Driving Innovation: Foundations for an Ontario Health Research Council
Preamble

“Never before in history has innovation offered promise of so much to so many in so short a time.” BILL GATES

The Council of Academic Hospitals of Ontario (CAHO) coordinates strategic initiatives on behalf of its members – the province’s twenty-five academic hospitals. CAHO is led by a council comprised of the CEOs of member hospitals. Over 100 senior clinical and non-clinical staff participate in eight committees that focus on addressing prevailing systemic issues. CAHO member hospitals are academic hospitals that are fully affiliated with a university medical or health sciences faculty. They are leaders in healthcare innovation and research. Their mandate is to find new and better ways to understand and treat diseases, improve health, care for patients, enhance access and help the entire healthcare system work at its best for patients. A complete list of CAHO members is found in Appendix 2.

CAHO’s website can be found at www.caho-hospitals.com.

The Council of Ontario Research Directors (CORD) is a committee of CAHO that provides Ontario academic hospital’s research leaders with a forum for consultation and collaboration, in order to forge responsible partnerships with government and industry and improve the lives of Ontarians through advances in medical research. CORD works proactively to strengthen the health research enterprise within Ontario, address health research related issues, advocate on behalf of health research institutes in the province, and sculpt the strategic directions of health research in Ontario. A complete listing of CORD members is found in Appendix 3.

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Executive Summary

The health research enterprise in Ontario’s research hospitals and universities is internationally renowned, with some of the world’s most highly cited biomedical researchers located in our research community. In this post-genome era, we are developing unprecedented insights into how the human body works and making significant progress on how to intervene to prevent, treat and cure disease. And with chronic disease on the rise and an increasingly aging population, this new knowledge will be needed more than ever. The future knocks and we must open the door. With support from the provincial government, federal government, private sector, philanthropy and non-governmental organizations, Ontario invests in the range of $1 billion in health research every year with significant returns to our collective health, wealth and prosperity. But this accomplished sector faces several challenges. 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, of course, 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 an arms-length government agency, the Ontario Health Research Council, to drive the health research agenda in Ontario. The time is right and the need is clear.

Vision: The Ontario Health Research 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.

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

1. design a health research strategy for Ontario;
2. leverage and distribute funding;
3. facilitate knowledge translation and commercialization; and
4. monitor health research outputs and communicate the value of health research.

The Council will bring together the funding streams for health research currently allocated in several provincial government ministries and leverage new funds for health research and innovation from government and other partners. It will employ the best practices in evaluation and outcomes metrics to measure its success and will be expected to deliver on its milestones. These will include:

- demonstrable increase in intellectual property, commercial spin-offs, creation of jobs, and other measurable contributions to the economy
- measurable improvements in health system delivery
- potential improvements in health outcomes

Strong partnerships with universities, academic health sciences centres, industry, and NGOs will ensure that the Council reflects the best ideas and practices seen across the diverse network of health research stakeholders. The Council will improve health 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. It will advance commercialization by working with industry partners and cultivating hotbeds of innovation. The Council will weave together the many moving parts of Ontario’s budding 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.

“Innovation distinguishes between a leader and a follower.” STEVE JOBS
Health Research: An Economic, Health and Social Imperative

This is an exciting time for Ontario. A provincial innovation strategy is unfolding. The creation of the Ministry of Research and Innovation (MRI) in 2005 with the Honourable Dalton McGuinty, Premier of Ontario, as its inaugural Minister has invigorated the research agenda. The Ontario government invests $180 million annually in health research through multiple ministries. With support from the private sector, federal government, and non-governmental organizations (NGOs), Ontario sees about $1 billion in health research investment every year (CAHO 2006b).

Recent studies demonstrate annual return on investment (ROI) in health research as high as 28%, with a range of health and economic benefits (CAHO 2006a). It is no surprise that economies are being built around health research, notably in Ireland, Singapore, San Diego and Boston. The health research enterprise in Ontario’s research hospitals and universities is internationally renowned, with some of the world’s most highly cited biomedical researchers working in our research community. And in Ontario, we have seen excellent examples of how research investments translate into practice (CAHO 2006a). But we face many challenges. Ontario lacks an overall health research strategy. A winning strategy would bring government, researchers and academic health sciences centres, the private sector, and, of course, the public together to ensure that the best health research is translated effectively into the best health care delivery promoting the growth of the knowledge-based economy. It would harness our collective innovation and direct it intelligently into the future.

