

# Building a Stronger Ontario Through Health Research



Ideas for the  
2011 Ontario Election

April 2011



Council of Academic Hospitals of Ontario

The Council of Academic Hospitals of Ontario is the non-profit association of Ontario's 25 academic hospitals and their research institutes. CAHO provides a focal point for strategic initiatives on behalf of our member hospitals.

As research intensive hospitals, CAHO members are fully affiliated with a university medical or health sciences faculty. Our hospitals provide the most complex and urgent care, teach the next generation of health care providers and foster health care innovation derived from discovery research.



**As key partners in the health care system, the CAHO community is committed to harnessing our collective research and innovation strengths to advance world-leading patient care and a sustainable health care system.**

## Executive Summary

The health research enterprise in Ontario's research hospitals is internationally renowned, with some of the world's most highly regarded health researchers located in our province. Together, we are discovering medical breakthroughs and making significant progress on how to prevent, treat and cure disease in addition to developing unprecedented insights into how to best deliver health care for all Ontarians.

Ontario's research hospitals conduct \$850 million in research annually<sup>i</sup> with significant returns to our collective health, wealth and prosperity. Recent studies demonstrate annual return on investment (ROI) in health research as high as 39%, with a range of health and economic benefits<sup>ii</sup>.

The members of the Council of Academic Hospitals of Ontario are critical contributors to a healthier and wealthier Ontario. As the creators and early adopters of innovation, the contribution of Ontario's research hospital is profound. Whether it's the research and discovery of novel, new therapies, the education of the next generation of health care leaders, or caring for the most complex patients, Ontarians depend on CAHO hospitals to provide hope in health care.

And as leaders, we recognize the unique challenge we face today. The largest challenge to ensuring a world-class sustainable health care system for future generations is the \$16 billion provincial deficit and the accumulating debt<sup>iii</sup>. With health care currently responsible for nearly half of the provincial budget, we are required to seek new and innovative solutions to delivering high-quality and sustainable health care.

And more importantly, Ontarians demand it. We have a responsibility to be smarter with the resources we do have and ensure that we are building a sustainable health care system.

As the leading purveyors of health research in Ontario, CAHO's leadership role compels us to contribute to the discussion of building a stronger Ontario.

While the challenges facing our health care system may at times seem insurmountable, we believe that research and innovation is the foundation for building a healthier and wealthier Ontario. Ontario is uniquely positioned to not only provide world-class health care, but reap the economic benefits of doing so.

We offer the following strategies that will help build a stronger Ontario:

1. Leveraging the Value of Health Research
2. Establishing a Health Research Strategy
3. Adopting Research to Improve Care

At CAHO, we believe that the next government needs ideas to contribute to the sustainability and quality of health care, while at the same time ensuring that they contribute to the financial health of our economy. 4

Health care is an important part of our society, our economic development and our collective prosperity. Innovation needs to not only incent quality health care but provide the platform for long-term change that drives sustainability for our health care system. Health care should be a key driver for future prosperity of Ontario.

The ideas presented in this paper are intended to begin the conversation of what the next Government in Ontario needs to consider. It is by no means an exhaustive list of what needs to be done. But what remains critical is that in moving forward, the decisions we make in health care need to be guided by evidence.

To achieve this, we need to innovation, leadership and collaboration.

## Innovation – Leveraging the Value of Health Research

Ontario's research hospitals are inventing the future of health care. Every day, the people who work in our community make great strides in improving the health of all Ontarians, often being the first in Canada, or the world, to try a new therapy, an innovative technology or a new way of delivering care to improve the lives of patients.

The unique mandate of an academic hospital – the integration of research, teaching, and specialized care – provides an exceptional environment for innovation. Providing care to some of the most complex patients provides the motivation for CAHO hospitals to search for innovative ways to deliver health care. From bench to bedside, our hospitals are the living laboratories providing hope in our health care system – being both the creators and early adopters of innovations that improve the lives of our patients and the care that our system can provide.

