



Building the Bridge between Caring and Technology

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A sustainable healthcare system requires that our hospitals re-think service delivery in the context of finite resources and increasing demand. Trillium's seven technology partners with the THINK Initiative are tackling the biggest challenge to Medicare since its inception: How best to use technology to improve the quality, efficiency and long-term sustainability of health service delivery.

You can't open a newspaper without seeing another story about healthcare: the waits are too long; there are not enough physicians, specialists and nurses; emergency rooms are overflowing; there's not enough money to build the facilities to meet the growing healthcare needs of our aging population ... the litany is well-rehearsed and it's all true.

The issue isn't whether we are providing good care in our hospitals. Staff and clinicians care, and give excellent care, in abundance. The issues are capacity and sustainability.

The reality of Canada's demographics is placing intense pressure on the healthcare system. Baby boomers are now accessing care to manage chronic and degenerative diseases, and expectations are greater than previous generations. As boomers age further, they will require acute care for heart disease, stroke, cancer and other serious illnesses. And while great advances are being made in areas like ambulatory care, joint replacements and minimally invasive surgery, that is only part of the solution.

At Trillium Health Centre, we asked ourselves how we could address this escalating need for healthcare which led inevitably to the big question: how can we help our community in a way that protects one of our most cherished Canadian values: universal medicare?

Ultimately, this review inspired Trillium to embrace a new mission to Transform the Healthcare Experience. How will we do this? By building a Community Care Services Model (CCSM) which puts the patient at the centre of everything we do. Technology was envisioned to be the primary enabler that would ensure that everyone, from hospital and community-based healthcare providers, to patients and families in their homes, could have the information they require to make timely and informed decisions about their health

To make that possible, Trillium needed to collect, analyze and share information in new ways – both within the walls of the health centre and beyond. Enter THINK – Transforming Healthcare into Integrated Networks of Knowledge. Trillium's innovative THINK initiative represents a bold seven year, \$100 million investment to identify new and innovative ways to use technology to deliver information and support safe effective care. This is an unprecedented commitment that Trillium is making in its people, its patients and its community. Each component of the acronym represents a key strategy to help Trillium realize its mission.

Why transforming healthcare?

Healthcare is the world's largest, most complex manmade ecosystem. It is part of each and every one of us. It is clear that Ontario's taxpayers are not in a position to drastically increase supply, so we must develop a strategy to mitigate demand. In Trillium's vernacular, we must turn the system inside out. The hospital will no longer be at the centre of healthcare. The patient is now placed firmly at the centre as Trillium creates a "Community Care Services Model" that promotes a more-coordinated of sharing information to allow patients, their families and their caregivers make timely and informed decisions.

Why integrated?

Healthcare is a complex system, largely comprised of silos of care and information. We need to understand this complexity by understanding the pieces and integrating them. Integrated care will connect every part of the healthcare ecosystem, including family physicians, pharmacists, specialists, hospitals, long-term care and rehabilitation facilities, as well as a variety of homecare service providers. We must remember that healthcare is just one system in a patient's life. Trillium is not trying to integrate the patient into our system. We are trying to build a system that integrates the entire spectrum of healthcare providers into the patient's ecosystem. Healthcare is the patient's system. Trillium is building the capacities that let patients control and drive the system.

Why networks?

Today, patient data lives in a number of repositories, many of them paper-based. This leads to wasted time and resources. For example, patients are frequently asked for the same information, over and over. Not only is this annoying to patients and their families, especially under emergency conditions, the quality of the information may vary in each telling. An accurate record that displays the patient's history will save time and reduce patient anxiety. From a clinical perspective, an accurate computer-based patient record helps clinicians to avoid duplicating tests when valid results already exist. It will also help avoid errors in prescribing medications that may not be safe for the patient. By creating comprehensive patient records that tap into multiple data bases, clinicians and patients can be assured they have the information they need, when they need it, where they need it. However, an integrated patient record built by tapping into many networks is only one component of the THINK program. The focus at Trillium is the process and standardization of care that the technology will enable. Additionally, the ability to integrate not only our information, but also the ability to share it with our partners and ultimately our patients, seamlessly, to improve the patient experience across the continuum of care is the challenge that Trillium is choosing to undertake through the THINK program.

Why knowledge?

Essentially, healthcare is a knowledge industry which relates to health. If individuals have knowledge and the appropriate support structures in place, they can act on this and make better decisions around their health and lifestyle. Without that knowledge and support, they inevitably end up needing healthcare sooner. If healthcare providers have access to the data, information and knowledge they need, when they need it, they can provide safer, more effective and more efficient care. Knowledge will create a healthcare system that is transformative.


