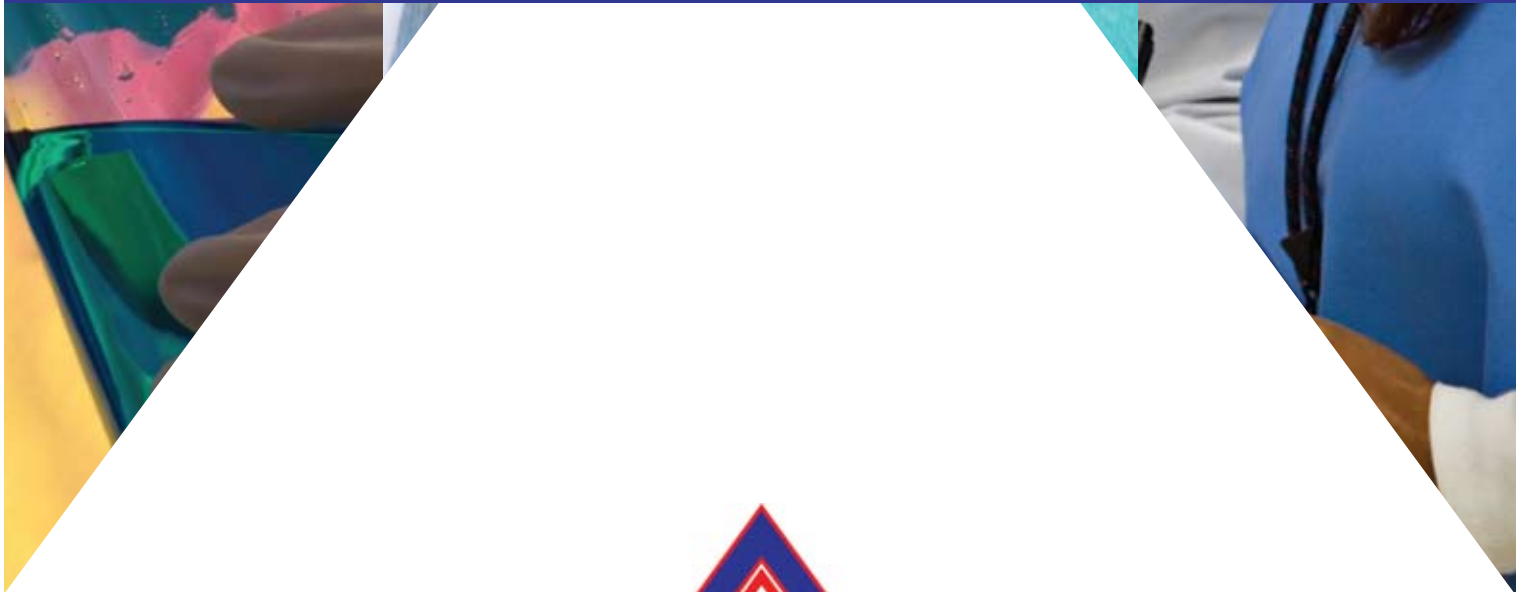




Securing the Future of Canada's Academic Health Sciences Centres

Environmental Scan Report



Academic Health Sciences Centres - National Task Force
Centres des sciences de la santé universitaires - groupe de travail national

Blackburn & Associates is a health care consulting group that primarily specializes in pharmacy-related projects. Dr. Jim Blackburn was the Principle Researcher for the “Securing the Future of Canada’s Academic Health Sciences Environmental Scan” report. Dr. Blackburn’s extensive academic and institutional experience included being Dean of Pharmacy at the University of Saskatchewan for 15 years and Director of Pharmacy at the Regina Grey Nuns Hospital (now Pasqua Hospital with the Regina Qu’Appelle Health Region). In addition, he was Executive Director of the Association of Faculties of Pharmacy of Canada, and the Executive Director of the Canadian Council for the Accreditation of Pharmacy Programs.

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Introduction

An **academic health science(s) centre** (AHSC) is a partnership between one or more universities and healthcare providers focusing on world-class research, clinical services, education and training.

Over the years, AHSC have increasingly faced challenges to the performance of their expected activities. Thus, an environmental scan was undertaken to gather critical information that will help guide *The Task Force on the Future of Academic Health Sciences Centres in Canada*.

Purpose and objectives of the environmental scan

The goals of the environmental scan are:

1. To identify the internal and external factors (including enablers and barriers) that need to be addressed to allow AHSCs to achieve excellence and innovation in patient care and service delivery, education and training, and research; and,
2. To identify and understand the perspectives of AHSCs, governments and the public across Canada on the changing needs of AHSCs.

Eight over-arching themes were identified to frame the overall work and critical thinking of the National Task Force. These include:

- Accessibility
- Accountability
- Excellence
- Innovation and Knowledge Transfer
- Interdependence/collaboration
- Interdisciplinary
- Quality
- Sustainability

Research Questions:

1. What are the internal and external factors that need to be addressed to allow AHSCs (at the individual and collective level) to achieve excellence and innovation in patient care and service delivery, education and training, and research?
2. What are the perspectives of AHSCs, federal, provincial and territorial governments and Canadian public on the eight themes?
3. What are the gaps in the literature pertaining to the eight theme areas for which more knowledge is needed?

Objectives:

1. Conduct a literature search pertaining to eight theme areas
 - Identify areas where further knowledge is necessary;
 - identify the internal and external factors that need to be addressed to allow AHSCs (at the individual and collective level) to achieve excellence and innovation in patient care and service delivery, education and training, and research; and,
2. Solicit the perspectives of AHSCs (i.e., Universities, Faculties of Medicine, Health Sciences, and Nursing, teaching hospitals and regional health authorities and Research Institutes), federal, provincial and territorial governments and the public across Canada.

The Research Team and Project Description

Blackburn & Associates were selected to complete the environmental scan with the following Research Team:

Blackburn & Associates

- Jim Blackburn, PharmD, FCSHP
- David Blackburn, PharmD
- Laurie Dmytryshyn, MBA
- Renee Dust, BA (Hon)

Arcturus Solutions

- Jeannette Bellerose, PhD

The environmental scan was carried out in three stages (sections):

Section 1 – *The inventory of published literature and information sources*

Section 2 – *The AHSC Leaders and Stakeholder Survey*

Section 3 – *The AHSC Leaders and Stakeholder Interviews*

This report describes the approach to develop each of these projects. The findings are presented within each of the sections.

Executive Summary

Purpose and Objectives of the Environmental Scan

1. To identify the internal and external factors (including enablers and barriers) that need to be addressed to allow Academic Health Science Centres (AHSC) to achieve excellence and innovation in patient care and service delivery, education and training, and research; and,
2. To identify and understand the perspectives of AHSCs, governments and the public across Canada on the changing needs of AHSCs.

1. Description of Work Plan

Blackburn & Associates undertook the environmental scan to address the research questions by using a three stage approach:

Section 1.1 – *Inventory of Published Literature and Information Sources*

Section 1.2 – *AHSC Leaders and Stakeholder Survey*

Section 1.3 – *AHSC Leaders and Stakeholder Interviews*

The following provides a brief overview of each of section:

1.1. The Inventory of Published Literature and Information Sources

The literature review focussed on identifying issues and challenges facing three major AHSC responsibilities (patient care and service delivery, education and training, and research and innovation). Approximately 1,000 articles, reports and websites were reviewed for information relating to AHSCs. Summary abstracts were prepared for 170 of the most relevant documents published between 1994 and 2009. The abstracts include discussions of internal and external factors affecting academic health centres as they strive to achieve excellence in the three areas of interest. The data base of these abstracts was organized according to the year of publication 2009 – 1994¹.

Each abstract is categorized according to:

- The area of focus (e.g., patient care, education, or research)
- The particular theme(s) (e.g., accessibility, accountability, etc)
- The factor (issues) (e.g., internal, external, or both) (Appendix 1.1).

¹ Literature used to prepare the environmental scan report and not for distribution.

Research Question Addressed - 1) *What are the internal and external factors that need to be addressed to allow AHSCs (at the individual and collective level) to achieve excellence and innovation in patient care and service delivery, education and training, and research?*

Summary of Findings:

Patient Care and Service Delivery Factors

- Recruitment & retention of health care professionals
- Adequate levels of funding for tertiary & quaternary care
- Enhancing continuity of patient care
- Improving access to care
- Establishing interdisciplinary approaches to improve patient care
- Increasing demands for new technology
- Appropriate levels of funding for capital infrastructure
- Improving governance policies and procedures, both internal and external
- Establishing more comprehensive electronic patient record systems

Education and Training Factors

- Accelerating the trend towards inter-professional education for health professionals
- Obtaining adequate funding for education within the AHSC budgets
- Redefining the relationship between the AHSC and the University
- Addressing the increasing number of health professional students who receive their clinical education in AHSCs
- Balancing service requirements with educational opportunities - students and preceptors
- Adapting to the decentralization of clinical education

Research and Innovation Factors

- Accelerate promotion of knowledge transfer/research findings to the clinical practice community
- Obtaining highly qualified researchers including clinician scientists
- Provision of protected research time for clinician scientists
- Coping with the recent economic downturn and its effect on funding of research activities within the AHSCs

- More effective communication of the “return-on-investment” to the public and governments
- Improving the relationship between the AHSC and the funding agencies for health science research
- Funding increased costs of new technologies/equipment to conduct research within the AHSC

The literature review documented **40 recommendations for addressing these issues (see Section 1)**. Recommendations were grouped under the above categories with the addition of *Organization, Management and Overall Financing*. These recommendations served as a base for the preparation of the survey and interviews.

1.2. The Survey of AHSC Leaders and Stakeholders

Leaders of Canadian AHSCs (academic and institutional), along with representatives of Health and Advanced Education ministries, and various AHSC stakeholder organizations were surveyed between December 3, 2008 to January 20, 2009. The survey questions related to the three major AHSC responsibilities: (1) patient care and service delivery; (2) education and training; and (3) research and innovation. A fourth section asked questions on the AHSC governance structure, both external and internal.