CAHO members are responsible for 80% of publically-funded health research in Ontario<sup>iv</sup>. This dedication to research has led to some amazing medical breakthroughs that have revolutionized the way health care is delivered in Ontario, and around the world.

Consider, for instance, those who are waiting for a lung transplant. In the past 10 years, the number of people waiting for a lung transplant has doubled. Nearly 300 Canadians died while waiting for a lung transplant between 1997 and 2006. At that time, only about 15-20% of donor lungs were acceptable for transplantation. However, in 2008, for the first time in the world, transplant surgeons at Toronto General Hospital (University Health Network) used a new technique to repair an injured donor lung that was unsuitable for transplant, and then successfully transplanted it into a patient. The use of this technique has significantly expanded the lung donor organ pool, here in Canada and around the world.

The benefit of the research we do is not limited to the communities we serve. Many of the people that seek care in our institutions do not reside in the communities in which CAHO hospitals are located.

Whether you live in Nipigon, Midland, London or Toronto, all Ontarians deserve access to the best practice and innovations that our health system has to offer. We believe that the innovations that are discovered at our hospitals should not remain within the walls of our institutions.

We are committed to building capacity and communities of care right across the province, creating new ways of caring for Ontarians and ensuring that health care providers right across the province are able to provide this evidence-based care.

In December 2010, Sunnybrook Health Sciences Centre, in partnership with Thunder Bay Regional Health Sciences Centre, launched a unique dual-site centre that stands to

revolutionize surgery through non-invasive treatments for complex health concerns including cancers. Teams of clinicians and scientists at both sites are developing new treatments using MRI (magnetic resonance imaging)-guided, focused ultrasound. Patients with complex health concerns who may be at high risk for traditional operations are being treated with a MRI-guided focused ultrasound therapy which is performed without making a surgical incision and without the use of needles. In the centre's first patient trials for this approach, teams have chosen to apply the procedure to uterine fibroids. The researchers will expand their new therapy team with trials with clinicians at Sunnybrook and Thunder Bay for the treatment of patients with other types of tumours.

And innovation is not limited to the discovery of a cure for disease or the invention of a new medical technology. Often innovations in how we organize care, or manage our hospitals, lead to a more effective, efficient and sustainable use of our health care resources. Take for instance the change in nursing at The Ottawa Hospital.

Over 10 years ago, there were five hospitals that merged into one organization known today as The Ottawa Hospital. Prior to the merger, each hospital had its own management model for nursing. With the merger, The Ottawa Hospital aspired to have all hospitals operate under one model and after an exhaustive review and evaluation of the impact of existing models on patient care and the profession of nursing, The Ottawa Hospital decided to raise the bar and created The Ottawa Hospital Model of Nursing Clinical Practice. This Made-in-Ontario model is an innovative approach to nursing management that uses distinct guiding principles to organize the delivery of nursing care among different categories of nursing personnel such as Registered Nurses (RN), Registered Practical Nurses (RPN), and Unregulated Care Providers (UCP), taking into account their competencies and the values of the organization. The implementation of the new nursing model has dramatically reduced absenteeism, increased patient safety, reduced the number of vacancies and decreased the turnover rate of nursing staff – all which contribute to more effective use of resources and a richer work environment. The Ottawa Hospital Model for Nursing of Clinical Practice is currently being implemented by 13 organizations in 4 provinces and has been explored by 47 jurisdictions from across the globe.

Collectively, Ontario's academic hospitals employ approximately 70,000 people, including more than 10,000 researchers, making it the third largest biomedical research centre in North America<sup>v</sup>.

Recent studies demonstrate annual return on investment (ROI) in health research is high as 39%, with a range of health and economic benefits<sup>vi</sup>. Here in Ontario, we have seen the commercialization of our innovations reap significant benefits both in terms of jobs and investment in the Ontario economy.

