Organization* [5] describes leveraged actions as small, well-focused actions that can sometimes produce significant, enduring improvements if they’re in the right place. For example, the ‘trim tab’, or small ‘rudder on the rudder’ of a ship is an excellent metaphor for leverage. This tiny tab is what makes it easier to turn the rudder, which in turn makes it easier to turn the ship.

Just like the trim tab, high-leverage changes are usually highly non-obvious to most people in the system. Unless you understood the force of hydrodynamics, it is unlikely that you would think of pushing a tiny trim tab at the back of a huge ocean tanker in order to make it move in the direction you wanted. The more obvious course of action might be to push the bow of the tanker to the left if that was the direction you wanted it to go. Yet, the amount of force required to move the tanker would be tremendous. Instead, the leverage lies in going to the stern and pushing the trim tab and the rudder to the right in order for the bow to point to the left.

Like the trim tab, leveraged actions are usually not ‘close in time and space’ to obvious problem symptoms. There are no simple rules for finding high-leverage changes. However, learning to see underlying structures rather than events -- and thinking in terms of processes of change rather than snapshots -- is a way of thinking that makes identifying leveraged actions more likely. Another helpful tip is that leverage most often exists at the point of intersection between things. Therefore, an understanding of the different variables in the system and their inter-relationships is crucial in identifying areas for organizational leverage.

What I am advocating is that we focus our attention on a smaller number of highly leveraged actions that will have the highest impact on the way the system is governed and managed, and on the customer outcomes. I am saying that by making small changes to the basic DNA of the Ontario healthcare system, we can achieve dramatic changes within a four-year timeframe.

Before describing the transformation process, I want to share some comments on ‘structure’. Structure is like the DNA of the system: whatever you design into it, it will produce the outcome or results. If you design mechanisms and different silos, holding different assumptions, you will create a fragmented silo-oriented system that is out of alignment, dysfunctional, or at least sub-optimal in performance. Structure, of course, has several components: design, decision-making, information systems and rewards and incentives.

Let’s start with ‘design’. An organization’s design is composed of what it does (its functional design), who does what (its structural design) and how work is done (work process design). In doing functional design work, a determination must be made about what services or capabilities the organization wants to

make available as well as what services or capabilities it needs itself to operate effectively.

Turning to ‘decision making’, this component of structure includes what decisions are made, and who is involved in making them. It is really an expression of how power and authority are distributed in an organization or in a system.

‘Information systems’ are a very important component of structure. In the knowledge economy, information systems need to evolve to support leveraged managerial decision making that propels the organization towards achievement of outcome. Effective and efficient organizations therefore, must have information systems to track indicators, set targets, monitor their progress and make adjustments to strategy on an ongoing and continuous basis.

And finally, ‘rewards and incentives’. The culture of an organization, particularly its behavioral norms, is very much affected by what and how the organization rewards people. Consequently, it is important to insure that the organization’s rewards and incentives system is actually encouraging the kind of behavior the organization or the system needs to enable its strategies.

Getting a Transformation Process Rolling

The way Ontario is approaching its Critical Care Transformation Strategy may prove to be a template we can follow in other areas of health care transformation. We are trying something new. If it works, and I am very optimistic that it will, we may be able to expand it to other areas, especially in the acute care system.

If you are aiming for transformation, not incremental change, you often have to change the way you do things in addition to just trying harder. For the ministry, this meant lowering our drawbridge and forging an even closer link with the innovative leaders in the critical care medicine field. We obtained the services of two respected opinion leaders in our deliberations. Dr. William Sibbald and Dr. Thomas Stewart were asked to chair an internal Critical Care Working Group. This is a rare arrangement in government. Drs. Sibbald and Stewart retained their clinical positions in the community while at the same time participating in internal planning initiatives. This hybrid was a risk for the ministry managers as it threatened to blur the line between system funder and system provider. I was strongly supportive as I believed that this was the only way we could start addressing the lack of standardization in Critical Care in Ontario. Let me explain.

