

Hospital News' Special Report on Research:

The research priorities of Canada's academic health-care organizations

By Tina Saryeddine

When most people think about the health system, the most frequent images are ones of patients receiving care – ambulances, emergency departments, surgeries, rehabilitation, clinics and many other services. There is no shortage of television drama on what happens in hospitals; no dearth of real life experiences; and no question about the role

of health-care organizations in our lives and in our communities.

Amidst their daily activities however, Canada's academic health-care organizations – our research and teaching hospitals, academic regional health authorities and their research institutes – also contain vibrant research enterprises. These research enterprises play an important role in dealing with major health and health system issues and in our economy.

In 2010, the Vice-Presidents of Health Research of ACAHO member organizations (Canada's research hospitals, academic regional health authorities, and their research institutes) took on the challenge of describing the work of hundreds of researchers, thousands of projects, and millions of dollars into three questions that help to describe what is driving the overall research agendas at their organizations.

The results and their implications

for health and the economy are discussed in an upcoming report of the Association of Canadian Academic Healthcare Organizations *Focus & Alignment: The Research Priorities of Canada's Academic Healthcare Organizations*, which will be posted on the ACAHO website. www.acao.org.

Here is the breakdown:

Tina Saryeddine is Assistant Vice President of Research and Policy Analysis at ACAHO.

IN CONVERSATION WITH THE VICE PRESIDENTS OF HEALTH RESEARCH AT CANADA'S ACADEMIC HEALTH-CARE ORGANIZATIONS: WHAT IS DRIVING HEALTH RESEARCH AT YOUR ORGANIZATION?



Eastern Health

Does the Healthy Beginnings Program, a public health intervention program for high-risk children improve the rate of priority children achieving appropriate developmental milestones?

Is there a link between wait time for diagnostic imaging procedures and outcomes for clients?

How can we use large data banks on staff absenteeism to identify factors that predict staff absenteeism and use these to develop effective policies and programs?



IWK Health Centre

How can we develop, evaluate and implement vaccines for the full range of diseases including infectious diseases and cancers?

How can we detect and intervene effectively with autism and child mental health problems?

How can we ensure that scientific evidence influences all decisions in the health centre?



Capital Health

How can we integrate health outcomes research in our daily clinical care and learning environments in a meaningful way?

How can we broaden the scope of our research activities to include all health care providers (i.e. away from the medical model only)?

How do we build more infrastructure to support broad based research?



Horizon Health Network

How can we identify new/alternative treatments for cancer patients?

How can we identify new/alternative treatments for heart disease?

How can we improve system performance (i.e. spread of evidence-informed practice and models, improved patient outcomes, increase throughput, decrease wait-times, etc.)?



Centre Hospitalier Universitaire de Québec

How can we optimize vaccines against epidemic strands of human, bird or pig influenza with pandemic potential, better understand the mechanisms of resistance to existing antivirals, and refine the evaluation criteria for new treatments?

How can we better target the prevention and individual treatment of cancer through the identification of susceptibility factors for developing cancer and of therapeutic resistance mechanisms?

How can we ensure that research results are diffused and applied in health-related decisions and practices?



Institut de Cardiologie de Montréal

How can we integrate innovative and cross-sectional scientific approaches to dynamic and solid thematic areas of cardiovascular research to establish a translational research approach bridging genomic and large clinical studies and patient observations back to basic research?

How can we develop the tools and approaches required for personalized medicine, integrating the diagnostic, therapeutic and prevention perspectives?

How can we pursue the development of state-of-the-art medical imaging, in close link with innovative and non-invasive medical services?

How can we pursue the development of clinical research (e.g.: large-scale clinical trials) at the national and international levels as a means to expand patient-oriented research?



McGill University Health Centre

To exploit existing technologies and develop novel means to provide care tailored to the individual patient.

To understand the biology of healthy cells, organs and organisms to prevent infections, damaging inflammation, allergies and cancer.

To explore how genetics and the environment influence both health and disease across the lifespan.

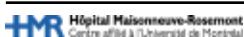


Centre hospitalier Sainte-Justine

How can we use innovative diagnostic tests to better predict the outcomes of scoliosis and develop new tools to provide optimized treatments tailored to fit individual needs?

How can we use the wealth of knowledge from genomics and neuroscience to optimize brain development in order to maximize function leading to healthier and more productive people?

How can we ensure that newborn babies are born healthier and with the best chances to become healthy adults?