Specifically, in collaboration with the community, the THINK initiative will:

- Provide patients and families with access to their electronic health information to enable them to take a more active role in managing their health and wellness
- Provide integrated information across the continuum of care to ensure that healthcare teams have appropriate, accurate timely information for making decisions and providing excellent patient care
- Establish unique new relationships to deliver innovative solutions to improve the health of the people served
- Preserve the community's current investment in electronic-based systems while taking advantage of new technology to enhance patient care
- Enable effective and safe healthcare

The first step in fulfilling the promise of THINK was planning the system architecture. For years organizations have found ways to patch together new and emerging hardware and software. The complexity of the overall new design and the information management requirements moving forward required that Trillium opt for a unique mix of process changes, systems, hardware and services. How? By establishing a unique partnership alliance with seven global technology and information solution providers where each company would play a vital role in constructing Trillium's new healthcare system solution. This partnership is referred to as TACT – the Trillium Alliance for Care and Technology. The alliance is comprised of:

<i>IBM</i>	<i>Project Manager and Integrator</i>
<i>Eclypsis</i>	<i>Clinical Systems</i>
<i>Cognos</i>	<i>Business Intelligence Systems</i>
<i>Courtyard</i>	<i>Records Integration Systems</i>
<i>Agfa</i>	<i>Electronic Imaging Management</i>
<i>EMC</i>	<i>Data Storage</i>
<i>IMS Maxims</i>	<i>Disease Management Systems</i>

With this in place, Trillium built its THINK team, an artful blend of Trillium employees from across the healthcare system and staff from each of our TACT partners. This group is well on the road to delivering the infrastructure and new applications that help to standardize and automate that which is routine about a patient's care so clinicians can focus on what is unique about each patient. This includes the creation



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Inspiring Minds

of computerized order sets, Trillium's new portal and a new business intelligence tool.

Order Sets

In April 2006, Trillium Health Centre was awarded Ontario's first Innovation Award for Improving Quality and Patient Safety by Minister of Health and Long Term Care George Smitherman. Trillium was selected from 620 other submissions.

Trillium won the Innovation Award for its breakthrough work with the Trillium Order Sets System. Order sets are used by physicians to order medications, treatments, procedures and consultations for each patient. They are, in effect, the detailed instructions to implement today's complex treatments.

In the old system, the physician started with a blank piece of paper and a pen. With the Trillium Order Sets System, the physician uses a sophisticated arrangement of the most effective orders that is standardized according to the patient's diagnosed condition.

Trillium has developed and is using over 270 evidence-based order sets and clinical protocols as an inventory is built prior to launching Trillium's Computerized Provider Order Entry (CPOE).

The benefits are tangible and measurable. Order sets improve patient safety by reducing drug dosing errors and ensuring complex medication protocols are

accurately followed. They enhance the quality of care by including current best practices which are designed to help the health care team select and apply the best treatments for patients. They also improve efficiency by reducing the amount of time it takes to create an order and they are also easier for the patient care team to read and implement.

The adoption rate of order sets for admission to the hospital is over 90 per cent in almost all health systems. Staff report a high level of satisfaction with the order sets and ER/ICU staff strongly agree that order sets have improved the process of care delivery, improved the quality of care, reduce the amount of time to create an order set and have reduced the risk of transcription error.

In the near future, Trillium will have more than 300 order sets that will work in conjunction with 'pathways' such as cardiac pathways. These are explicit and well-defined standards of care and valid assessment tools that provide improved multi-disciplinary communication and coordination of care. Cardiac pathways provide detailed guidance for each stage of care for cardiac surgery patients and help to reduce variations in patient care. This, in turn, will help to reduce risk and costs by shortening hospital stays.

Portal

Trillium's portal is a key enabler of the health centre's transformation mission. The portal is, in effect, an

information and services gateway where information and services can be accessed and acted upon, and where collaboration between healthcare providers, and between patients and the health care system, can occur. By providing a new window to information, services, people and applications, this gateway allows patient-centred integrated care to become a reality across the continuum of care and acts as a hub for Trillium Health Centre community interactions and leadership.

While the internal portal provides clear advantages to Trillium's staff and physicians who will tap into the information they need, when they need it, the combination of the internal and external portal will build the bridge between the community and healthcare providers.

When fully implemented, the portal will literally be the door to a new world of information that will help patients manage their own healthcare. Patients will have access to their health records and to a library of trusted healthcare information to help them help themselves. They will also be able to easily and quickly update their personal information and book their own diagnostic tests once their physician has issued an order.

Those living with chronic diseases, such as diabetes, will be able to monitor and manage their own health, and communicate with others about their condition to help relieve anxiety and gain support. They will be able to research new and relevant information on their condition and, by being more engaged, will play a more active role in their own health.

