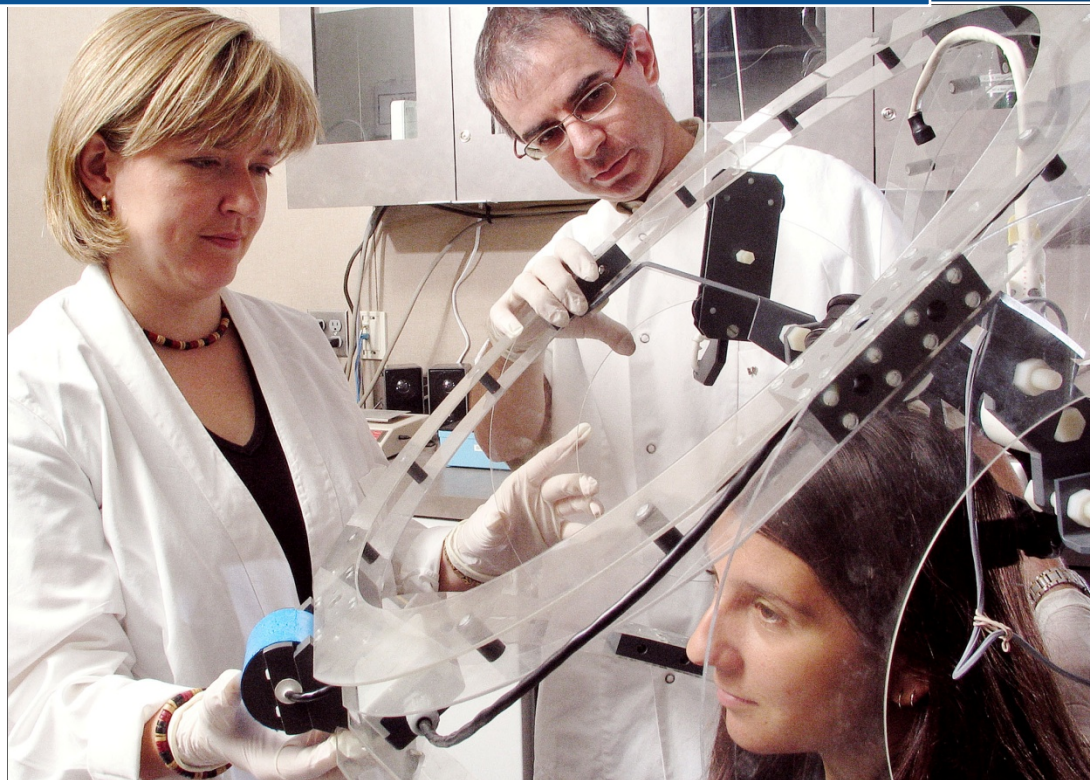


2011 Pre-Budget Consultation

Innovation, Leadership and Collaboration:
Leveraging Health Research to Build a
Stronger Economy



Council of Academic
Hospitals of Ontario

February 2011

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.

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.



Council of Academic Hospitals of Ontario
200 Front Street West, Suite 2501
Toronto, ON M5V 3L1
www.caho-hospitals.com

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Executive Summary

The Ontario Government has repeatedly recognized that the successful societies of tomorrow will be those that invest in innovation and knowledge creation today. Indeed, every successful industry knows that investing in research and development is a prerequisite for future success.

In 2006, the Ontario Government created the Ministry of Research and Innovation, signalling its intention to establish Ontario as a globally recognized knowledge-based economy. The Government's innovation goal is to achieve *"a high and sustainable level of prosperity, and healthy communities, that provide high-quality jobs and better lives for people in Ontario"*.¹

CAHO members are home to a world-renowned health innovation engine that provides a platform for the some of the world's best and brightest to invent the future of health care. The CAHO community is committed to harnessing this collective research and innovation strength in order to advance world-leading patient care.

In 2011, we have a very different economy than just a few short years ago. While Ontario is on the path to economic recovery, fiscal prudence is paramount and we are committed to striving for greater accountability in how our tax dollars are being spent.

And while we have one of the best health care systems in the world, there is no doubt that we face the question of the sustainability of our health care system. With health care consuming nearly half of the provincial budget, it is critical that we look to long term solutions that will ensure future generations will have access to quality health care when needed.

Every day, over 10,000 researchers are working in Ontario research hospitals discovering cures and finding new and innovative ways to deliver health care services.

It is within this fiscal reality that we offer recommendations to the Ontario Government in preparation of the 2011/12 budget. Our ideas are built on the foundation that research and innovation is what propels a society forward and enables our province to better leverage the scarce resources that we have available, while still striving for excellence in the health care we provide.

CAHO recommends that the Ontario Government:

- 1. Create an Ontario Health Research and Innovation Council, to drive the health research agenda in Ontario.**
- 2. Create a provincial platform to systematically accelerate the adoption of research evidence into practice.**
- 3. Further consider how best to align funding systems and incentives with the goals of quality and sustainability.**

CAHO believes that by adopting these recommendations, Ontario will further contribute to addressing the question of sustainable health care and ensure that we continue to support a robust health research enterprise in Ontario – one that creates jobs, and positions Ontario as a world-leader in health care innovation. And most importantly, it will ensure a health system that will provide Ontarians with access to medical breakthroughs and innovations to improve the quality of care they deserve.

Leveraging the Value of Health Research

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 provide the 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.