Hôpital Maisonneuve-Rosemont

How can we enhance the translation of basic discoveries from our researchers to clinical applications in the field of hematology-oncology, immunology and cell therapy?

How can we identify the pathological mechanisms of neuro-degenerative and other eye diseases to develop diagnostic and therapeutic strategies to combat blindness?

How do we best use our epidemiological, pharmacological, genetic, molecular and therapeutic tools to improve the quality of life of patients with renal failure?



Baycrest

How can we use our knowledge of the brain and cognition to better ameliorate or rehabilitate cognitive decline associated with normal aging as well as neural disease or damage?
 How do different brain areas work together in functional networks to produce normal cognitive abilities, and how do these networks change over time in response to age, injury or activity?
 How do we best translate our knowledge of brain function, dysfunction and recovery into practices that improve the health of tomorrow's elderly while at the same time care for and enhance the quality of life of the elderly today?



Bloorview

What treatments optimize the outcomes for children with disabilities?
 What assistive technology products optimize the lives of children with disabilities?
 How can we overcome the barriers (social, economic, environmental) facing children with disabilities and their families?



Children's Hospital of Eastern Ontario

What are the basic fundamental mechanisms behind childhood disease? (with a focus on cancer, neuromuscular disease, and rare genetic disorders)
 How can we translate findings of basic research and clinical trials into improved health for children?
 How can we best promote and support child and adolescent health and healthy lifestyles? (with a focus on obesity, maternal-child health and mental illness.)



Bruyère Continuing Care

What are the ways of promoting the health of patients and residents in continuing care organizations to enable them to live with their health problems?
 How can the organization of primary health care be improved to assist patients in managing their chronic illness(es)?
 How can we improve the quality of life of patients receiving palliative care?



Hamilton Health Sciences

How can we efficiently and rapidly evaluate new treatments and preventive strategies for cardiovascular diseases, diabetes, thrombosis and cancer, and use these to mitigate global burden of such diseases?
 How can we understand the environmental and genetic factors for chronic diseases of adulthood such as cardiovascular disease, diabetes and cancers, including the early life determinants of these diseases?
 How can we understand the factors that influence childhood development?



Kingston General Hospital

How can our advances in surgical technology allow patients to live fuller and more mobile lives while reducing length of stay?
 How can we identify existing and novel treatment modalities that optimize the outcome for patients suffering from common chronic diseases?
 How can we optimize critical care and end-of-life care for elderly patients?



London Health Sciences Centre and St. Joseph's Health Care

How can we improve surgical technologies so that complicated operations can be done with the minimum incision, the shortest stay in hospital, and the most rapid recovery?
 How can your individual genetic make-up be used to optimize drug selection and dosage and avoid adverse reactions?
 Can we develop non-invasive medical imaging techniques that inform us about body biochemistry and genetic changes for more effective and appropriate treatment of diseases such as cancer?



Mount Sinai Hospital

How can we identify the most appropriate treatments for patients with diseases like cancer? People respond very differently to therapies but we do not know why in most cases. The answers to this question will emerge from personal genomics and proteomic analysis.
 There is a lack of fundamental knowledge of the causes of most developmental and disease-related health problems. What are the genes and protein variations that pre-dispose to health complications?
 What are the mechanisms that control cellular fate? If we knew the key processes, we would be able to generate specific cell types and tissues and obviate the need for organ and tissue transplants. This exciting area holds enormous potential via stem cell research.



St. Michael's Hospital

How can we improve the translation of knowledge gained from research into practice to improve the health of Canadians?
 How can we influence the development of policies to prevent premature death due to HIV/AIDS, tuberculosis and chronic diseases in developing countries?
 How can we better understand the complex social and health issues of inner-city vulnerable populations, such as the homeless, refugees and people living with mental illness?
 How can we generate new knowledge of fundamental mechanisms of organ injury that is readily amenable for translation into improvement in patient outcomes?



St. Joseph's Healthcare Hamilton

How can we better understand and treat patients with asthma and chronic obstructive pulmonary diseases?
 How can we refine and enhance usage of non-invasive imaging technologies to better diagnose disease, tailor therapies to individuals and track therapeutic responses?
 How can we better understand kidney disease and dysfunction and improve therapy?