In 2004, Sentinelle Medical Inc. emerged from the work of Sunnybrook Research Institute researchers who were developing magnetic resonance imaging (MRI) technology for improved detection and biopsy of breast cancer. This system allows for multidirectional access to the

breast, provides for greater patient comfort and reduces the patient time in the magnet up to 25 minutes, thereby increasing the efficiency of expensive and finite MRI resources. With sales over \$13 million and over 120 employees, Sentinelle has been a resounding commercial success making a dramatic impact on the Ontario economy and on the lives of Ontarians facing breast cancer.

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The curiosity of our researchers and clinicians is infinite. Our research hospitals continue to work aggressively to revolutionize health care. Members of the CAHO community are currently conducting research in a wide range of areas including cancer, heart disease, Alzheimer's, diabetes and mental health. For instance, at the Centre for Addiction and Mental Health, researchers are pursuing the benefits of personalized medicine - investigating the combination of pharmacology, brain imaging, and genetics research to develop tools that will allow clinicians across Ontario to "treat right the first time."

Innovation comes from the courage and leadership to think differently about the way we deliver health care. We know that implementing the best available evidence means we can provide better care for our patients at home and around the province. And if we succeed in doing this in a systematic and sustainable fashion, we will transform health care in Ontario to ensure that it provides both high quality care to our patients today and sustainability so that we can do so for our patients tomorrow.

## Leadership – Establishing a Health Research Strategy

Despite the accomplishments of our community, the health research sector faces several challenges. Unlike several other provinces, Ontario currently lacks an overarching health research strategy to ensure that the innovation cycle from discovery to practice is complete. An effective strategy would bring government, researchers, academic health sciences centres, the private sector, and the public together to ensure that the best health research is translated into the best health care delivery and fosters growth of the knowledge-based economy.

**We propose the creation of the Ontario Health Research and Innovation Council, to drive the health research agenda in Ontario.** The time is right and the need is clear.

The Ontario Health Research and Innovation Council would make Ontario the pre-eminent research capital of the world, delivering better health and unprecedented economic growth by attracting the best researchers to Ontario, fostering new discoveries, and translating them into practice.

In concert with the provincial government, the Council would assume four chief roles, to:

### *1. Design a health research strategy for Ontario*

The foremost role of the Council would be to lead the creation and implementation of a long-term strategic plan for health research in Ontario, with government and broad stakeholder input. The strategy would balance and foster investments in discovery, translation, and commercialization across the spectrum of health research to ensure projects are complementary. The strategy would also be aligned with Ontario's healthcare priorities.

### *2. Leverage and Distribute Health Research Funding*

A robust health research strategy would only be successful if it is soundly resourced. The Ontario government currently provides \$226 million through several different departments to health research<sup>vii,viii</sup>. However, there is insufficient coordination between the various government departments in distributing this funding.

This uncoordinated approach impedes the opportunity Ontario should have in leveraging greater partnerships with other funding partners. An Ontario Health Research and Innovation Council would establish a balance between a blend of base funding and priority funding to contribute to supporting the basic research demand, and the provincial health research strategies. Funding decisions would be based primarily on research excellence as judged by peer review, strategic fit with Ontario's priorities, partnership opportunities and economic outcomes.

### *3. Facilitate commercialization*

Bringing together Ontario's funding support for health research and directing it towards an overall strategy for health research in the province should also have benefits from a

commercialization perspective. Indeed when the Council is setting the strategy for health research in Ontario, they should be informed also by the importance of commercializing the health research we have in Ontario. Doing a better job of commercializing the results of our health research should be a fundamental plank in Ontario's economic strategy.

There are several organizations in Ontario that are devoted to commercializing health research, including MaRS Innovation and a number of innovation parks across the province. The Council should work with these organizations to ensure that the imperative to commercialize is embedded in any health research strategy for the province.

#### *4. Facilitate knowledge translation and evaluate impact of research*

An emphasis on measurement and evaluation of the impact of health research in Ontario would promote a culture of continuous improvement, help identify gaps in funding, facilitate priority setting and provide a system of accountability to government funders and the public. It would employ the best practices in evaluation and outcomes metrics to measure its success and would be expected to deliver on its milestones. This focus on evaluation of the impact of health research would also assure Ontarians that health research funding dollars are being spent optimally.