This does not mean that patients and the wider community will have less access to their care providers. It does mean that when they do interact, patients who take advantage of Trillium's portal will have better information on how to manage their health and the health of their loved ones, which will translate to a healthier community overall.

Business applications

Healthcare is comprised of a number of services ranging from booking, registration, discharge planning, and accounts payable to a myriad of clinical services. In September 2005, Trillium made the decision to develop a service-oriented architecture through the THINK initiative, as opposed to a task-based architecture. The services notion of architecture is based on a deliberately designed, open-ended architecture for maximum flexibility, which would provide solutions, today and tomorrow, that address the critical question of how to efficiently and effectively deliver patient-centred care.

To support this goal, Trillium is creating a single medium and toolset that provides access to the right information at the right time by the right person, including patients, clinicians and Trillium staff. This Services layer will be built upon the Cognos Business Intelligence suite of solutions.

Like many organizations, Trillium collects vast amounts of data that must be compiled and integrated

in a manner that supports decision-making. Trillium made giant strides towards this end through its award-winning 'performance excellence dashboard' developed in 2002. The dashboard allowed Trillium to dovetail data and information into relevant, useful knowledge, supporting Trillium's health professionals to make good and timely decisions.

When THINK was launched, one of the first projects undertaken was the enhancement of the dashboard to provide access to relevant real-time information to support effective decision-making that ensures our support processes are efficient and our resources are directed toward patient-centred activities. The primary goal of this first project was to automate the time-consuming back end processes to collect, aggregate and present the 'original' dashboard metrics and reports to the end-user community. This goal was achieved in the first year.

In alignment with Trillium's mission and strategic initiatives, the first phase saw the redevelopment of reporting mechanisms supporting a more patient-centric view. Trillium's users quickly uncovered the need for new and enhanced metrics, which are now in development. When the enhanced Phase 2 metrics are established, based on Trillium's strategy map, Trillium will offer an environment that both communicates that strategy and allows the user to explore intuitively.

These are only three of the projects that are now helping Trillium to Transform the Patient Experience. As we move forward on this journey, we will encounter obstacles, have new choices to make and will be required to make a leap of faith or two.

The journey itself is a great teacher and Trillium will be sharing what it has learned about transition support, change management and project management. Through it all we repeat our mantra with passion and compassion: the patient is at the centre of everything we do.

The Patient of the Future

When we envision the patient of the future, we see a person who is enabled, through knowledge accessible from their computer, to be the custodian of their own health record. They will be encouraged to take accountability for their health. They will drive change. And they will change the patient-physician relationship.

Imagine the repercussions of what appears to be one of the smaller changes: the ability to book your own appointments for tests. You'll be able to select the time that fits your family's schedule and your work commitments. It may save on extra costs, like babysitting, or save on lost time at work. This one small change will require an enormous shift in how Trillium schedules staff and diagnostics, but it is necessary if we are serious about putting the patient at the centre of their care.

It is true that there will be those who will not or cannot take advantage of these new knowledge opportunities and Trillium will continue to offer a

'low-tech' alternative. However, they may choose to elect a loved one who will be glad of the opportunity to know definitively what their senior parent's test results were and to check prescribed medications through a hospital-based library portal.

There will be a learning curve and surprises for all of us along the way. When you put someone in charge of their own destiny, they will take the system and evolve it to where they need to go, and we cannot predict where that will be. We're going to have to build and plan for things we are not aware of today. We can do this by building a system that is structurally sound, mitigates risk and creates value that can be sustained while providing safer and better healthcare.

The leaps in productivity required in healthcare in the immediate future and the long term cannot be achieved by simply tweaking the system. We will certainly take full advantage of the 'low-hanging fruit' in the short-term, but continually be building for the long-term.

It is fair to ask: Why do all of this? Why change? Why bother? At the highest level, Trillium answers: it's the Canadian dream. It's about what individuals need us to do and are asking us to do. It's about thinking and feeling so we can make the health system better. Our patients are urging us to do things differently and make healthcare more effective for them. This is the perfect moment. The will exists to work together to achieve this dream.

A fundamental change in values and philosophy is required. The true change agent in the healthcare system is the patient. This paradigm shift is absolutely necessary to save our healthcare system.

About Trillium Health Centre

Trillium Health Centre is Canada's largest tertiary care community hospital serving more than one million residents in Mississauga, West Toronto and surrounding communities. Trillium delivers comprehensive services for both inpatient and ambulatory care and is the regional centre for Cardiac, Stroke, Neurosurgery and Sexual Assault & Domestic Violence. Housing a model ambulatory care centre, the busiest Emergency service in the country, and the largest free-standing day surgery centre in North America, Trillium's two-site facility has attracted international attention for its innovative approach to the provision of healthcare services and its THINK initiative.