In response to challenges and opportunities similar to the ones faced by Ontario, most Canadian provinces have established arms-length government agencies or independent foundations that serve as focal points for health research planning, investment, and evaluation. These organizations provide stable funding to attract and retain the best scientists. They leverage non-governmental and private sector funding, and help researchers secure federal grant funding, a fundamental impetus for their original establishment (OHRA 2004). Since the creation of the Michael Smith Foundation for Health Research in British Columbia in 2001, an increase of over 200% in funds from the Canadian Institute for Health Research (CIHR) has gone to research in British Columbia, with less than half that growth in Ontario’s share of CIHR funds (CIHR 2007). The Atlantic provinces are similarly outpacing Ontario in the share of federal health research funding.

Faced with this reality, CAHO supports the creation of a new agency, the Ontario Health Research Council, that would drive the health research agenda in Ontario, fund the best research and serve as the platform for discovery, knowledge translation, and commercialization, ultimately yielding the best health for Ontarians and a booming economy for our province.

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1 The six largest provinces after Ontario each have separate agencies or foundations dedicated to health research: Fonds de recherche en santé du Quebec, Michael Smith Foundation for Health Research in British Columbia, Alberta Heritage Foundation for Medical Research, Manitoba Health Research Council, Saskatchewan Health Research Foundation, and Nova Scotia Health Research Foundation.

2 Or other name as deemed appropriate.
Vision, Scope and Role

Vision
The Ontario Health Research 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.

Scope
To achieve this bold vision, we must cover the full spectrum of health research including biomedical, clinical, health services, population and public health research, and span the continuum of research from idea generation and discovery to knowledge translation and commercialization.

Role
It is proposed that the Council assume four chief roles, to:

1. design a health research strategy for Ontario
2. leverage and distribute funding
3. facilitate knowledge translation and commercialization
4. monitor health research outputs and communicate the value of health research

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 complimentary. The strategy will be aligned with Ontario’s healthcare priorities.

Strong partnerships with universities, academic health sciences centres, industry, and NGOs will ensure that the Council reflects the best ideas and practices seen across this diverse pool of health research stakeholders. It will also ensure that scientific redundancy and duplication are reduced in order to use our resources as efficiently as possible.

2. LEVERAGE AND DISTRIBUTE FUNDING
Health research investments will be balanced between people, places and projects through a blend of base funding and priority funding. 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 will also be part of the assessments, as appropriate for the research area.

Base funding will be predictable and stable funding for health research organizations (including hospital-based research institutes and other arms-length organizations, such as the Institute for Clinical Evaluative Sciences and the Centre for Health Economics and Policy Analysis). Funding to support indirect costs and researcher salary support would be allocated using a transparent, equitable approach.
Vision, Scope and Role (continued)

Priority funding will be time-limited, primarily project-based competitive grants open to all health researchers in Ontario, including potentially private sector partners. It will be particularly advantageous in securing federal grants that require matching of funds. The funding allocation mechanism of the Ontario Research Fund (ORF) is a suitable model. Priority funding streams may include:

- healthcare priorities set by the government
- other research themes identified in conjunction with stakeholders
- special programs supported by NGO funding
- support for knowledge translation and commercialization
- capital infrastructure

3. FACILITATE KNOWLEDGE TRANSLATION AND COMMERCIALIZATION
The funding streams of the Council will play a key role in knowledge translation and commercialization of health research. In addition, the Council could act as a catalyst to enhance uptake of Ontario’s health research findings by building networks of stakeholders and developing new strategies to identify receptor capacity and change practice.

As a prerequisite to successful translation of knowledge into innovation in the health care system, networks of researchers, government, LHINs, community groups, patient advocacy groups and the public will be needed. Similarly, for successful commercialization of health research, researchers, research users, governments, NGOs, commercialization partners such as MaRS and the private sector will need to come together. These and other activities will expedite the innovation cycle from discovery to commercialization and health care change.

4. MONITOR HEALTH RESEARCH OUTPUTS AND COMMUNICATE THE VALUE OF HEALTH RESEARCH
An emphasis on measurement and evaluation 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. Metrics may include:

- increase in number of scientific discoveries, landmark studies, and publications
- increase leverage of new funding dollars (e.g. % CIHR funding)
- number of public-private research partnerships
- attributable changes in health outcomes
- attributable impacts on health services, for example through generation and adoption of best practices, clinical efficiencies, and new techniques and technologies
- attributable economic impacts, for example generation of intellectual property and licensing revenue, creation of spin-off companies and job opportunities in the province
- gain in highly qualified researchers in Ontario
- student enrolment rates in health research disciplines
- number and nature of new networks created for knowledge translation

Benchmarking against other jurisdictions in and outside Canada will be emphasized.
Sources of funding
Under our proposed model, the Ontario government will be a significant source of funds to the Council. The majority of government contributions would come from consolidation of existing health research funding programs across various ministries including the Ministry of Research and Innovation, Ministry of Health and Long-Term Care, and the Ministry of Health Promotion. Consolidation of dispersed government funding will enable synergies to be achieved and redundancies to be eliminated. However, there will be a need for additional funding if the Council is to achieve its vision of taking health research to the next level and making Ontario a world leader.