It was well known that the various sorts of critical care units have evolved somewhat idiosyncratically in Ontario hospitals over recent decades. This evolution has been driven by a number of factors including hospital size, community need, other hospital priorities, physician interest and hospital funding levels and methods. Ontario ICUs and step-down units exhibit a wide variety of patient type, unit size, technological sophistication, physician management structure, staffing levels and clinical procedures. There is a real concern supported by expert opinion and anecdotal evidence that this level of customization has come at the price of inconsistency in standards of care across the province. As a general principle in health care service delivery, I would argue that useful customization can only be achieved against a backdrop of standardization. It

might seem that a ‘top down’ approach is the natural way to achieve standardization but through discussions with our physician champions, it became quite clear that any top down initiatives would have to be supplemented by ‘sideways’ support. For the critical care field to work toward standardization, it would help to get them talking together in even more engaged and open ways. Having each institution defending their ‘uniqueness’ to the ministry would be counterproductive. We needed to find ways of sparking system-level thinking, it had to be engendered from within the ‘silos’ of care, and we knew that following SARS the field was ready.

In order to facilitate this system level thinking, we embarked on a two-prong approach:

1. We funded service innovation initiatives with a view to promoting inter-hospital integration and cooperation.
2. We organized a group of leaders from the field and supported them in developing a broader ‘blue print’ for transformation of adult critical care services.

With respect to the service innovation initiatives, we began looking at three projects:

- a) ICU Outreach Teams
- b) Telemedicine
- c) eICU technology.

We have already launched the first two and are actively reviewing how eICU might be useful in Ontario. Our approach to ICU outreach teams (or medical emergency teams as they are sometimes called) has been to emphasize the knowledge transfer and inter-institution learning opportunities. Our Telemedicine initiative directly links institutions and is particularly designed to encourage standardization of best practices between and within hospital critical care units.

With respect to the broader blueprint for transformation, we gathered representatives from institutions across the province and from the key health care professions and asked them to prepare comprehensive recommendations for improving safety, access, efficiency and quality. The ministry provided staff and research support and was a player at the table - but was not directive. The results, as I shall detail below, are impressive. Within a year, the stakeholder group, known as the Ontario Critical Care Steering Committee, produced a very useful report that is currently being reviewed by government prior to formal decisions regarding implementation.

The Quality Improvement Cycle and the Committee Report

The Stages of a Quality Improvement Cycle

The Ontario Critical Care Steering Committee followed a version of the Continuous Quality Improvement (CQI) management philosophy. Originating in industry, CQI has received increasing attention from the health care system involving

management, staff and health professionals in the continuous improvement of work processes to achieve improved patient outcomes. To put the stages of this cycle in a nutshell, you work your way through the following questions:

- a) What are we doing now?
- b) What are best practices in the given area of endeavor?
- c) What is the gap between what we are doing and best practices?
- d) How do we bridge the gap?

This then leads to a round of implementation and monitoring which, in due course leads back to the assessment again. The Ontario Critical Care Steering Committee has done an excellent job in taking us up to the point of implementation.

What Have We Learned about Critical Care Delivery in Ontario?

The Steering Committee began by measuring our current capacity and practices. This involved original research, data gathering and analysis. In addition, the Committee completed over 20 papers, which mined the available scientific literature and other health planning documents for ideas that might help us in designing our made-in-Ontario blueprint. We were determined not to reinvent the wheel. Certain aspects of the National Health Service (NHS) Modernisation Agency's Critical Care Programme were especially useful for us. The UK approach helped us explore alternate 'systems-level' thinking in critical care, consider new approaches to standardizing practice across institutions, and reconsider a wider range of accountability measures [6].

a) Critical care capacity audit

The critical care capacity audit collected information on the functioning characteristics, bed capacity, and administrative structure of critical care units across Ontario. The audit focused on critical care bed capacities; the availability of diagnostic, monitoring and therapeutic technologies; and the organizational structure of critical care services. A questionnaire was developed in collaboration with the Critical Care Research Network (<http://www.criticalcareresearch.net>), an innovative consortium of Ontario hospitals that coordinate on critical care research projects. Hospitals reported on any beds physically aggregated into a discrete unit to provide care to higher acuity patients, including ICUs, intermediate or step-down units, and subspecialty units (e.g., coronary care, trauma, cardiovascular).