Eighty percent of the publicly-funded health research in Ontario takes place in CAHO research hospitals.ⁱⁱ CAHO hospitals are the living laboratories in which some amazing medical breakthroughs have happened; 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 may not reside in the communities in which CAHO hospitals are located. For example, **approximately 40% of the care we provide is for patients outside our immediate, local communities**ⁱⁱⁱ.

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^{iv}

Recent studies demonstrate annual **return on investment (ROI) in health research as high as 39%**, with a range of health and economic benefits^v. Here in Ontario, we have seen the commercialization

World-first centre opts for ultrasound over scalpels

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 cancers.

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.

The Government recently announced the cancellation of the Premier's Discovery and Catalyst Awards, at a savings of \$2.5 million. The Sentinelle example mentioned above was a 2008 recipient of the Premier's Discovery and Catalyst Award and contributed to Sentinelle achieving its success. As the Government continues to look at additional opportunities to reduce expenditures, we would caution the Government to remain steadfast in their commitment to innovation and a knowledge-based economy.

Made-in-Ontario Nursing Model

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. 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 RN, RPN, and 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 delegations from across the globe.

Establishing a Health Research Strategy

Unlike several other provinces, Ontario currently lacks an overarching health research system 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.

1. We propose the creation of the Ontario Health Research and Innovation Council, to drive the health research agenda in Ontario.

The Ontario Health Research and Innovation Council will 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.

It will also ensure greater efficiency and accountability in terms of how public funding for health research is allocated. Currently, several government departments provide some health research funding in Ontario. 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 will be based primarily on research excellence as judged by peer review, strategic fit with Ontario's priorities, partnership opportunities and economic outcomes.

The Ontario Health Research and Innovation Council will assume four chief roles:

1. *Design a health research strategy for Ontario*

The foremost role of the Council will 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 will 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 will only be successful if it is soundly resourced. Currently, two-thirds of the health researcher salary support that CAHO members provide is from independent fundraising efforts. Reliance on philanthropic contribution to support the majority of the province's innovation engine for health research is neither sound nor sustainable. With a fiercely competitive global health research market, a strong and stable approach to funding will ensue that Ontario continue to attract and retain world-class researchers.

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 will 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 will employ the best practices in evaluation and outcomes metrics to measure its success and will be expected to deliver on its milestones. This focus on evaluation of the impact of health research will 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 will 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 will need to be informed by the imperative for knowledge translation. The Council will need to work closely with organizations that are accountable for facilitating such knowledge translation. The Council will 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. Looking at the operating budgets of similar organizations in other provinces, CAHO estimates that the Council could be conservatively established with an estimated investment of \$1 million per year. Aligned with the Government's objective to reduce the number of agencies, boards and commissions, the Council would demonstrate that efficiencies and greater impact can be achieved when administrative efforts that are currently dispersed are consolidated.

The Ontario Health Research and Innovation Council will 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.

Adopting Research to Improve Care

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 all 25 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 adoption across the province.

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.

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.^{vi}

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.

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:

2. Create a provincial platform to systematically accelerate the adoption of research evidence into practice.

Under Ontario's *Excellent Care for All Act, 2010*, the province is committed to using an evidence base to drive quality improvements. The Ontario Health Quality Council 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, the new Ontario Health Quality Council could be a natural partner for CAHO's efforts under the ARTIC Program.

Leveraging resources currently dedicated to the Ontario Health Quality Council, to conservatively expand the program to build a province-wide platform would require an estimated investment of \$6-7 million over 5 years.

Ontario also has a number of world-renowned experts in knowledge translation and evidence assessment. We recommend that CAHO work with the Ontario Health Quality Council 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.

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.

Health Services Funding

CAHO recognizes that one of the tools to achieve system transformation is looking at the funding incentives that are driving behaviours. Under the policy of patient-based payment, the Government is re-examining how health services funding should be allocated. In development since 2006, the Health-Based Allocation Model (HBAM) includes both population-based indicators and direct measures of health status, to provide a more accurate measure of local health needs.

CAHO supports moving to a patient-based funding model and we want to support the Government in implementing this change, but we need more information to help us do this.

We understand that the Government is eager to begin the transition to funding under the new model. And we look forward to working with the Government to ensure the data arising from the new HBAM model is widely and deeply validated by health service providers. We need to better understand what the impacts of this model will be, and how it may affect the delivery of health services. In particular, academic hospitals have a unique mandate to provide the most complex and urgent care, teach the next generation of health professionals, and foster health care innovation through research and discovery. Additional information is required to further understand how HBAM will continue to support the academic mission and ensure research hospitals are enabled to provide their expertise across the province.

We would therefore recommend that the Government:

- 3. Further consider how best to align funding systems and incentives with the goals of quality and sustainability.**

We all want a successful roll-out of HBAM and patient-based payment more broadly. We are concerned that rolling out a model that has not been validated may harm the longer-term credibility of these efforts.

Conclusion

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.

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 high quality care not only for patients today but for the patients of tomorrow.

CAHO believes that by creating an Ontario Health Research and Innovation Council to drive the health research agenda in Ontario, creating a provincial platform to systematically accelerate the adoption of research evidence into practice, and by aligning funding systems and incentives with the goals of quality and sustainability, Ontario will continue to reap the benefits of a robust health research enterprise in Ontario.

Remaining true to the commitment of innovation and a knowledge-based economy, we look to the Ontario Government to partner with us and champion health research, with the goal of providing high quality and sustainable health care to the people of Ontario.

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