The Council will also leverage federal, private sector and foundation funding. According to a recent study by the Association of Canadian Academic Healthcare Organizations (ACAHO), the private sector already invests over $100 million annually in industry-sponsored projects in Ontario (ACAHO 2006). The Council must build on existing efforts to bring more private sector partners to the table, and offer strong business acumen and foresight in research commercialization. NGOs will be key collaborators as well, championing specific healthcare and disease causes, raising public awareness, and providing targeted research funding.

Structural Model
Different models for the structure of the Council can be considered, including a department within an existing ministry, an arms-length agency of the government, or a foundation with a long-term or time-limited endowment. Models for all of the above exist across Canada (see Appendix 1 for details). Different types have their strengths, but overall we propose an arms-length agency model. This structure offers the benefits of structural stability as well as independence from individual government ministries thereby ensuring the organization’s research integrity. It will still offer a great degree of flexibility and responsiveness to Government and stakeholders’ priorities and needs.

Milestones for Measuring Success
Achieving our stated big-picture vision requires a long-term strategy but success can be measured along the way in a variety of understandable and meaningful ways. The Council will need to set clear milestones and deliverables to measure its ongoing progress and success. Some examples of key milestones might include:

2 YEARS
• establishing networks and pipeline to media for communicating the value of health research
• aligning major stakeholders and articulating a long-term strategic plan
• establishing programs for basic support of research
• establishing a set of metrics to measure and monitor health research performance and return on investment

3-5 YEARS
• successfully leveraging and increasing the amount of federal health research funding directed to Ontario
• improving recruitment and retention of health researchers
• increasing activity in clinical trials and policy guidelines in Ontario

10 YEARS
• demonstrating increase in intellectual property, commercial spin-offs, jobs creation, and other measurable contributions to the economy.
• demonstrating measurable improvements in health systems delivery
• demonstrating measurable improvements in health outcomes
Conclusion

The Ontario Health Research Council will be a significant catalyst to foster knowledge translation, build receptivity to research and facilitate the introduction of new ideas and technologies to clinical and policy settings. This virtuous cycle will weave together all aspects of Ontario’s budding health research enterprise, deliver new discoveries and better health, and build a stronger economy. The health research community in Ontario is ready to work with Government and all other stakeholders to implement this vision and place Ontario in the premier rung of health research and innovation centres worldwide.

It is time to take our rightful place on the world stage of health research.

References

ACAHO, Research Funding Flow Survey – CORD Member Survey of Ontario-Based Research Institutes. 2006

ACAHO, Moving at the Speed of Discovery: from Bench to Bedside to Business. 2007

AUCC, Indirect Costs of Federally-funded University Research. 2006.


MRI, Strategic Plan. November 2006


“Any sufficiently advanced technology is indistinguishable from magic.”
ARTHUR C. CLARKE
Appendix 1: Comparison of Structural Models for the Council

While the term Ontario Health Research Council is used in this report, the new entity may be structured in a number of ways. It may be a department within an existing ministry of the Ontario government, an arms-length agency of government, or a foundation with a long-term endowment or even a foundation with time-limited endowments. The following chart presents considerations that might affect each model.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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</thead>
<tbody>
<tr>
<td>Department within Government</td>
<td>Alignment with Ontario government’s innovation strategy and healthcare priorities</td>
<td>Potential perception of partiality within researcher community and hesitation of private sector and philanthropists to support government-led research agenda</td>
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<tr>
<td></td>
<td></td>
<td>Impact of political changes on timing of decision making</td>
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<td></td>
<td></td>
<td>Challenge of consolidating currently diverse government funding sources under single ministry while retaining the foci and goals of the different ministries</td>
</tr>
<tr>
<td>Arms-Length Agency of Government</td>
<td>Alignment with Ontario government’s innovation strategy and healthcare priorities</td>
<td>Potential perception of partiality and strong government influence</td>
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<tr>
<td></td>
<td>Decision independence of the board</td>
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<td></td>
<td>Protected core funding from government</td>
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<tr>
<td></td>
<td>Benefit of other government agencies’ and jurisdictions’ experience, for example, Cancer Care Ontario and Canadian Institute for Health Research</td>
<td></td>
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<tr>
<td>Independent Foundation</td>
<td>Sustainability in the long term</td>
<td>Upfront investment</td>
</tr>
<tr>
<td></td>
<td>Benefit of others’ experience, for example, Alberta Heritage Foundation for Medical Research, Canada Foundation for Innovation, and Genome Canada</td>
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</tbody>
</table>
The organizational models currently employed in other Canadian jurisdictions are listed below.