280 individuals or organizations were invited by e-mail to participate in the on-line survey identified by a web link to the survey instrument. One hundred and twenty-four survey questionnaires were completed, compiled, and analyzed (43.5% response rate).

Respondents were requested to evaluate their AHSCs performance using a five point scale with 5 being “very satisfied”; 1 being “very unsatisfied”. Mean responses from the entire group were:

- overall impression - **3.72**
- patient care and service delivery - **3.85**
- education and training - **3.80**
- research and innovation - **3.89**

In general, academic leaders tended to have a lower satisfaction level of performance than the other groups.

Respondents were requested to rank, by level of importance, the individual issues facing AHSCs within each major responsibility. The survey invited recommendations to address the issues and challenges.

1.3. AHSC Leadership and Stakeholder Interviews

A total of 29 AHSC leaders and stakeholders were interviewed as a follow-up to the survey. The interviewees included institutional leaders (10); academic leaders (13); government representatives (2) and national/provincial stakeholders (4) representing nine provinces.

The interviewees were in general agreement with the major factors reported in the survey findings. The recommendations for addressing these issues have been combined with the survey recommendations.

2. Key Observations from the AHSC Leaders and Stakeholders – SURVEY AND INTERVIEWS

It was recommended that a national approach is required to define the AHSC role. Although AHSCs generally provide tertiary and quaternary care, the provision of primary and secondary care services need a well managed network of hospitals within the system that includes AHSCs.

- There needs to be an explicit focus on a patient-centred approach that links back to primary and secondary care - this might involve service-based funding that would cover both institutional and community-based care.
- There needs to be clarity in defining the different patient care responsibilities of AHSC's as compared to community and regional centres within a well managed network with excellent communication between the facilities.

2.1. Observations for Consideration – PATIENT CARE

2.1.1. There is a need for a national approach with effective engagement of provincial Ministries of Health and Advanced Education, health science faculties, and academic hospitals to fully address current and future human health force issues within the scope of all the primary health professionals that are educated and practice within the AHSC environment.

2.1.2. The Task Force is encouraged to recommend that the interdisciplinary process must continue as a national issue with ongoing support from the federal government through the provinces (shared). There is a need to develop an interdisciplinary framework that includes interdisciplinary competencies.

2.1.3. The compensation system for health professional educators and scientists within the AHSC environment needs a complete evaluation. The system of payment for personnel should acknowledge team based care.

- 2.1.4. A funding policy, supported by a formula if possible, to support long term sustainability of AHSC's, especially as provinces change their structures for delivery of health services. There must be a realization by governments that patient services within the AHSC environment can not be directly compared on a funding basis with community hospitals and regional centres that do not have responsibility for education and research.
- 2.1.5. There is a need for a system-wide review of patient service delivery to avoid duplication. Also clear and accountable metrics are required for all players, identifying best practices and establishing pilot examples. It is the role of the AHSC to develop and establish best practices and patient safety procedures along with the education and research responsibilities while providing optimum patient care.
- 2.1.6. The Task Force is encouraged to urge both the federal and provincial governments to support adequate funding to establish a pan-Canadian comprehensive electronic medical record and information system. It needs to be a universal system which can be accessed anywhere in Canada with appropriate security measures. It should also provide better access to the provincial data bases – health, social housing, education and all the other data for ongoing patient care and contribute to health care/population health research.

2.2. Observations for Consideration – EDUCATION AND TRAINING

A coordinated approach to educating health professionals is required. Interdisciplinary and distributive educational approaches are recognized as the trends for health professional education in the present and the future.

- 2.2.1. There is a need for national consortium of visionary educators from the health disciplines to consider a framework for more integrated educational curricula that focus on the needs of the patient/ population. Currently, each of the health care educational faculties has developed their competency based curricula but it has been in a “silo” approach. The following factors should be considered:
- Where possible, utilize simulation and the introduction of case history training sessions with the intervention of all the university disciplines concerned.
 - Establishment of true coaching, and mentoring processes in order to supervise and evaluate the inter-professional training and work collectively to remove barriers that inhibit inter-professional collaboration.

- A barrier to interdisciplinary teamwork is the University or AHSC collective agreements which inhibit these activities. Steps should be taken to have the unions address these issues.
- There is a need for a strategic plan for AHSCs within geographical areas or to some extent, nationally with much greater cooperation between institutions. Sub specialties are not necessary for all institutions and there should be cooperation with delegation of specific programs for a smaller number of institutions.

2.2.2. At the provincial level, there needs to be a clear dialogue with the Government agencies involved in Education / Health. There must be a recognition and support for the role of AHSC's in teaching with a provincial funding model that is transparent to all parties. In most provinces, the HHR infrastructure to support educational experience, clinical teachers, etc. does not recognize the multidisciplinary clinical educational environment. Governments should be encouraged to provide increased funding to support inter-professional education opportunities and to be strategic in guaranteeing that funding is balanced among disciplines. Consideration should be given to:

- There needs to be funding provided per student to allow “backfilling” for preceptors on busy clinical units/settings.
- Develop clearly articulated and accurate economic modeling of the true cost of health professional education that affects both University and hospital funding.

2.2.3. Distributive clinical education and the resulting relationship between the AHSC and community hospitals and health care organizations that also provide clinical education opportunities for those students. As with interdisciplinary practice, there are major strides being made across Canada, but once again governments need to financially support these initiatives within a unified system.

- Develop appropriate funding models for decentralized health care education programs that provide quality care and achieve excellence in education and training.
- There must be a supply of trained instructors and preceptors necessary to fully enhance the educational experience.
- Enhance training in rural family medicine and core specialties to better prepare physicians in rural practice and meet patient needs. Educators and students should develop stronger relationships with rural practitioners and facilities.
- Governance models should accommodate community care in addition to tertiary and quaternary care.

2.3. Observations for Consideration – RESEARCH AND INNOVATION

General Recommendations:

- Encourage the development of “AHSC cultures” that support innovation at all levels - looking at various change management techniques that can help change practices and mindsets within hospitals.
- Work with the governments (politicians and staff) to help them understand that investments are needed within the system in order to make the desired improvements. (i.e. investment not an expense).
- Look at the Toronto model and attempt to adapt it for elsewhere - not just with respect to research but also with respect to the innovation agenda through the MaRS partnership.
- Population health research needs to be a key focus to determine optimum health care. There are huge gaps in evaluating best practices. The linked health care data set is a great resource and we need to put pressure on the governments to get a single comprehensive data set.

2.3.1. The National Task Force is encouraged to forcefully advocate for increased funding for health research in Canada - for CIHR and other national funding agencies, both public and private. AHSCs are very significant players in health research across Canada and they represent the bridge between science and practice. CIHR needs to develop better mechanisms for personnel and infrastructure support. CFI provides capital and initial support but there are few sources of ongoing funding for these projects. There is great concern for the cutting of funding to granting agencies and the Task Force needs to convince the federal government to support the tri-council as well as promoting increased research support from the provincial governments. AHSC research tends to be a very medical model and mostly pillars 1 and 2 of CIHR. Pillar 3 work never gets scaled up and the support and infrastructure for Pillar 4 is sorely lacking. Pillar 4 needs dedicated infrastructure funding and needs to build community capacity in addition to researcher capacity.

2.3.2. Health Canada, in close collaboration with CIHR, should engage in comprehensive strategic planning process for a national health and biomedical research agenda for the next decade, which includes a defined budgetary plan. As well, each provincial government, in close collaboration with AHSCs, including the Health Science Faculties, should engage in a comprehensive plan for health and biomedical research that includes the financial plan.

2.3.3. The Task Force is encouraged to make coordinated and compelling arguments and strategies toward aligning the development of a thriving health research ‘industry’ in Canada with the health of the population and the health of the economy. Suggestions could include recommending a system for the integration of best practices/research findings into practice. Consideration may be given to create a national public data/ knowledge repository which may also assess the quality of research outcomes. Such an assessment and review body may recommend (or not) an innovation. It is worthwhile to explore the case studies created by the funded NIH Translational projects in the USA.

- Measuring Impact of Research – The Canadian Academy of Health Sciences has provided a good report measuring the impact of health research and all the research agencies are now working towards applying the process to their research programs.

2.3.4. There is a need to re-evaluate the current system (non-system in some cases?) of funding researchers within the AHSC. How can better incentives be created for engaging in research and using evidence-informed practice? There is a major problem to convince those responsible for clinical scientists to give priority to their research commitment and free clinical scientists from a significant proportion of patient care responsibilities to do the research.

2.4. Observations for Consideration - EXTERNAL GOVERNANCE AND ADMINISTRATIVE STRUCTURES

2.4.1. Regardless of the administrative structure in place in each province, there must be a direct relationship between the government (Ministries of Health and Education/Advanced Education) and AHSCs (institutional and academic leadership) which should collaborate to create an understanding of the needs of AHSCs and in turn, the difficulties governments face in providing funding. Constant change in the health care organizational structure across Canada has resulted in a very negative effect on the efficiency and effectiveness of the AHSC’s. Forging stronger links with the Department of Health to fund the existing hospital research centers according to their relevance to the health services for which the Department of Health is responsible. In this plan, it is advisable to take into account both basic and clinical research.

2.4.2. The Task Force is encouraged to make recommendations concerning the role of the AHSC within the regionalized and integrated health care system that exists in most provinces. The AHSC focus on education and research

is reduced in priority when compared to patient services for the region and the governing board has minimal representation or input from the academic leadership. At the same time, there needs to be more transparent leadership of the AHSC with a focus on active communication with the Community it serves.

2.5. Observations for Consideration – INTERNAL GOVERNANCE AND ADMINISTRATIVE STRUCTURES

Natural tension between the AHSC and the University was frequently identified as an important issue. In the past the relationship was primarily between the Dean of Medicine as the representative of the University with the Board and Administration of the institutional hospital.