The audit suggests that the availability of critical care resources varies across the province. In particular, there appears to be marked variations in per capita bed capacity across the different regions. The data also suggest that the availability of critical care technologies is less than optimal within acute care hospitals. Many hospitals have both general and specialized critical care units (e.g., cardiovascular, neurosurgery, etc.). The majority of these units report to and are managed by different program areas. The audit also demonstrates that a minor-

ity of the province's critical care units were 'closed' and employed an intensivist model for care. While it is true that a large number of our ICUs are of insufficient size to justify a 'closed' model of care, many of our larger ICUs were not yet employing a 'closed' model.

b) Critical care HHR audit and gap analysis

A critical care medicine and allied health workforce survey was sent out to hospitals in early January 2005. The survey asks hospitals to provide information on:

- critical care unit staffing (e.g., registered nurses, respiratory therapists, intensivists, pharmacists, dieticians/nutritionists, social workers and physiotherapists)
- patient acuity and the acuity measurement tool used, and
- the impact of work force shortages on the number of staffed beds, diverted emergency department patients and cancelled surgery.

Results of the survey are expected by March 2005 but were not available in time for inclusion in this chapter. These results will help develop a profile of current critical care human resources, project future requirements and identify critical care issues. Human resource projections for Ontario will be based on the assumptions that critical care services in hospitals will be organized by patient acuity. Critical care units will ideally operate at an 85% occupancy which will allow units to maintain surge capacity and core staffing guideline ratios will be used in developing projections.

c) Critical care service demand forecasting

Two separate studies were conducted using different data sources in an attempt to determine the future demand for adult critical care services and in particular, the requirement for beds capable of supporting mechanical ventilation. Ontario's population is growing and aging and we know that both these factors will drive increased service needs and that critical care in particular will be affected by the demographic shift Ontario is experiencing. Projections suggest that to achieve an 80% occupancy rate for our critical care beds capable of supporting mechanical ventilation, Ontario will need to add new critical care beds to our system each year.

While this is an impressive growth requirement, we are very aware that in advance of gathering stronger data demonstrating the appropriateness and efficiency of critical care resource utilization, these projections are at best preliminary.

An Overview of our Blueprint for Transformation

As noted, the Committee's blueprint for transformation emphasized the newly emerging systems approach. The blueprint maps out how critical care can be

managed from a systems perspective in which groups of hospitals work together to meet the needs of the critically ill patients in their catchment area. It is linked up with other system-level transformations that are underway, including the creation of ‘Local Health Integration Networks’ (LHINs) and improved services for the chronically ill.

The goals of the LHINs and what they will be expected to do can be summarized as follows:

- 1) manage the development of an integrated local health system to deliver coordinated health services at the local level
- 2) improve the accessibility of health services to allow people to move more easily through the health system
- 3) bring economic efficiencies to the delivery of health services, promote service innovation and improve the quality of care, and make the health care system more sustainable and accountable;
- 4) engage the community in local health system planning and setting of priorities, including establishing formal channels for citizen input and community consultation.

What follows are some highlights of the report’s Executive Summary of the “Blue Print For Transformation”:

- Access To Critical Care Through Greater Efficiency And Effectiveness

- System-level solutions

System-level recommendations to improve access include establishing critical care networks in Ontario, with hospitals categorized by the level of critical care they provide (Our debt to the U.K. NHS Critical Care Modernisation Programme [6] is explicit here. Our Committee reviewed various alternatives and determined that the British nomenclature for critical care patient acuity best fit with our overall strategic direction). These levels will clearly delineate the capacity of hospitals to care for patients with different acutities of illness. In addition, critically ill patients will be categorized by their level of acuity using a standardized four level system that mirrors the hospital classification.