Hospital for Sick Children

How can we use new stem cell and regenerative medicine technologies to drive early treatment of childhood diseases which adversely affects organ development (heart, lung, kidney, urogenital, craniofacial and musculoskeletal syndromes which begin at birth or with early onset diseases)?
 How can we effectively leverage the incredible wealth of genomic data we are generating to improve not just accurate diagnosis of childhood diseases but also to drive more effective treatments?
 How do we use our growing knowledge of cancer stem cells to develop better treatments and ultimately cures for often fatal childhood cancers such as AML, metastatic solid tumours and most brain tumours which occur in childhood?



Sunnybrook Health Sciences Centre

How can we develop technologies to improve the way we prevent, detect, diagnose and treat disease?
 How can we better harness the potential of cell-based and regenerative medicine to develop new ways to repair, regenerate or replace damaged cells and tissue?
 How can we better integrate research and clinical care, and move discoveries from the lab to the medical marketplace, and ultimately to the patient?



The Ottawa Hospital

How can we control the activity of stem cells and enhance their ability to repair and regenerate tissues and organs?
 How can we ensure that clinical evidence is used by practitioners and the health care system to improve quality of health care delivery?
 How can we apply advances in understanding the biology of blood vessels to the prevention and treatment of diseases such as heart attack, stroke and thrombosis?

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The Royal Ottawa Health Care Group

How can we combine drugs to achieve better outcomes for depression?
How can we translate basic discoveries (bench) to better treatment outcomes for mental illness (bedside)?
How do psychological and social factors influence genetic expressions of mental illness?



Toronto Rehabilitation Institute

How can we improve rehabilitation so that people can return more quickly to more enjoyable and productive lives?
How can we help more people fulfill their wish to continue living in their own homes as they age?
How can we use technology to make care-giving easier and safer for professionals and family?



University Health Network

What is the fundamental basis of disease?
How can we use trans-disciplinary team research to develop new and effective treatments for patients?
How can we develop the commercial potential of new innovations?



Winnipeg Regional Health Authority

How can we ensure that our institutional research agenda optimally contributes towards improved patient-care at our hospital?
How can technology advances in image-guided radio-surgery be used to replace conventional surgical procedures, effecting better outcomes for our patients and reduced inpatient stays?
What are the key emerging technologies that will impact the neurosciences in the next 5-10 years and how can our hospital position itself to be a leader in these fields?



Saskatoon Health Region

How can we use synchrotron light to understand, image and eventually treat animals and human disease?
How can we best protect animals and humans against infectious disease (across the lifespan)?
How can we reduce health disparities in Aboriginal, rural, and remote northern communities and poor neighbourhoods?



Alberta Health Services (Edmonton)

How do we improve the effectiveness and success of transplantation of tissues and organs?
How do we encourage healthy lifestyles that improve the nutrition and decrease the obesity in our populations?
How do we better use information at the molecular level to improve the prevention, diagnosis and treatments of various diseases in adults and children?



Alberta Health Services (Calgary)

How can we measure and improve the quality of care, and safety of care, in patients and people served by Alberta Health Services in Calgary using evidence-informing principles?
What changes in policy and practice will improve access to health care for patients and people served by Alberta Health Services in Calgary using evidence-informing principles?
How can we improve access to care and quality and safety of care in a sustainable fashion for patients and people served by Alberta Health Services in Calgary using evidence-informing principles?



Provincial Health Services Authority

How can we apply our knowledge of human genomics to improve prevention, diagnosis or treatment of disease states and to better understand the origin of adult conditions in childhood and adolescence?
How can we enhance our capacity in translational research to improve health outcomes for the populations we serve including children, women and patients with cancer, communicable disease, renal failure and mental health conditions?
How should we build our capacity in applied and population health research in order to best contribute to optimal health outcomes and to foster sustainability of the healthcare system?



Providence Health Care

How can biomarkers help predict outcomes and allow medical therapy to be tailored?
Can Highly Active Antiretroviral Therapy be used as prevention against HIV/AIDS in vulnerable populations?
What system-wide approaches to mental health and addiction need to be implemented?



Vancouver Island Health Authority

How can we assess and improve best strategies to recruit, teach, and retain workers at all levels, but particularly those with clinical expertise, within healthcare settings?
How can we best focus health services research to improve the quality of services provided within the Health Authority?
How can we best use the healthcare needs and experiences of the defined population of Vancouver Island to determine best practices in primary, secondary, and tertiary prevention of cardiovascular morbidity and mortality?

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