The environment has changed with all Health Science Deans having much more direct involvement in all three facets of patient care, education and research within the AHSC. This change process was recognized years ago with the title “AHSC” rather than “AMC”.

On the institution side, it is no longer one institution, but rather a network of health care institutions with each having a focus on tertiary and quaternary care, education and research within specific specialities.

In addition, the distributive approach to health professional education means a significant component of clinical education is outside of the AHSC as we know it.

At the present time, there does not appear to be an organizational structure that is effective and efficient in managing the relationship among these components.

Final Comment

The literature review identified the external and internal factors that are key concerns affecting the present and future of AHSCs within Canada. The survey and interviews confirmed the literature findings and the respondents provided their view of actions that merit consideration in meeting the challenges. It is acknowledged that the report is lengthy in an attempt to thoroughly present the findings to serve as a background for The Task Force on the Future of Academic Health Sciences Centres in Canada.

1. The Inventory of Published Literature and Information Sources

The inventory of published literature and information sources section is composed of the following chapters:

1.1 Executive Summary of Recommendations

1.2 Description of the Literature Review Process

1.3 The Literature Review Summary

- The summary reviews the key articles sequentially from 1994 to 2009.

1.4 Concluding Remarks

1.5 References

Appendix

- 1.1 AHSC Environmental Scan - Abstracts (organized according to the year of publication)

1.1. Inventory of Published Literature and Information Sources Executive Summary - Recommendations

This executive summary provides an overview of the recommendations to AHSCs emanating from the literature over the last fifteen years. The review focuses on the most important recommendations, many of which are currently being implemented. We have combined similar recommendations with the identifying sources being documented.

1.1.1. Organization, Management and Overall Financing – External - Organization

- 1. Integration of national health workforce policy.** This policy must recognize and compensate for the inherent weaknesses and vulnerabilities of current decentralized multi-stakeholder decision-making.^{2008.22} AHSC must demonstrate leadership in the management of patients, information, and human resource planning, including a cohesive HR plan that models a supply and demand relationship for healthcare that meets the needs of all stakeholders and is not simply governed by yearly transfers to universities.^{2002.3}
- 2. Change the way health care professionals are educated, trained, employed, funded and regulated.** These changes are consistent with the First Ministers' commitments on national health care renewal.^{2005.21}
- 3. Enhancement of government's role in health research and health care system.** The role of government – establish standing entities to oversee and provide stable funding to AHSCs.^{2002.3} The federal government must enhance its role in the funding of research in the AHSC and health care system in general.^{2002.3} A harmonious relationship between the Ministry responsible for Health and the Ministry responsible for Training, Colleges and Universities, is essential to support the clinical service, education and research requirements of the AHSC. Accordingly, each province should establish a new commission charged with connecting the funding agencies and the AHSCs. Like any other government department, this permanent commission would receive funding to provide the necessary support for AHSCs.^{2002.15} In 2008, the Council for Science & Technology, United Kingdom, published the document *How academia and government can work together*.^{2008.22} The report provides guidelines to enhance this relationship.
- 4. Enhancement and stabilization of relationships with community health service providers outside the AHSC.** The evaluation framework developed at the South Calgary Health Centre may help to standardize evaluation approaches across projects and can be used for monitoring progress as well as future evaluations of integrated service delivery models.^{2007.2}
- 5. Increased regional contribution to health-reform goals.** Lewis and Currie present proposals for a more stable and transparent provincial-regional health authority relationship including information and measures to better align resources to needs, increased regional-level system integration and changes to organizational culture and practice in the health system.^{2004.16}

6. **Negotiate full alternative funding plans for physicians and other health professionals.** This change will likely to lead to stability of personnel, facilitated recruitment, predictability of budgets, enhancement of academic output, more appropriate clinical activity, especially in the areas of tertiary and quaternary care, alignment of Ministry, hospital and university objectives, and appropriate adjustment of incentives.^{2004.1} Once the incentive barriers are removed from the funding model for physicians, more creative planning will optimize the balance of clinical service supply with fluctuating patient demand.^{2002.3} The authors noted that changing the physician payment mechanism did not alter surgical practice patterns. These findings and this conclusion have important implications for health system design.^{2003.6}
7. **Service-based funding should be augmented by an additional funding method that would take into account the unique services provided by Academic Health Sciences Centres, including teaching and research.**^{2002.24}

1.1.2. Internal – Organization

1. **Develop a fully integrated organizational model.** Commitment to a model of full integration results in an efficient, effective, and reputation-enhancing foundation for quality and success.^{2008.1} Common organizational qualities shared by top AHC performers include a shared sense of purpose, a hands-on leadership style, accountability systems for quality and safety, a focus on results, and a culture of collaboration.^{2007.3} Elaborate the common vision for the AHSC – patient care, teaching and research.^{2002.3}
2. **Develop organizational structures more responsive to the needs of the community.**^{2003.3} Continually assess the health care needs of their community (and nation) to incorporate resulting data into strategic planning.^{2003.3}
3. **Enable a more coordinated and cohesive system-wide view of the AHSC’s multiple roles and organizations.** Develop systems to manage the information and knowledge that are used and produced by AHCs, accountability systems to establish and measure goals for change, and systems to develop and support AHC leadership.^{2003.3}
4. **There should be a renewed definition of the relationship between the university and the AHSC.**^{2002.15}
5. **Improve internal accounting capabilities and the management of funds supporting mission related work.**^{2003.3}

1.1.3. Patient Care Services

1. **Act decisively to improve safety, quality, and efficiency of service provided with a continuous improvement process.**^{2003.3}

2. **Invest in information technologies necessary to automate all appropriate clinical care processes, provide patients with secure access to their medical records, and assist patients with self-care and medical decision making.**^{2003.3}
Lead application of technology to improve health care.^{2003.3}
3. **Act decisively to improve outcomes or discontinue those clinical services that fail to achieve outcomes comparable to peer institutions.**^{2003.3} Work with other AHCs and non-academic health care organizations to identify and establish best practices.^{2003.3} Retchin and Clark reviewed and synthesized the literature regarding health system performance.^{2005.13}
4. **Public and private payers as well as foundations should support experimentation to redesign processes of care to improve health for both patients and populations.**^{2003.3}
5. **Establish the structures and team approaches required to improve health.**^{2003.3}
6. **Ensure collaboration between AHCs, regional planning agencies, and rural communities.** These relationships can lead to mutually beneficial outcomes (targeted admission policies for education programs, telemedicine and partnering with providers in rural areas with the use of innovative technologies).^{2006.14} Shannon *et al.* examined telemedicine for its potential to assist in meeting financial, cost, and quality challenges. In particular, the model developed at the University of Michigan Health System for implementing telemedicine within the AHC is presented together with lessons learned.^{2005.5}
7. **Develop performance measurement capabilities and train personnel to be open with teamwork, accountability and patient centeredness.**^{2003.3} AHCs will need to create the structures and team approaches in care to focus on improving health.^{2003.3}
8. **Improve information/communications technology and create distributed hospital systems.** These changes will lead to a virtual healthcare web and permit realization of the promise of globalization.^{2003.8}

1.1.4. Education

1. **AHSCs should reform the methods, approaches, and settings used in clinical education.**^{2003.2} Whitcomb suggests three viable alternatives for the future of clinical education:^{2006.16} (1) major teaching hospitals will have to hire physicians (hospitalists) or other health professionals (advanced practice nurses or physicians' assistants) to provide the patient care services now provided by residents; or (2) faculty practice plans will have to hire those individuals; or (3) the clinical faculty will have to provide those services themselves. He believes that the leadership of AHCs should anticipate the future and begin now to plan for how they will respond to these challenges. New government bodies should direct AHSCs and other affected parties to embark on a course to integrate more novel and current teaching environments into the AHSC.^{2002.15}

2. **Enhance interprofessional education of health professional students.** Curran, in his synthesis paper summarized the issues, barriers and enablers to enhance interprofessional education. This is an important document for consideration.^{2004.17}
3. **Determine how other educational strategies—such as the use of virtual patients and other simulation exercises—can complement what students and residents can learn from their involvement in the care of real patients.**^{2003.3} Develop use of simulation at all levels of educational experience.^{2003.3}
4. **Increase curricular emphasis on life-long learning, teamwork, continuous improvement and measurements of clinical performance.**^{2003.3}
5. **Develop capabilities to educate students on-line and remotely.**^{2003.3}
6. **Train and reward educators at the same levels as clinicians and researchers.**^{2003.3} Academic medicine should provide two systems: one for researchers and, one for pure clinicians. Each should support the other in academic endeavours.^{2006.20} Provide training to prepare researchers for the challenges of an increasingly complex and accountable research environment.^{2003.3}
7. **Develop performance measurement and accountability that promote continuous improvement in education.**^{2003.3}
8. **Provide leadership in training a culturally competent clinical and research workforce.**^{2003.3}
9. **Governments/research funders should create a dedicated fund to support innovation in the education of health professionals.**^{2003.3}

1.1.5. Research

1. **Ensure a strong research and development portfolio.** These activities will boost an institution's reputation, attract funding, provide opportunities for teaching and training to draw on cutting edge research, and facilitate recruitment and retention by attracting new and attractive career pathways across professions.^{2008.23}
2. **Develop rigorous, peer reviewed accountable procedures for delegating space and other research resources.**^{2003.3}
3. **Develop interdisciplinary research structures and recruit leaders.**^{2003.3} AHCs will need to examine how they can improve linkages across their research programs in biomedical, clinical, health services, and prevention research.^{2003.2}
4. **Consider new approaches for managing the biomedical research effort.**^{2005.16} Those efforts include: (1) understanding personal and career goals of those being trained; (2) ensuring training programs educate individuals to address multidisciplinary research questions; (3) provision of effective mentoring throughout early years of career development; (4) the commitment of educational resources to the recruitment of new faculty; (5) creating an attractive environment for motivated and skilled individuals to be productive.^{2005.16}