- Organization-level solutions

Access to safe, quality care will be improved at the organizational level by the recommendation for Ontario hospitals to manage their critical care resources using an intensivist-led management model, which has been shown to result in better patient outcomes. In addition, hospitals will improve access to critical care services, the flow of patients, and the efficient and effective use of resources by establishing a single point of accountability for their critical care areas, and a unified approach to the utilization of critical care resources. Other recommendations to improve organization-level access include expanding outreach team pilots to include other hospitals in Ontario, funding the 24 month telemedicine demonstration project to disseminate critical care best practices, funding the proposal to conduct a three year evaluation of electronic ICU technology in re-

mote hospitals,¹ and increasing critical care capacity by increasing the number of chronically ventilated beds in Ontario, in a timely fashion, in the area of most need – the central Ontario corridor.

– Surge

A number of recommendations address the need to equip the critical care system to respond to surges in demand. Recognizing minor, moderate and major surges is recommended along with requirements for accountability, human resources, physical plant and process improvements at each level. Hospitals will be expected to develop contractual agreements with their LHIN or critical care networks, as appropriate, that outline each hospital's role and responsibilities in surge situations. To prepare the province to respond in the event of major surge, it is recommended that the Ministry create additional Emergency Medical Assistance Teams (EMATs) and that hospitals encourage and facilitate their staff to become EMAT volunteers.

– Ethical considerations for access

The increasing demand for critical care services in the face of resource limitations highlights serious ethical issues. It is recommended that the critical care community convene an annual conference on ethical issues in accessing critical care services and identify solutions. The need here is to bring the discussion out beyond the medical community to society as a whole. The relevant issues go beyond medical decisions to societal discussion as to how we are going to use our resources. There is a need to create a dialog between funding organizations, patients, clinicians and opinion leaders from all walks of life.

- Quality and Safety Through a Framework to Improve Critical Care Performance

The Committee recommends a framework to improve critical care performance that includes establishing evidence-based benchmarks, best practice guidelines and standards, and identifying indicators to assess critical care performance against these measures. It is also recommended that hospital boards be held accountable for governing their organization's critical care resources including access, appropriate use, quality and ongoing improvements. The Ministry will monitor performance against established goals. In addition, individual critical

¹ While the Ministry is still in the process of reviewing eICU approaches, there are several aspects of our system that make eICU attractive. To begin with, Ontario has several remote areas, notably the north, where our population is sparse. For such areas, eICU may help us provide standardized care to these remote areas, by 'coaching' the physician workforce they have available to them. This technology should also reduce the 'toxicity' of the workplace, for example, in medium-size cities where providing 24/7 coverage is a huge burden. By providing these hospitals with an eICU option, we may be able to provide a better quality of life for the physician workforce in these cities.

care units and LHIN will measure their performance, and institute quality improvement initiatives tailored to their specific local needs.

- Sufficient and Appropriate Human Resources to Meet the Need for Critical Care

The importance of ensuring that sufficient numbers of appropriate human resources are available to work in critical areas resulted in recommendations to explore measuring the workload of critical care professionals, and adopt core staffing ratios as minimum guidelines for critical care. With regard to practice, it is recommended that professional staff working in critical care meet provincially-recognized standards and core competencies.

- Critical Care Technologies

Since a great deal of healthcare-related evaluation activity is already occurring, the Committee recommended that the critical care community should review the evaluations conducted by these groups to inform the adoption, diffusion and withdrawal of critical care technologies. These evaluations should also be used to identify the standard technologies that hospitals should acquire or retire. Suggestions on technologies to evaluate should be forwarded to these groups. In addition, it is recommended that the critical care community offer to participate in the evaluation of current critical care technologies in partnership with existing evaluation bodies. This sharing of information should go beyond provincial borders and indeed beyond national borders.