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>ORGANIZATION</th>
<th>MODEL</th>
<th>YEAR OF INCEPTION</th>
</tr>
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<tr>
<td>Canada</td>
<td>Canadian Institute for Health Research</td>
<td>Government agency</td>
<td>2001</td>
</tr>
<tr>
<td>Alberta</td>
<td>Alberta Heritage Foundation for Medical Research</td>
<td>Foundation</td>
<td>1980</td>
</tr>
<tr>
<td>British Columbia</td>
<td>Michael Smith Foundation for Health Research</td>
<td>Foundation</td>
<td>2001</td>
</tr>
<tr>
<td>Manitoba</td>
<td>Manitoba Health Research Council</td>
<td>Arms-length organization established by government</td>
<td>1982</td>
</tr>
<tr>
<td>Quebec</td>
<td>Fonds de la Recherche en Sante du Québec</td>
<td>Government agency</td>
<td>1964</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>Saskatchewan Health Research Foundation</td>
<td>Foundation</td>
<td>2002</td>
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Lessons from other jurisdictions and a survey of stakeholders suggest that the **arms-length government agency model may be most appropriate**, striking a balance between input of broad stakeholder community and government influence in priority setting. As a government agency, this entity is expected to have a protected core budget and allow government to set priorities through its strategic planning process.
Appendix 2: CAHO Membership

Children’s Hospital of Eastern Ontario
401 Smyth Road
Ottawa, ON K1H 8L1

SCO Health Service
43 Bruyère Street
Ottawa, ON K1N 5C8

University Health Network
190 Elizabeth Street
Fraser Elliott Building
Toronto, ON M5G 2C4

London Health Sciences Centre
800 Commissioners Road East
PO Box 5010
London, ON N6A 4G5

Providence Continuing Care Centre
340 Union Street West
PO Box 3600
Kingston, ON K7L 5A2

Kingston General Hospital
76 Stuart Street
Kingston, ON K7L 2V7

Centre for Addiction & Mental Health
1001 Queen Street West
Toronto, ON M6J 1H4

Hospital for Sick Children
555 University Avenue
Toronto, ON M5G 1X8

Hotel Dieu Hospital Kingston
166 Brock Street
Kingston, ON K7L 5G2

Baycrest Centre for Geriatric Care
3560 Bathurst Street
Toronto, ON M6A 2E1

Bloorview Kids Rehab
150 Kilgour Road
Toronto, ON M4G 1R8

North York General Hospital
4001 Leslie Street
Toronto, ON M2K 1E1

The New Women’s College Hospital
76 Grenville Street
Toronto, ON M5S 1B2

Sudbury Regional Hospital
41 Ramsey Lake Road
Sudbury, ON P3E 5J1

The Ottawa Hospital
Civic Campus
1053 Carling Avenue
Ottawa, ON K1Y 4E9

Royal Ottawa Health Care Group
1145 Carling Avenue
Ottawa, ON K1Z 7K4

Mount Sinai Hospital
600 University Avenue Suite 334
Toronto, ON M5G 1X5

Hamilton Health Sciences
1200 Main Street West
Hamilton, ON L8N 3Z5

St. Michael’s Hospital
30 Bond Street
1 Queen Wing
Toronto, ON M5B 1W8

St. Joseph’s Health Care, London
268 Grosvenor Street
London, ON N6A 4V2

Toronto Rehabilitation Institute
550 University Avenue
Toronto, ON M5C 2A2

Thunder Bay Regional Health Sciences Centre
980 Oliver Road
Thunder Bay, ON P7B 6V4