In order to evaluate the impact of the health research enterprise in Ontario, it would be critical to ensure that Ontario has a robust strategy to implement the evidence derived from this research.

Any health research strategy set by the Council would need to be informed by the imperative for knowledge translation. The Council would need to work closely with organizations that are accountable for facilitating such knowledge translation. The Council would improve health care in Ontario by fostering knowledge translation, building receptivity to research and facilitating the introduction of new ideas and technologies to clinical and health policy settings.

The Council could be established with minimal resources, building from the efficiencies that would be captured by coordinating the efforts across various government departments and agencies.

In summary, the Council would weave together the many moving parts of Ontario's health research enterprise, improving the efficiency of delivery of new discoveries, providing evidence for best practice, and a stronger health-based economy for our province. It would harness our collective innovation and direct it intelligently into the future.

## Collaboration – Adopting Research to Improve Care

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Ensuring that we have the right infrastructure, strategy and supports in place for a thriving knowledge-based economy is part of the equation. The often more challenging part of the innovation cycle is the successful and rapid adoption of innovation into the practice of health care. Whether it's a new technology, a change in how care is delivered, or the development of a new, novel therapy, if the innovation never leaves the lab, then we have failed in terms of reaping the benefits of a truly innovative economy.

Many in the health care sector have successfully shared best practices within their own organizations, professions and sometimes across communities of care such as paediatrics or mental health. However, as a health care system, Ontario has yet to realize the full potential of sharing best practices and systematizing efforts to move research evidence into practice. Too often, we have found pathways to improve care and drive quality improvement in the health care system, but that knowledge never leaves the organization that created it.

In 2010, CAHO resolved to address this challenge. Committed to fostering better collaboration and trying to establish a systematic approach to moving research evidence from the bench to the bedside, CAHO launched the Adopting Research to Improve Care (ARTIC) Program. The aim of the program is to move research evidence into practice from one hospital across the CAHO hospitals in order to drive quality improvement and benefit the health care system as a whole. Our aspiration is to learn from this experience in order to help build a systematic and sustainable implementation pathway for evidence across the province.

### Canadian C-Spine Rule to Improve ER Wait Times

Canadian emergency departments (EDs) annually treat 1.3 million patients who have suffered blunt trauma from falls or motor vehicle collisions and who are at risk for cervical spine (c-spine) injury. Most such cases are alert and stable adults and less than 1% has a c-spine fracture. A majority of trauma victims transported in ambulances are protected by a backboard, collar, and sandbags and, on arrival at the ED, are sent to high acuity resuscitation rooms, where they remain fully immobilized for hours until physician assessment and x-rays are complete.<sup>vi</sup>

This prolonged immobilization is often unnecessary and adds considerably to patient discomfort and to the burden on our overcrowded Canadian EDs in an era when they are under unprecedented pressures. These patients use valuable ED resuscitation room space and endure long wait times, which contribute to lower patient satisfaction.

Researchers at The Ottawa Hospital have developed a clinical decision rule, the Canadian C-Spine Rule (CCR), to allow clinicians to “clear” the cervical spine without the need for an x-ray and to decrease immobilization times. This rule has been widely adopted by Emergency Department (ED) physicians and has recently completed testing for accuracy, reliability and safety amongst ED triage nurses.

This project will optimize resources through the use of interprofessional teams, allowing for specially trained nurses to assess patients using the Canadian C-Spine Rule, and potentially decrease ER wait times and increase patient satisfaction by quickly and effectively identifying patients who do not require immobilization.

Collectively, CAHO decided to implement two ARTIC projects in 2010 – the first addressing wait times in the ER by making better use of our inter-professional resources, and the second meeting the challenge of infection control and hand washing compliance. 11

Through the ARTIC Program, CAHO is working to systematically understand the impediments and opportunities that underpin the realization of efforts to move evidence into practice simultaneously across a large number of institutions. We also recognize the tremendous impact this can have not only in providing better care to Ontarians, but also in managing the finite health resources we have available to us.