5. **Federal funding agencies should support collaborations by the mix of scientists who participate in different types of research.**^{2003.2}
6. **Give high priority and recognition to under-supported areas of biomedical science (behavioural, public health, informatics, clinical, management and health services research).**^{2003.3}
7. **Translate results of clinical research into clinical practice.** The Translational Research Initiative (TRI) at Cincinnati Children's Hospital Medical Center was launched in 2001. It might serve as a model for other academic health centers in promoting and conducting translational research.^{2005.8}
8. **Ensure that relationships with industry are accountable, protect the patient and maintain academic values and public trust.**^{2003.3}
9. **Increase support and acknowledgement of faculty who participate in ethical issues in research and practice.**^{2003.3}
10. **Play the leadership role in ensuring the clinical research enterprise protects the welfare and rights of human participants in clinical investigation.**^{2003.3}
11. **Examine ways to improve linkages across their research programs in biomedical, clinical, health services, and prevention research.**^{2003.3}
12. **Public and private payers, as well as foundations should support experimentation to redesign processes in the area of patient care to improve health for both patients and populations.**^{2003.3}

1.2. Description of Literature Review Process

1. The Health Sciences Library at the University of Saskatchewan was the primary source used to obtain the literature in reference to Academic Health Sciences Centres. The two primary search terms utilized were Academic Health Centers (American and usual international terminology) and Academic Health Science Centres (Canadian terminology and to some extent Europe). Those terms were used to conduct searches of the following data bases:
 - Cochrane Library
 - Embase – Excerpta Medica
 - Healthstar
 - Medline
 - Google search
2. The recent Canadian and international health system reports were also reviewed:
 - Canadian reports – Romanow, Kirby, Clair, Fyke, Mazankowski, Assoc. Medical Schools 2003 and the 1994 Wade Report.

- Reviews of international reports and reviews pertaining to academic health centres and health systems in other countries with particular reference to the USA, United Kingdom and Europe, Australia and New Zealand. Examples including:
 - o Envisioning the Future of Academic Health Centres (USA Commonwealth Fund)
 - o Role of Academic Health Centres in leading change in the 21st century (Institute of Medicine)
3. Approximately 1,000 articles and reports were reviewed and 170 papers, web sites, reports (published between 1994 and 2009) were identified as pertinent to Academic Health Sciences Centres in Canada.
 4. A brief abstract was prepared for each reviewed article/document identifying material pertaining to this project. The abstract includes discussions of internal and external factors affecting academic health centres as they strive to achieve excellence in patient care and service delivery, education and training of health professionals and health research. The data base of these abstracts was organized according to the year of publication 2009 – 1994¹.
 5. The abstracts were also categorized according to the focus area of the paper, the particular theme(s), and the factor type. The attached Excel document (Appendix 1.1) is the template categorizing each of those articles under the following:

Legend for focus area
1= Patient care and service delivery
2= Education and training
3= Research
4= All three
5= Governance model

Legend for factor type
1= Internally
2= External
3= Both

Legend for Priority area
1= Accessibility
2= Accountability
3= Excellence
4= Innovation and KT
5= Interdependence / collaboration
6= Interdisciplinary
7= Quality
8= Sustainability
9= All

This categorization allows a search for the desired abstracts for each of the articles relevant to the specific area of interest.

6. A summary paper has been prepared which provides an overview of the literature in respect to academic health care centres (see following section).

¹ Literature used to prepare the environmental scan report and not for distribution.

1.3. Literature Review – Information Summary

The health care and health professional education systems have undergone extensive changes during the last two decades. Within that context, academic health sciences centres face the challenge of adapting to and leading the changes that have dramatic effects on the patient care, education and research components of those centres. This document provides an overview of the literature since 1994 when Dr. Valberg *et al.* produced the seminal report *“Planning the Academic Medical Centre: Conceptual Framework and Financial Design”*.^{1994.1}

1994

The report by Valberg *et al.* described the principal issues that AHSCs faced and suggested a conceptual framework, followed by a financial framework of a prototype academic medical centre using Gonyea’s refinement of program cost analysis construction. The work done in that report served as a guide, not only for Canadian AHSCs but for academic health centres throughout the world.

The report forecast that the development of regionalization would spur the need for key elements to be implemented in effectively functioning academic health (medical) centres:

- The development of effective systems for governance and management based on a federation model that is responsible for planning, policy development and implementation. The model must integrate goals and objectives to resources with accountability and dispute resolution. This provides a mechanism for participants to develop an aggregate social contract. Also, through elimination of duplication and achieving major economies of scale, resources can be made available from increased flexibility to initiate new and better ways of doing things.
- Universities must provide strong leadership to develop affiliation agreements with community-based institutions and agencies that will become members of future AHCs. There will be a shift to these community based agencies in the provision of professional education, research and patient services to patients and populations in non-institutional settings.
- Universities must develop internal structures to bring the health professional colleges together. They must create overlapping, interdependent curricula together with the intellectual climate necessary for team building, first among faculty and then the students of the health professional schools.
- Governments must recognize that health professional education, research and scholarship have been heavily subsidized by the professional service responsibilities of clinical teachers, especially in faculties of medicine. Appropriate funding must be provided to recognize the time that clinical teachers devote to these constituent deliverables if AHCs are to meet the challenges of the 21st century.
- Regional academic health centres will develop an explicit social contract with the population being served, integrated with the social contracts of the hospitals and community health agencies that are not members of the AHC.

- Governments must become confident that AMCs and AHCs will become accountable for developing and discharging a social contract with the communities and populations served.
- Terms of the contract must be sufficiently explicit to permit matching of the health professional education, research and health care services directly from resources provided from the public purse.

Wade *et al.* proposed a prototype Academic Medical Centre along with its mission which consisted of three components; medical and biomedical education; scholarship and research; professional medical service and health and patient services. They then describe the expectations and responsibilities of each of the participants: faculty of medicine; teaching hospitals and health care institutions. They classified faculty members as *Clinical Appointees* (educator clinician – main responsibility teaching, *Investigator Clinician* – main responsibilities research (>50%); *Clinician Educator* - main responsibility - patient service and – only duties are professional service).

Under predicting resource requirements, in the 1980's Gonyea refined the technique of program cost analysis construction (PCAC). Commissions on higher education used the model to predict cost of medical education. Gonyea developed a reasonable set of parameters for a Canadian cost construction model of medical education. The Maritime Provinces Higher Education Commission applied it for Dalhousie and the Government of Saskatchewan used it for the University of Saskatchewan. Values of key variables were assigned by experts at each site. The Ontario government used a PCAC method to estimate faculty requirements for clinical medical education. The roles of trainees in teaching, research and patient services were addressed but their value as educators was not fully considered.

The report then presented a prototype AMC. The values for key variables were taken from the studies with Dalhousie, University of Saskatchewan and Western.

Phase 1 – Essential programs:

- Program description
- Curriculum description
- Student output and enrolment
- Educator contact hours
- Professional activity profiles
- Educator provision
- Educator requirements
- Educator salaries
- Educator cost
- Cost factors in supporting resources

- Cost of supporting resources
- Program cost
 - o Cost of medical and biomedical education in the planned AMC is \$55.2 million
 - o Total cost of the education program \$155.2 million (includes essential research and professional medical services)
 - o Cost for essential research is \$52.8 million
 - o Cost of essential medical services is \$47.2 million
 - o Complementary medical services is \$54.1 million
 - o Complementary population health research – \$1.4 million
 - o Therefore supplementary activities bring total accumulated costs to \$243.1 million

Requirements for Implementation of the Plan

- Leadership of the relevant government ministries
- Identification of the lead government agency
- Procedures to negotiate funding arrangements between AMC and the lead government agency
- Establishment of a dispute resolution process
- Governance for the AMC with clear lines of authority and responsibility for linking revenues as explicitly as possible to academic goals and program objectives
- An organizational structure with defined units in which revenue allocated by the governance is assigned to individuals to achieve the program objectives for which the unit is responsible
- Contractual arrangements between the AMC's governance and its members, especially the clinical appointees

1995

The following year (April 1995), the province of Ontario sponsored a two day National Conference on the Future and Funding of Academic Health Science Centres: Fulfilling the Mission.^{1995.1} The report of this conference provides a series of papers that were presented under the following headings:

- Vision of the academic health sciences centre
- Defining the social contract for contemporary AHSC

- Alternative funding for AHSCs
- Summary

1996

The literature in the mid-nineties certainly indicates that AHSCs were beset by changes in the surrounding health care system. In most cases, these conditions had a dramatic and negative effect. A few of article titles from 1995-6 demonstrate the dilemma:

- Academic medicine: As threatened as most would have us believe?^{1996.2}
- Whither academic health centers? A commentary.^{1996.4}
- Academic health centers. Vulnerabilities in 1995 and beyond.^{1995.2}
- The changing academic health center. The death of the traditional academic physician.^{1996.7}
- Reinventing AHCs to meet financial, clinical, research and educational demands.^{1996.6}

In the USA, the concerns focused on the urgent need for new approaches to funding and financial management of teaching, research, and patient care in academic health centers to counter the erosion of traditional sources of support. Changes in the financing and delivery of health care threaten the clinical revenue used to subsidize the tripartite mission of education, research, and patient care. Declining profit margins for clinical services are forcing academic health centers to look for other ways to increase revenues to support their research and education missions. Market practices, driven by the growth of managed care, have intensified the impact of declining revenue to threaten the actual patient base necessary to sustain these endeavours. In their quest to expand the number of managed care patients and compete with the private sector, they often must price services below cost and reduce the number of faculty members and other personnel. Unless their prices are competitive, managed care companies will not do business with them.^{1996.9}

Campbell proposed that the sale of research and education products on the private market would be one revenue source to consider.^{1996.6} Weitkamp and colleagues reviewed the background issues that produced the predicament and explored the strengths and weaknesses inherent in academic institutions. Elements of an “idealized” academic health center were postulated and, finally, specific strategies that might be considered in creating a relevant and secure future were proposed.^{1996.5} Deckers recommended that educationally, they must emphasize the training of generalist physicians. On the research side, it means interdepartmental collaboration around core program project initiatives. It means a sharing of resources (including space) and the need to develop quality relationships with industry and philanthropic organizations. On the clinical side, they must develop a fully integrated, highly competitive, cost- efficient physician/hospital organization, and most AHCs must become part of a larger integrated delivery system to protect not only clinical but academic interests.^{1996.2}

MacLeod noted that effective leadership from the dean requires a balancing of university roles with health service responsibilities.^{1996.11} Clinical service must be meshed with research

and education, so that all three activities are complementary. Increasingly the medical school must mediate between individual concerns for curative care and population demands for “wellness” - disease prevention. Economic reality dictates that medical schools and their leaders must evaluate the benefits of cost minimization against optimal health outcomes.