Leadership

Leadership and Reflection

At the personal level, I believe leadership starts with self-reflection. Moments of self-reflection restore personal balance and make it possible for us to take the next risk. We have to create the conditions for change in ourselves before we can foster them to our colleagues. Join me in a thought experiment. Imagine that you could step out of your day to day role for a moment. Leave the lab or the bedside or the desk or the board table and come with me up a steep flight of stairs. At the top of the stairs, you will see that we have emerged onto a wide balcony. Below us is spread the entire health care system. From here we can see all its components. We can see the degree to which it is a system and the degree to which it is not. We can see the strengths and we can see the problems. We can see the providers, working in their manifold tasks and we can see the patients and their families. On this balcony we are joined by our muse, a challenging voice who lives on the periphery of our consciousness and in the comments of our colleagues. Sometime we cannot wait to hear from our muse. Sometimes we try to ignore our muse. Generally, to hear the muse, it is best to free ourselves of

the day to day pressures, if only for a moment. Every conversation with a muse is different. Here is one sample:

- Muse: You look terrible.
- Self: Gee, thanks. I'm feeling overwhelmed and seem to be out of ideas. I thought coming up here and looking things over would help.
- Muse: That's good news. That you are out of ideas, I mean. That's good soil for a new vision to take root.
- Self: What are you talking about? We already have a vision. We wrote it all down. I've got it here somewhere. Let me read it to you. "Health care in Ontario is a multi-faceted..."
- Muse: Oh, please, not again! That thing sounds like a badly written obituary. It doesn't capture the essence of what drives you.
- Self: You think a slogan is going to save us?
- Muse: No, but it could make your hopes more visible. It could help free up your colleagues' imaginations. You are all still afraid to try new approaches. Nay-sayers get the most air time with you.
- Self: Well, this is no sandbox. We are accountable...
- Muse: Yes, yes but what is your accountability really for? Is it primarily about blame or is it primarily about learning? For sure, if you try something new, you have to monitor the results and shut it down if necessary but when accountability chokes out experimentation you are in big trouble.
- Self: Well, truth is that I am concerned that I will lose control. I am supposed to be leading this thing.
- Muse: When you were in your 30s and you were brimming with answers, I didn't bug you too much but now that you are in your 50s, you really have to get over yourself.
- Self: True - heaven help us if I have to come up with all the answers. I could do more to encourage the risk takers. I could help them shape their ideas...
- Muse: All right! Welcome to the gray zone! This is where the good stuff comes from...By the way, do you know why you keep coming up here?
- Self: Yes. From here I look on to the vista of the system from the perspective of my professional life. I ask myself over and over again... "What do you see?"

The other comment I want to make about leadership at the personal level is the importance of how we treat each other. As leaders, whether bureaucratic, clinical or managerial, we are working in various sorts of hierarchies. It is my experience that as leaders, our behavior is standard setting and is imitated up and down the chain of command. As leaders, we have to think about how the way we treat others feeds strongly into our institutional culture.

Leadership and a Culture of Innovation

Based on moments of personal reflection, as leaders, we can undertake our key responsibility which is to create the systemic conditions within the health care system that provide solutions to today's challenges. Leaders foster conditions in which systems can outgrow constraints in current approaches. So much of society and health care is geared to recognizing the right answer and 'hang your head low' if you do not have it. We must continually ask: How can we as leaders meaningfully tap into and create a culture that encourages the expression of intellect, passion, commitment and experience by all levels of the delivery system to make real change that satisfy healthcare consumer needs and expectations? The change management thought leaders tell us that change requires a literal opening and emptying that creates a space for new vision to emerge, which articulates new shared values. This opening requires discipline and courage: discipline to look at what is not working and to resist knee jerk reactions to new ideas; and courage to separate from old patterns, structures and processes which are no longer useful to a health care system that is being compelled to evolve.

The challenge ahead for the leadership of our healthcare system is about learning how to lead, manage, guide, and coach others through the change process. Leadership and change management have been my passion for a good number of years but the more I learn, the more I truly understand how little I really do know about it. I learn a little bit more each day – particularly from people who tell me what is really going on at the front line, from the hospital board perspective and from the senior management and physician leadership. They provide me with feedback on 'lessons learned' from our own 'best mistakes' of the past.