We believe that the richness of this knowledge should not be experienced by our community alone. We recommend that the Ontario government leverage the ARTIC Program to **create a provincial platform to systematically accelerate the adoption of research evidence into practice**. Health Quality Ontario would be an ideal hub to facilitate this initiative.

Under Ontario's *Excellent Care for All Act, 2010*, the province is committed to using an evidence base to drive quality improvements. Health Quality Ontario was given an expanded mandate under that legislation to promote health care that is supported by the best available scientific evidence in order to support continuous quality improvement in the system. Given this mandate to use evidence to drive quality improvement in health care, Health Quality Ontario could be a natural partner for CAHO's efforts under the ARTIC Program.

## HandyAudit™ to Measure and Improve Hand Hygiene Compliance

In 2008, the Ontario Ministry of Health and Long-Term Care (MOHLTC) introduced mandatory reporting of hand hygiene compliance as a patient safety indicator. The standard practice for mandatory reporting of hand hygiene compliance rates in Ontario is direct observation using a paper reporting form. Early experience with collecting and reporting compliance data using the Ministry's paper-based form is proving to be cumbersome and costly.

The HandyAudit™, developed by researchers at the Toronto Rehabilitation Institute, is an innovative PDA device that records the real time of relevant caregiver actions and produces data that can be analyzed at any time using any rule set (e.g. guidelines used by the World Health Organization and Ontario Ministry of Health and Long-Term Care).

By using the PDA for data capture, hospitals can eliminate the need for transcription thereby reducing errors and costs associated with this activity. The HandyAudit™ eliminates the need for auditors to assess whether hand hygiene compliance has occurred, removes the need for manual transcription of compliance results, and simplifies report generation and other data management operations.

This project is expected to facilitate a reduction in cost and an increase in the reliability of mandatory hand hygiene auditing.

CAHO is committed to continuing our journey of learning through the ARTIC Program. We would be pleased to partner with others to build a robust implementation pathway for Ontario. We propose to lead initiatives that support evidence-informed improvements, drawing from the evidence created in our institutions to address health system priorities, finding ways to systematically put the evidence into practice, and assessing the impact of doing so. Once new and better ways are created to keep people healthy or care for them when they are ill, we need to ensure that this knowledge and expertise is implemented across the province. 12

Ontario also has a number of world-renowned experts in knowledge translation and evidence assessment. We recommend that CAHO work with Health Quality Ontario to bring all of these expert bodies together to build a sustainable pathway for implementing evidence that can improve care and Ontario's health care system.

## Conclusion

Ontarians are privileged with one of the best health care systems in the world, and one of the strongest health research enterprises in the world. But we can always do better.

We need to continue to expect high value from our investments in health research and to do a better job at leveraging the richness of research and innovation we have here in Ontario. But we need to do this together. And we need a strategy to get us there.

We need to build a system that leverages expertise and uses research and evidence-based care to make more efficient and effective use of our limited health care resources. We need to build communities of care that are not necessarily built along geographic lines but provide the necessary linkages to close the health care gaps so that all Ontarians have access to the best evidence-based care available.

CAHO members are already building capacity across communities and connecting health-care providers to the specialist knowledge that we create and that is so important to ensuring that all patients receive the highest quality care. We need to mobilize and formalize these communities of care so that we can benefit from our innovations of today, and not wait years or even decades before we reap their benefits. We need to be able to apply the innovations from one area of the health care system and expeditiously apply it to the rest of the system.

CAHO members are committed to continuing to play our leadership role in building capacity and connecting communities, but we need the government to partner with us in this effort, designing funding models that incent quality improvement and holding communities of care accountable for the outcomes that they provide to the patients that they serve.

And in doing so we need to ensure that the decisions we make are motivated by research and evidence.

For generations, Ontarians have invested significantly in a strong health research enterprise and in creating a world-class community of academic hospitals. We need to leverage the value of our investment to drive the quality and sustainability of a health care system.

CAHO remains committed to working with the government to make this a reality and to ensuring that our health care system is one that Ontarians continue to cherish.

## References

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