1997

In 1997, the Ontario Medical Association produced a discussion document, “*Ontario Medical Association Integrated health systems: A discussion document for physicians April 1997*”. This document identifies some of the questions that physicians and communities will need to consider when contemplating the development of an integrated health system.

DS Mulder provided a brief overview of the history of Canada’s health care program over the past 50 years.^{2001.7} He noted that at the outset, the general funding within each province was based on 50/50 sharing arrangements which changed in 1977 resulting in the federal government providing 44.6% in federal transfer funds. By 1990, the national government provided only 36.7% in transfer payments. By 1997, only 23% of health costs were funded by the federal government and the Canadian Health and Social Transfer was established which now permitted provinces to determine their spending priorities within health, education and social services.^{2001.6} Hospital care was the largest portion of the health care budget but it decreased from 46% in the 1970’s to 32% in 1997. It should also be noted that there was a 33% decline in the number of hospital admissions.

2002

Lozon and Fox^{2002.3} outlined some of the forces affecting AHSCs in Canada:

- Resource reduction – The governments are a funding source for AHSCs in Canada and primarily there may be a minimum of three separate departments providing this funding. In the 90’s there were sharp reductions in the budgets. They note that at this time (2002), the governments seem to be in a growth funding mode, but the demand for services outstrips the resources available.
- Accountability – The increased importance of accountability poses a challenge for AHSCs because it requires clarity of funding channels and outcomes within a very complex organization that in some cases does not have clear organizational lines. There are also needs to define and document outputs which is a major challenge for AHSCs.
- Human resource shortages – How will the shortage of human resources affect AHSCs and how will they respond to these shortages?
- New organizational structures and funding relationships – The regionalization of health care has changed the fundamental relationship between teaching hospitals and faculties/universities as well as leading to new organizational relationships with the funders, including new alternative funding plans.
- Research renewal – It was noted that Canada was undergoing a research renaissance with demands on AHSCs and its full range of partners to respond with significant growth of the research components.

Their paper focused on each of the components of the AHSC:

Education

They noted that funding for the educational component is received from at least two separate departments/ministries and generally comes from four sources:

1. Operating grants to Universities
2. Health Ministry clinical education budgets
3. Health Ministry Operating grants to hospitals/regions
4. Clinical Earnings

It was suggested that funding as it relates to other health professionals is also worthy of review as the health care environment is built upon the premise of highly qualified and specialized professionals. Therefore, no program exists to develop teamwork or establish common educational delivery systems for health professionals. In addition, there are endless cycles of boom or bust in terms of availability of health human resources and there is a failure to participate in national and provincial planning to avoid these cycles.

AHSC Patient Services

Lozon and Fox stated that unlike the corporate environment, the AHSC must provide specific services, not only because they are required as health services, but because they are critical to the education of trainees. Reducing the broad range of services and specialization in services runs counter to the need to provide trainees with broad educational experiences. Therefore, efficiencies inherent in specialization can never be fully achieved. The medical curriculum requires students to receive full training in the full spectrum of health care and the AHSC must maintain the full spectrum of “general hospital” services to compete and be relevant for student experiences. Teaching hospitals do not have a significant role in the decision making process regarding student enrolments or placement numbers for student experiences. As the community becomes more cognizant of health promotion, teaching hospitals see greater pressure to focus on the health promotion aspect of care and education and get away from acute care.

The funding for physicians basically runs at cross purposes to the global budgeting process as they are paid for the work they do and have to give up time to devote to teaching. The pooling of resources helps, but most academic physicians earn less than their community counterparts. “Neither structures or incentives exist to nurture the process in a way to ensure that all partners work together for the common good and facilitate joint planning around recruitment, clinical and research programs, new initiatives, one-of-a-kind units, or common administrative supports” (ACMC/ACTH 1995).

Lozon and Fox also went on to note that a constant challenge for AHSCs is balancing the tertiary services with the need to look after the health needs of the catchment area. This includes preventative aspects of health care and the balance between emergency services and elective surgeries when beds become full. AHSCs are differentiated only by their training programs, research initiatives, more complex patient populations and selected tertiary

services when compared to community institutions. Due to the complex academic and research demands on the AHSC, there are inherent inefficiencies built into the operations. The cost to operate the AHSC is much higher, and even though there is some justification, the exact differences in costs and benefits are uncertain.

AHSCs play a pivotal leadership role in the development of new approaches to care and utilization of new technology. However, they are saddled with the increased costs of these innovations, both in equipment and innovation development, which makes competing with community hospitals very difficult.

AHSC and the Research Mission

Canadians rank second in their relative citation impact but they have one of the worst returns on investment. AHSCs must take commercial advantage of the many developments that come out of the research. AHSCs can gain by the financial support of donors through research institutes and it sets up a unique organizational entity to protect the research commitment. Research is the one entity that separates AHSCs from other hospitals. Clinical trials can turn research costs into a revenue resource.

AHSC and Government

Governments and AHSCs lack a thorough understanding of each other and do not have the necessary structure to relate to one another. In the 1990s governments cut budgets for both health care and health education but at different times and to differing degrees. The regional system of health care was also introduced concurrently which added further pressures. The interaction between governments and AHSCs is not directed to the entity itself but to its component parts.

Accountability of Performance Data

For example, length of stay data is used for multiple reasons: (1) anticipate occupancy rate, establish best practices, (2) planning an organization's budget, (3) ministry determination of hospital funding allocations, and (4) patient/consumer groups evaluation of the level of satisfaction with care. These factors are used to drive accountability but there is a lack of consistency in data resources and methodology. Specific types of data may be used to establish a "crisis" in one area which may be used politically but it is not compared to other areas of equal or greater need. Comparative data can be used effectively as well as it allows AHSCs to demonstrate the effects of policy changes and the benefits on outcome.

AHSC and the University

In the USA, common historical routes indicate that the AHSCs have traditionally been owned by the Universities. Due to the increased competitive market place and managed care, fundamental changes were introduced in governance and management structures in the USA. It is pointed out the relationships between universities, medical faculties and the teaching hospital sites require attention. In Canada, this has been virtually ignored. However, with the increased emphasis on research and the changes in education and practice approaches, it needs to be addressed. With the development of the Canada Research Chairs, CIHR and the Canadian Innovation Fund, the need for cooperation

between Universities and AHSCs must be addressed. It is also believed that in times of reduced resources, universities have used AHSC's clinical and hospital resources to fund the university's mission.

The Effect of Regionalization

The creation of these large networked corporations forces universities to compete for resources and responsibilities. The medical school's focus on education and research is reduced in priority when compared to patient services for the region. The governing board has minimal representation from academic input. It is proposed that the health professional schools become somewhat separate from the university and align with the AHSC.

Lozon and Fox Recommendations^{2002.3}

1. Common vision for the AHSC – patient care, teaching and research.
2. The role of government – establish standing entities to oversee and provide stable funding to AHSCs.
3. AHSCs as a national resource – federal government enhance its role in the funding of research in the AHSC and health care system in general.
4. AHSC leadership in the management of patients, information and human resource planning - A cohesive HR plan that models a supply and demand relationship for healthcare is required that meets the needs of all stakeholders and is not simply governed by yearly transfers to universities.
5. Alternate funding model for physicians - Once the incentive barriers are removed, more creative planning will optimize the balance of clinical service supply with fluctuating patient demand.

Lozon and Fox Conclusions^{2002.3}

1. AHSCs are an enduring example of the triumph of shared commitments and goodwill over efficient organization and clear accountabilities.
2. Each AHSC is different from another.
3. The impacts of health sciences disciplines other than medicine are submerged in the AHSC.
4. AHSCs have suboptimal relationships with their parent universities and with the various government agencies that contribute to their funding and regulation.
5. AHSCs are only one component of both the health and education systems. Any assumption that they should take a leadership role beyond their mission of service, care and research should be approached cautiously.
6. The forces facing AHSCs, while profound, are no more frightening or threatening than those they have endured. In terms of the key factors facing AHSCs, the most relevant are related to the need for greater accountability, alternative physician funding plans and the continuing sorting out of academic priorities in a regionalized delivery model.

7. Given the size of our country and the real need for national programs around human resource planning and research (the latter already being reinvigorated), there should be much greater interaction between AHSCs and the federal government, while simultaneously preserving the current relationships at the provincial level.

Lozon and Fox in their summation of the response papers, noted that Tepper,^{2002.7} MacLellan^{2002.5} and Fyffe/Srigley^{2002.14} have pointed out that in order for AHSCs to evolve and remain relevant they should spend more time training students for settings where the majority of care is provided as opposed to sub-specialties whose role will be narrow in the future. They point out the vital need to extend the boundaries of the AHSC to community-based settings or, as noted, regional teaching hospitals. They agreed with these views, but they expressed concerns over who would make the move and coordinate a real and lasting relationship.