St. Joseph’s Healthcare Hamilton
50 Charlton Avenue East
Hamilton, ON L8N 4A6

Sunnybrook Health Sciences Centre
2075 Bayview Avenue
Toronto, ON M4N 3M5

Hôpital Montfort
713 Montreal Road
Ottawa, ON K1K 0T2
Appendix 3: CORD Membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Institution/Institute</th>
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<tbody>
<tr>
<td>David Hill (Co-Chair)</td>
<td>Scientific Director</td>
<td>Lawson Health Research Institute</td>
</tr>
<tr>
<td>Janet Rossant (Co-Chair)</td>
<td>Chief of Research</td>
<td>The Hospital for Sick Children</td>
</tr>
<tr>
<td>Leslie Boehm</td>
<td>Director, Research Operations &amp; Business Development</td>
<td>Sunnybrook Health Sciences Centre</td>
</tr>
<tr>
<td>Larry Chambers</td>
<td>President and Chief Scientist</td>
<td>SCO Health Service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elizabeth Bruyere Research Institute</td>
</tr>
<tr>
<td>Roger Deeley</td>
<td>Vice President, Research Development</td>
<td>Kingston General Hospital</td>
</tr>
<tr>
<td>Geoff Fernie</td>
<td>Vice President, Research</td>
<td>Toronto Rehabilitation Institute</td>
</tr>
<tr>
<td>Hugh Graham</td>
<td>Executive Director</td>
<td>Hotel Dieu Hospital Kingston</td>
</tr>
<tr>
<td>Gillian Hawker</td>
<td>Senior Research Scientist</td>
<td>Women’s College Research Institute</td>
</tr>
<tr>
<td>Carol Herbert</td>
<td>Dean</td>
<td>Schulich School of Medicine &amp; Dentistry</td>
</tr>
<tr>
<td>Michael Julius</td>
<td>Vice President, Research</td>
<td>Sunnybrook Health Sciences Centre</td>
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<tr>
<td>David Kaplan</td>
<td>Interim Chief, Family &amp; Community Medicine</td>
<td>North York General Hospital</td>
</tr>
<tr>
<td>Stephen Lye</td>
<td>Associate Director</td>
<td>Samuel Lunenfeld Research Institute</td>
</tr>
<tr>
<td>Colin Macarthur</td>
<td>Vice President, Research</td>
<td>Bloorview Kids Rehab</td>
</tr>
<tr>
<td>Alex MacKenzie</td>
<td>Vice President, Research</td>
<td>Children’s Hospital of Eastern Ontario</td>
</tr>
<tr>
<td>Heather MacLean</td>
<td>VP, Research &amp; Inter-Professional Education</td>
<td>The New Women’s College Hospital</td>
</tr>
<tr>
<td>Brian Malcolmson</td>
<td>Associate Vice President, Academic Affairs</td>
<td>Montfort Hospital</td>
</tr>
<tr>
<td>Randy McIntosh</td>
<td>Associate Director</td>
<td>Baycrest Centre for Geriatric Care</td>
</tr>
<tr>
<td>Ravi Menon</td>
<td>Scientist, Imaging Research Laboratories</td>
<td>Rotman Research Institute</td>
</tr>
<tr>
<td>Zul Merali</td>
<td>President &amp; CEO</td>
<td>U of O Institute of Mental Health Research (ROHCG)</td>
</tr>
<tr>
<td>Christopher Paige</td>
<td>Vice President, Research</td>
<td>University Health Network</td>
</tr>
<tr>
<td>John Puxty</td>
<td>Chief of Staff</td>
<td>Providence Care</td>
</tr>
<tr>
<td>Ian Rodger</td>
<td>VP, Research and Academic Affairs</td>
<td>St. Joseph’s Healthcare Hamilton</td>
</tr>
<tr>
<td>Arthur Slutsky</td>
<td>Vice President, Research</td>
<td>St. Michael’s Hospital</td>
</tr>
<tr>
<td>Duncan Stewart</td>
<td>CEO &amp; Scientific Director</td>
<td>VP Research, The Ottawa Hospital</td>
</tr>
<tr>
<td>David Streiner</td>
<td>Assistant VP Research</td>
<td>Baycrest Centre for Geriatric Care</td>
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<tr>
<td>Jeffrey Weitz</td>
<td>Director, Henderson Research Institute</td>
<td>Hamilton Health Sciences</td>
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<td></td>
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<td>Hamilton Regional Cancer Centre</td>
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<tr>
<td>John Woods</td>
<td>Director, Research Admin &amp; Strategic Development</td>
<td>St. Joseph’s Healthcare Hamilton</td>
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<tr>
<td>Salim Yusuf</td>
<td>VP, Research &amp; Chief Scientific Officer</td>
<td>Hamilton Health Sciences</td>
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