Instead of thinking and acting as isolated silos under siege, governance and managerial leaders can choose to see themselves through another lens, a lens in which you can see yourself in relationship to a local health service delivery system, your community partners in the delivery of care. If we are going to be successful at managing change over the next four or five years in Ontario, we will need to reflect on and learn from our 'best mistakes' of the past. We also need to be carefully examining the basic assumptions that we are holding about our existing and future healthcare delivery system. Assumptions are not facts. They are the beliefs we hold about our reality and our vision. For system leaders, in Ontario and other jurisdictions, the first assumption that must be tested is 'Do you have all the answers to the challenges and dilemmas that you face?' Of course you don't.

What I know for a certainty is that healthcare people are capable of brilliance. I know that the answers to the questions we need to ask are within the hearts and minds of the people in the healthcare system. The answers to the dilemmas that you face are within your own organization – from your front-line healthcare providers, from your managers, and from your boards.

Leadership and Health Care as a Brand

It is interesting to reflect on the fact that while there is general confidence that science will continue to make progress, there is general concern around whether we can hope for ever improving health care. From a historical perspective, this is puzzling. The last few hundred years of scientific progress has been roughly paralleled by equally dramatic improvements in the delivery of health care. Without in anyway underestimating the tremendous effort required, it is reasonable to assume we will continue to make medical and scientific discoveries. It would seem that in the longer historical view, there is basis for a similar optimism with respect to improvements in the delivery of health care services. Yet, in many jurisdictions, the contemporary assessment of the health care system and its future is not very optimistic. There is a constant expression of concern about the quality of health care, or about the cost of the health care system, or the level of funding for health care, or about equity of access to health resources and so on. Many commentators, including leaders in the health care system, voice these concerns in rather negative tones. There is precious little in the way of optimism that these concerns represent opportunities for new thinking, for creativity and change.

I think it is understandable that people's concern with health care is of the moment, not historical. Whether my loved one is going to get the care he or she needs is my concern. My historical consciousness is not involved. Health-care must become more consumer quality focused. To quote Roy Romanow, who led Canadians through a deep review of our commitment to a publicly funded system: "The most important work in providing quality healthcare happens in every interaction that our citizens have with healthcare providers and people working on the front lines of service delivery" [7].

Customer service includes cultivating brand satisfaction. Our system leaders need to be constantly emphasizing the excellent work being done by our frontline. This is, ultimately, the product we are bringing to market. Imagine if everyone who worked at General Motors, including the senior engineers and managers, spoke to the public constantly and in negative tones about the many problems GM faces as a company. Imagine the impact that would have on car sales and on company morale. In many jurisdictions, certain institutions and some larger Health Maintenance Organizations (HMOs) have this sense of caring for their brand, but where this pride exists, it remains in silos and blame is shifted to the next level up. The general public needs to see us working together. They need to see evidence of the existence of a real health care system.

Conclusion

In closing, the leaders I talked to throughout the SARS crisis were asking some very probing questions about system design, roles and responsibilities, accountability and empowerment, and about the need for fundamental strategic changes that will enable us to modernize and update our traditional industrial-age approach to healthcare delivery.

When time frames accelerate, leadership emerges at all levels as people ask complete questions to compel everyone to think differently about the challenges. When we stick to the same old mental models, we come up with the same old solutions - which inevitably fail us again and again.

We must remember that anxiety includes undiscovered skills, potentialities, incredible energy and many aspects of a healthy life that long to be lived. It takes great courage for leaders to ask 'wicked' probing questions in search for the truth – and do so without blaming. Leaders must become very vulnerable themselves to enable truth to heal the system from within.

Imagine the system to be a multi-story building. Most of the leaders of the healthcare system have been far more concerned with the dramas taking place in the upper rooms and halls of the building than the flaws in the design of the building. These flaws are the true source of unbalanced patterns of energy flow. Can you describe, in terms of paradox, the fundamental drama on the first floor, where the true owners of the system reside, the tax-payers?

Bottom line, we have a fundamental paradox which is a conflict between independence vs. interdependence. But my argument is, can we not redesign the building to have both principles supporting each other? There are three choices in this metaphor: You may continue to accept the building as it is; you may change the building; or, you may tear it down and re-build. To make the choice that enables you to outgrow this knowledge management paradox, the system needs to learn how to experience unity in diversity.

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