Both Ward^{2002.12} and Shugart^{2002.11} provide valuable commentary from their positions as senior government officials. Ward has observed that, given the broad scope of government healthcare, it is imperative that AHSCs establish better dialogue with their funders and that the need is acute.

In the Lozon and Fox summary they added the following points to invoke change. Consideration should be given to the following areas.^{2002.15}

1. The Relationship between the university and the AHSC

There should be a renewed definition of the relationship between the university and the AHSC. This new relationship will need to vary, given current starting places, but could well establish the AHSC with more independence from the central university. Doing so will create a new governance structure for the AHSC and its constituent parts. This direction could well lead to a more pluralistic type of relationship with AHSCs and their counterparts across the country, but experimentation in this regard is good.

2. The Ministry of Health and the Ministry of Education

A harmonious relationship between the Ministry responsible for Health and the Ministry responsible for Training, Colleges and Universities is essential to support the clinical service, education and research requirements of the AHSC. Accordingly, each province should establish a new commission charged to be the point of connection between the funding agencies and the AHSCs. Like any other government department, this permanent commission would receive funding to provide the necessary support for AHSCs.

3. Extended AHSCs

New government bodies should direct AHSCs and other affected parties to embark on a course to integrate more novel and current teaching environments into the AHSC. Whether these new sites are regional teaching hospitals or community-based settings, they should be invited/required to be part of a newly designed AHSC on terms that recognize the essential need to strengthen patient care, teaching and research.

Some of these changes are already underway across Canada as medical schools extend into new communities.

4. Accountability

AHSCs and their relevant government authorities should work to clarify and simplify funding streams and outputs. AHSCs cannot be seen as being unaccountable or responsible without a clear and mutual understanding of what should be produced and what type of resources are required to achieve that level of output. A key element of this process is the establishment of Alternative Funding Plans for all AHSCs and their clinical faculty.

5. Federal Role

AHSCs and their respective national associations together with the federal government should develop direct, ongoing productive relationships given the large role played by these agencies in matters of national import. The relationship would focus on the need for advancement of the innovation agenda, human resource planning and effective capital and technology renewal. As centres of care, education and research, it is logical that AHSCs could serve to pioneer new national/provincial/regional initiatives.

Another important contribution to the literature in 2002 was the Ontario Provincial Working Group on Alternate Funding Plans for Academic Health Sciences Centres.^{2002.4} It presented a clear path towards the development and implementation of alternate funding plans and will serve as a practical guide for AHSCs and the government to begin the implementation as soon as possible. The Ontario Government web site also listed the related literature on alternative funding models.^{2002.24}

In 2002, several key reports on the future of health care were released, each of which outlined visions for reforming the Canadian health care system. At the federal level, there was the Report of the Commission on the Future of Health Care in Canada^{2002.23} (the “Romanow Report”) and the Report of the Senate Standing Committee on Social Affairs, Science and Technology^{2002.24} (the “Kirby Report”). At the provincial level, the Government of Alberta released the 2002 Report of the Premier’s Advisory Council on Health^{2002.25} (commonly referred to as the “Mazankowski Report”).

The Kirby Report stated that Academic Health Sciences Centres are distinct from community hospitals in that they perform a wide range of complex activities ranging from delivery, to teaching and research. Accordingly, the Report recommends that: ^{2002.24}

“Service-based funding should be augmented by an additional funding method that would take into account the unique services provided by Academic Health Sciences Centres, including teaching and research.”

Moreover, the Committee strongly believes that, since they play an essential role in teaching, performing research and delivering sophisticated care, AHSCs constitute a national resource in the Canadian health care system. They are a crucial part of the health care infrastructure in Canada. Thus, the federal government is particularly well positioned to sustain AHSCs across the country, through its well-recognized roles in financing

post-secondary education, funding health research, supporting health care delivery, financing health care technology and planning human resources in health care.”

2003

In 2003, the Institute of Medicine released the report “*Academic Health Centres: Leading change in the 21st century*”.^{2003.2} Recommended steps to transform each of the AHCs include:

- Congress should create a dedicated fund to support innovation in the education of health professionals.
- AHCs should reform the methods, approaches, and settings used in clinical education.
- In the area of patient care, public and private payers, and foundations should support experimentation to redesign processes of care to improve health for both patients and populations.
- AHCs will need to create the structures and team approaches in care to focus on improving health.
- In the area of research, federal funding agencies should support collaborations by the mix of scientists who do different types of research.
- AHCs will need to examine how they can improve linkages across their research programs in biomedical, clinical, health services, and prevention research.
- AHCs will need to recognize the interdependent and complementary nature of their traditionally independent roles within an overall context that encompasses a commitment to improving the health of patients and populations.

In order to accomplish these changes, all AHCs will need to enable a more coordinated and cohesive system-wide view across its multiple roles and organizations — information systems to manage the information and knowledge that is used and produced by AHCs, accountability systems to establish and measure goals for change, and systems to develop and support AHC leadership.

A second major report was issued in 2003 by the Commonwealth Fund “*Task Force on Academic Health Centers. Envisioning the future of Academic Health Centres.*”^{2003.3} The report noted that in the future, most academic health centres will specialize in certain missions or sub-components of those missions and very few AHCs will attempt proficiency in the wide ranges of clinical care, education and research. A wide range of recommendations were made in the report and the following provides a summary.

Recommendations for the Academic Health Centre Community

Organization and Management

- Lead application of technology to improve health care.
- Develop organizational structures more responsive to the needs of the community.

- Improve internal accounting capabilities and the management of funds supporting mission related work.
- Develop performance measurement capabilities and train personnel to be open, with teamwork, accountability and patient centeredness.
- Work with other AHCs and non-academic health care organizations to identify and establish best practices.
- Continually assess the health care needs of their community (and nation) to incorporate resulting data into strategic planning.

Research

- Develop rigorous, peer reviewed accountable procedures for delegating space and other research resources.
- Develop interdisciplinary research structures and recruit leaders.
- Give high priority and recognition to under-supported areas of biomedical science (behavioural, public health, informatics, clinical, management and health services research).
- Translate results of clinical research into clinical practice.
- Manage relationships with industry that are accountable, protect the patient and maintain academic values and public trust.
- Increase support and acknowledgement of faculty who participate in ethical issues in research and practice.
- Play leadership role in ensuring the clinical research enterprise protects the welfare and rights of human participants in clinical investigation.

Education

- Curricula should dramatically increase emphasis on life-long learning, teamwork, continuous improvement and measurements of clinical performance.
- Develop capabilities to educate students on-line and remotely.
- Develop use of simulation at all levels of educational experience.
- Train and reward educators at the same levels as clinicians and researchers.
- Develop performance measurement and accountability that promote continuous improvement in education.
- Provide training to prepare researchers for the challenges of an increasingly complex and accountable research environment.
- Provide leadership in training a culturally competent clinical and research workforce.

Clinical Care

- Act decisively to improve safety, quality and efficiency of service provided with a continuous improvement process.
- Invest in information technologies necessary to automate all appropriate clinical care processes, provide patients with secure access to their medical records and assist patients with self-care and medical decision making.
- AHCs that fail to achieve best obtainable outcomes demonstrated by peer institutions should act decisively to improve outcomes or discontinue those clinical services.

Vulnerable Populations

- Strive to ensure the quality and efficiency of care provided to vulnerable populations is comparable to that available to other populations.
- Actively work with partners in local communities to serve the needs of the poor and indigent patients.
- Adopt specific programs to train staff at all levels to provide care that is culturally appropriate and responsive to the diverse needs of ethnically and racially varied populations.

Recommendations for Public Policy

- Supporters of mission-related activities should move quickly to create alternative mechanisms to support AHCs mission expenses (should be open, accountable, predictable and administratively simple). Non-clinical expenses of mission related activities should be covered in-full by grants and other payments from public and private agencies.
- Academic Health Services Trust Fund – public authority that would provide explicit payments to AHCs that participate in public and merit goods that cannot be supported effectively in private health care markets.
- Academic Health Services Advisory Committee – advise the federal government on the level and allocation of funds provided by the trust fund. It would be representative of AHCs, payers, insurers, providers and the general public.
- The advisory committee would lead an assessment and planning process to estimate national requirements for support of the clinical expenses associated with conducting research, teaching, high technology and specialized services and clinical innovations at AHCs and other eligible institutions. The task force has estimated these expenses would be \$11.4 billion.
- Public support for the clinical expenses associated with mission-related activities would reflect the institutions contributions to meeting local, regional and national needs for these services (quality, efficiency and quality). The committee and federal authorities would provide a single allocation to cover estimated clinical expenses associated with all missions as well as incentive payments.

- Governments at all levels should invest in research and development necessary to develop reliable and valid measurements of performance in mission related areas.
- Professional organizations representing AHCs should play a leadership role in helping AHCs meet the health care needs of the American people.

The report notes that the US health care system seems to be spiralling toward crisis. If the future is a reflection of the past, reactions to rising costs and ongoing concerns over access to care and quality of health services will present these institutions with new and unprecedented challenges—as well as opportunities—in the pursuit of their special missions. The U.S. health care system is once again experiencing double-digit cost inflation that, together with a slowing economy, will severely stress public and private purchasers of care and dramatically increase the number of uninsured people.

Korner *et al.* described the University HealthSystem Consortium (UHC) that represents a strategic alliance of 169 academic health centers and associated institutions engaged in knowledge sharing and idea-generation.^{2003.5} The evolution of knowledge management at UHC, its management information and reporting tools, and expansion of e-commerce provide real world examples of Internet use in health care delivery and management. These Web-based tools are being used to help manage rising costs and optimize patient outcomes. A number of organizational and other issues must be resolved to assist in the rapid adoption of Internet applications.

Stanton and Short looked at the influence of the payment method on physician practice within a Canadian academic health sciences centre.^{2003.6} Five years of administrative data for the five Ontario academic health centers were analyzed in this retrospective pre-post study. The authors concluded that changing the physician payment mechanism did not alter surgical practice patterns. These findings and this conclusion have important implications for health system design.

In 2003, Healthcare Papers featured a series on the role of teaching and research hospitals in improving global health.^{2003.9} The University Health Network (UHN) has been reflecting on the impact of increasing globalization on hospitals. The goals of the UHN paper on globalization are threefold - to suggest how the external and internal environments of hospitals will change as a result of globalization; to suggest a role for hospitals in a globalized world; and to stimulate discussion and debate. MacLeod, in his paper, noted that knowledge transfer and the extension of specific health interventions to developing countries promise extraordinary benefits. It was suggested that improved information/communications technology and the creation of distributed hospital systems leading a virtual healthcare web will permit realization of the promise of globalization.^{2003.8} He noted that such evolution will require a new model of shared governance in the healthcare system. The leading vision is most likely to come from academic institutions, researchers, health professionals and governments. The “super-hospital” of the future should be expected to play a key role as service provider and partner.

2004

In 2004, Cruess *et al.* described the evaluation of Ontario’s AHSCs alternate funding program (Phase 1).^{2004.1} They noted the serious problems facing AHSCs including (1) the

difficulty recruiting and retaining highly skilled and educated academic physicians, (2) the growing competition from the increasing tertiary care capacity in community hospitals, (3) the inappropriate fee schedules, (4) the inadequate funding for academic activities, (5) the unhealthy competition among AHSCs for personnel and resources, (6) the practice plans that are in danger of failure, and, (7) increasing teaching loads. The evaluators were able to make a series of observations and recommendations that will help all of the partners involved to move ahead:

- There is overwhelming interest in moving to a full AFP rather than progressing through the 50% conversion Phase 2 that was proposed.
- The parties need to establish a central provincial team to guide a more horizontal process for negotiations.
- The clinicians are looking for a clear message that the development of AFPs will proceed and that further funding will be negotiated.
- The governing bodies will eventually have to understand and implement governance rather than management only that is the current predominant role.
- The values of fairness and transparency are held in high esteem but must apply equally to all partners.
- Appropriate designation of in-scope and out-of-scope activities is crucial.
- AFP contracts must include a meaningful accountability framework based on a province-wide template that addresses clinical activities (including quality management), academic productivity, and administrative work.
- Participation in AFPs should be voluntary for clinicians now in place, but new recruits should join the AFP.
- Pre-existing alternative funding arrangements must be accommodated into the full site AFPs as they develop, and equity in further AFP development should include those already in place at the Hospital for Sick Children in Toronto and in Kingston.

On the basis of this evaluation and previous experience with alternative funding, the successful negotiation of full AFPs in the AHSCs is likely to lead to stability of personnel, facilitated recruitment, predictability of budgets, enhancement of academic output, more appropriate clinical activity (especially in the areas of tertiary and quaternary care), alignment of Ministry, hospital and university objectives, and appropriate adjustment of incentives. The authors noted that this could lead to positive change in the attitudes, culture, and relationships among the various groups as true partners in the complex joint enterprise of academic medicine.

In the same year, a Health Canada Research Team issued a report on *Interdisciplinary education for collaborative patient-centred practice*.^{2004.2} The 2003 First Ministers Health Accord identified that changing the way health professionals are educated is a key component of health system renewal. This change will be mobilized through the development and implementation of an initiative on interdisciplinary education for collaborative patient-

centred practice (IEPCP). A team of health researchers with expertise and experience in the field of interdisciplinary education and collaborative practice was assigned the task of examining this issue. The report covers:

- Current trends of interdisciplinary education for collaborative patient-centred practice in Canada and abroad and identifies best practices for patient outcomes.
- A review of existing studies on the effects of interdisciplinary education and collaborative practice for quality of care and patient outcomes.
- Key features in the relationship between, and elements for, successful interdisciplinary education and collaborative practice models.
- The barriers to implementing interdisciplinary education and collaborative practice and descriptions of change management strategies to overcome these barriers.
- The enablers that influence interdisciplinary education and collaborative practice.
- Current policies, programs and strategies in health and education that support IEPCP.
- Recommendations on how to advance IEPCP in Canada including research priorities.
- A conceptual framework to consider the essential elements and determinants for IEPCP based on available evidence and theoretical considerations.

A database is included with this report highlighting examples of interdisciplinary education and collaborative practice initiatives that currently exist in Canada and abroad. As well, the database provides a listing of published articles. Findings and recommendations of this report will be used as the basis for further deliberations by the First Ministers of Health, the NEC as well as Health Canada as a priority for health system renewal. In his synthesis paper, Curran summarized the issues, barriers and enablers to enhance Interprofessional Education for collaborative patient-centred practice. This is an important document for consideration.^{2004.17}

Short and Stanton produced a second paper examining the effects of physician reimbursement systems changes in the service being provided. This study was designed to determine whether shifting specialists from fee-for-service practice to annual block funding at an academic health center in Ontario, Canada, would be accompanied by shifts in some of the services provided in the center to specialists who remained in the fee-for-service sector.^{2004.3} A data set of the procedural workload was collected for four specialties (Cardiology/ Cardiothoracic Surgery, Obstetrics/Gynecology, Orthopaedics, and Urology). Catchment areas were defined for the study center, the four other academic health centers in the province, and for nearby hospitals in the study center's region, using patient postal codes from provincial health insurance data. Patient volumes and patterns of service provision were compared for each provider specialty for 2.5 years before and after the change in funding. The study found no clear trend in migration of care to other centers following initiation of a non-fee-for-service payment plan at an academic health center.

Also in 2004, *Academic Medicine* published a series of seven articles describing how AHCs are taking seriously the need to examine themselves and the impact they have on patients and learners. In his commentary on these articles, Whitcomb noted that an increasing number of the leaders of academic medicine are asking serious questions about how the environments of medical schools and teaching hospitals are affecting the individuals who work there, the students who are there to learn, and the patients who are there seeking care.^{2004.5} He noted that in the end, all management decisions should be required to meet the test set forth by Chervenak and McCullough: Is the action under consideration consistent with the institution's mission, or is it being considered solely to increase the institution's revenue and profits?^{2004.4}

Kligler *et al.* presented a set of curriculum guidelines in integrative medicine for medical schools developed during 2002 and 2003 by the Education Working Group of the Consortium of Academic Health Centers for Integrative Medicine (CAHCIM) and endorsed by the CAHCIM Steering Committee in May 2003.^{2004.10} The competencies described in this article delineate the values, knowledge, attitudes, and skills that CAHCIM believes are fundamental to the field of integrative medicine. The authors also discuss the specific challenges likely to face medical educators in implementing and evaluating these competencies, and provide specific examples of implementation and evaluation strategies that have proved successful at a variety of CAHCIM schools.

Davies from the University of Essex did an in depth investigation of the contrasting environment for academic health organizations in the UK and the USA.^{2004.14} He found that in terms of governance and organization, American AHCs appear less homogeneous as a group than their British equivalents. The case studies revealed a number of challenges that are common to AHCs in both countries: financing, governance, and the role of academic centers in integrated delivery systems. American AHCs were concerned with issues of innovation, leadership, and physician-hospital integration. British AHCs were more preoccupied with integration between primary and secondary care, managing fragmented markets, and workforce development. The analysis supports the view that differences in attitudes towards AHCs between the two countries cannot be explained by differences in what they do, nor by differences in how they are organized and governed. AHCs also face common challenges across national borders.

Lewis and Currie revisit the purposes and achievements of regionalization, a decade after its widespread implementation across Canada, and consider the extent to which changes in healthcare concepts, emphasis, and delivery can reasonably be attributed to this regionalization.^{2004.16} The authors assess the potential impact of regionalization on health system goals and take stock of current Canadian circumstances. The authors argue that the implementation of regionalization in Canada has been limited. The authors provide proposals for increasing regionalization's contribution to health reform goals. These proposals include a more stable and transparent provincial-RHA relationship, information and measures to better align resources to needs, increased regional-level system integration, and changes to organizational culture and practice in the health system.

2005

Shannon *et al.* noted that a number of strategies have been suggested to aid the AHC to

respond to the challenges offered by the changing health care environment.^{2005.5} In their paper, telemedicine is examined for its potential to assist in meeting financial, cost, and quality challenges. In particular, the authors present the model developed at the University of Michigan Health System for implementing telemedicine within the AHC together with lessons learned. This model, based largely on intramural rather than extramural funding, is offered as a basic strategy to be considered by AHCs facing these challenges.

Sostman *et al.* describe the recent affiliation of The Methodist Hospital (TMH) with Weill Medical College (WMC) of Cornell University and New York-Presbyterian Hospital as the first transcontinental primary affiliation between major, not-for-profit academic health centers (AHCs) in the United States.^{2005.6} The key enablers of this affiliation were a rapid process, mutual trust based on existing professional relationships, and commitment to the project by Board leadership. Because of their geographic separation, the parties were not competitors in providing clinical care to their regional populations. The affiliation is nonexclusive, but is reciprocally primary in New York and Texas. The principal areas of collaboration will be education, research, quality improvement, information technology, and international program development. The principal challenge has been the physical distance between the parties. Although extensive use of videoconferencing has been successful, personal contact is essential in establishing relationships.

The Translational Research Initiative (TRI) at Cincinnati Children's Hospital Medical Center was launched in 2001 with the mission to build an institutional infrastructure for promoting and facilitating the clinical implementation of investigator-initiated basic research.^{2005.8} The TRI's goals are: to provide grant support for proposals that are translational in nature and that address serious diagnostic or therapeutic deficiencies in paediatric illnesses; to create and support specialized research cores and a specialized office that provides support for research protocol development and regulatory affairs; and, to organize educational opportunities focused on bridging communication between basic and clinical scientists and encouraging multidisciplinary interactions. The broad success of this program suggests that it might serve as a model for other academic health centers in promoting and conducting translational research.

Whitcomb produced another excellent editorial noting that many of those responsible for the clinical education of medical students recognize that assigning students to teams caring for patients on the inpatient services of major teaching hospital is no longer the best way to promote students' learning of clinical medicine.^{2005.10} The reality is that the kinds of patients admitted to those services, the increasingly specialized nature of the services, the dynamics of care provided on the services, and the composition of the teams to which the students are attached have all changed dramatically in recent decades. These changes have had a major and often negative effect on students' ability to learn clinical medicine. Among other things, students generally do not encounter (in sufficient numbers, or at all) the necessary kinds of patients for optimal learning, and their role as members of the inpatient team has become increasingly marginalized. The end result is that students assigned to those teams are no longer having a meaningful apprenticeship experience. Recognizing this, medical schools are assigning an increasing number of their students to clerkship experiences based in other clinical settings where the types and mix of patients are more appropriate for their stage of learning. A redesign process that results in some residents' being transferred

from the inpatient services of teaching hospitals to other clinical venues will clearly have an effect on the institutions that sponsor the programs. In particular, teaching hospitals will face a daunting challenge in developing acceptable arrangements for continued funding of the programs. Reaching agreement with clinical faculty on how services currently provided by residents on inpatient services will be provided in the future is likely to present an even greater challenge. Those who hold leadership roles in medical schools and teaching hospitals must play an active role in the design of the clinical education experiences that students and residents will need in ambulatory care settings and other clinical care venues. They will also have to determine how other educational strategies—such as the use of virtual patients and other simulation exercises—can complement what students and residents can learn from their involvement in the care of real patients.

Retchin and Clark reviewed and synthesized the literature regarding health system performance.^{2005.13} In addition, they addressed the attributes of healthcare delivery that represent both challenges and opportunities for AHCs, including: costs of care; comprehensiveness and capacity of care; coverage; continuity, communication, and coordination of care; consistency of practice; and consolidation. Recommendations on priorities for AHCs are given, and specific features of desirable academic delivery systems for the future are described.

Academic Medicine featured a number of articles about challenges that must be met to sustain the research productivity of U.S. medical schools and teaching hospitals.^{2005.16} The authors address various aspects of two factors that are key to carrying out biomedical research in academic medical centers—the number and qualifications of those faculty members whose primary responsibility in their institutions is the conduct of research. Taken as a whole, the articles suggest that the leaders of academic medical centers must consider some new approaches for managing their institutions' biomedical research effort including:

- Understanding personal and career goals of those being trained
- Ensuring training programs educate individuals to address multidisciplinary research questions
- Providing effective mentoring throughout early years of career development
- Committing educational resources to the recruitment of new faculty
- Creating attractive environments for motivated and skilled individuals to be productive.

El-Jardali and Fooks, through a contract with the Health Council of Canada, produced an environmental scan of current views on health human resources in Canada that identified problems, proposed solutions and included a gap analysis.^{2005.21} The environmental scan:

- Identifies the key policy positions of stakeholder organizations and governments related to four theme areas (education and training, scopes of practice, workplace issues, and health human resource planning);
- Highlights the solutions proposed by stakeholders and governments; and

- Explores the range of gaps between identified problems and the proposed solutions.

Changes to the way health care professionals are educated, trained, employed, funded, and regulated are needed to support the First Ministers' commitments on national health care renewal.

Comité sur les capacités d'accueil dans les programmes de formation médical Avril 2005

Il se dégage des travaux menés par le Comité, que les hausses de clientèles très importantes qui sont survenues au cours des dernières années dans les programmes de formation médicale au Québec, d'abord dans les programmes de premier cycle, et ensuite, dans ceux de formation postdoctorale, ont eu un impact très significatif sur les capacités d'accueil disponibles des milieux de stage employés pour la formation des étudiants de premier cycle et des résidents en médecine.

Ainsi, les capacités d'accueil actuelles sont atteintes dans la plupart des milieux de stage d'externat employés par les quatre facultés de médecine québécoises. L'état actuel des capacités d'accueil des milieux de stage de résidence n'est guère plus rassurant : en médecine familiale, trois facultés auront atteint leur capacité à accueillir de nouveaux résidents dès 2005-2006. Plusieurs des sept programmes de spécialités qui ont été pris en considération ont déjà atteint un point de rupture. Ainsi, en médecine interne et en psychiatrie, deux facultés sur quatre feront face à une situation critique en 2005-2006, et, en toute logique, ne seront pas en mesure d'accepter toutes les nouvelles inscriptions prévues. En anesthésiologie et en radiologie diagnostique, deux programmes dans lesquels des plateaux techniques sont requis pour la formation des résidents, trois facultés ont déjà en 2004-2005, atteint un point de rupture. Dans un tel contexte, il est possible que des candidats soient refusés au cours des prochaines années.

Les membres du Comité constatent avec regret que les conditions de la formation médicale ont peu changé depuis l'automne 2002, alors que le Groupe de réflexion sur les conditions de la formation médicale déposait son rapport final, malgré des investissements de l'ordre de 150 M \$ au cours de la période qui s'étend de 2003 à 2008 de la part du ministère de l'Éducation du Québec pour de grands projets d'immobilisations destinées à la formation médicale sur les campus des universités dotées d'une faculté de médecine. Les ressources professorales suffisent toujours à peine à répondre aux besoins, compte tenu de la taille des cohortes. De plus, les infrastructures disponibles dans les milieux d'enseignement clinique sont inadéquates, compte tenu de la taille des cohortes, et des exigences liées à la formation académique. Les équipements requis pour l'enseignement sont souvent insuffisants, ou désuets. Aussi, bien qu'un certain financement supplémentaire ait été octroyé aux universités pour leur permettre d'accepter les nouveaux étudiants que le gouvernement a souhaité les voir admettre en 2003-2004 et 2004-2005, celui-ci est très inférieur aux besoins qu'elles ont exprimés.

2006

Schmitz reported that University medical schools in Germany also need to improve the quality of their health care delivery along with their research and education efforts.^{2006.5} In order to meet these goals at a time of diminishing public financial support, extensive

structural reorganization is required. Thus, it is necessary to create decentralized business units in the form of centers. The University Medical Center Hamburg-Eppendorf (UKE) resolved to take these measures at an early stage and has achieved remarkable success in the process. In addition to relieving physicians of management and controlling tasks, the Medical Center has made significant progress in generating transparent cost and revenue structures. In terms of health care delivery, the UKE has established clear areas of priority and created interdisciplinary centers of medical competence. In research and education, the university instituted a performance-based resources allocation process. With the help of external partners, improvements were generated in process quality, in efficiency via benchmarking, and in the optimization of tertiary support services. The creation of decentralized structures had a lasting impact on the business culture of the UKE and created the foundation for permanent strategic growth.

Gruenwoldt and Brimacombe conducted a survey of the presidents and CEOs of the membership of the Association of Canadian Healthcare Organizations for their views on a range of health system policy issues including System Performance; Wait Times and Access to Care; The Federal Role in Health Care; Health Research Innovation and Commercialization; Canada's Academic Health Sciences Centres as a National Resource; Canada Health Act; Public-Private Partnerships (P3s); and the Health Council of Canada.^{2006.6}

Kirsch *et al.* described nine critical factors the Pennsylvania State University College of Medicine and Milton S. Hershey Medical Center encountered that contributed to significant performance improvement.^{2006.11} The factors were: performing a campus-wide cultural assessment and acting decisively on the results; making values explicit and active in everyday decisions; aligning corporate structure and governance to unify the academic enterprise and health system; aligning the next tier of administrative structure and function; fostering collaboration and accountability-the creation of unified campus teams; articulating a succinct, highly focused, and compelling vision and strategic plan; using the tools of mission-based management to realign resources; focusing leadership recruitment on organizational fit; and, "growing your own" through broad-based leadership development.

Gazewood *et al.* described the need for academic health centres to address the needs of the rural areas.^{2006.14} He noted that rural communities in the United States face an array of health care problems, including a shortage of physicians, health problems that disproportionately affect rural populations, a need to improve quality of care, and health disparities related to disproportionate levels of poverty and shifting demographics. AHCs have a key role to play in addressing these issues. He suggested targeted admission policies to increase physician supply, the use of telemedicine technologies and partnering with providers in rural areas with the use innovative technologies. In addition, collaboration between AHCs, regional planning agencies, and rural communities can lead to mutually beneficial outcomes. At a time when many AHCs are operating in an environment with dwindling resources, it is even more critical for AHCs to build creative partnerships to help meet the needs of their regional communities.

Salsberg and Grover identified actions that must be taken to address the increasing shortage of physicians.^{2006.14} Increases in medical schools admissions will require at least ten years before the full affects are realized. In addition to the challenges of expanding medical school enrolment, the nation will need to grapple with other ramifications of demand exceeding

supply. This includes assessing how to deliver services more effectively and efficiently and the future roles of the physician and other health professionals. Physicians from less developed countries continue to migrate to the United States in significant numbers. Medical schools, teaching hospitals, and policymakers will need to address several major questions as they respond to the shortages. They will either address these issues in the next few years or they will be forced to change by others in the future.

Whitcomb's editorial on the changing educational focus indicates that AHCs may no longer have the main responsibility for the clinical education of medical students and residents.^{2006.16} It may mean that a significant number of the internal medicine residents who now cover the inpatient services of teaching hospitals will no longer be available for those assignments. He suggests three viable alternatives: (1) major teaching hospitals will find themselves having to hire physicians (hospitalists) or other health professionals (advanced practice nurses or physicians' assistants) to provide the patient care services now provided by residents, or (2) faculty practice plans will have to hire those individuals, or (3) the clinical faculty will have to provide those services themselves. He believes that the leadership of AHCs should anticipate the future and begin now to plan for how they will respond.

Sheridan notes that academic medicine in Europe has traditionally occupied a position of great strength but faces three particular challenges; (1) it consistently lags behind the USA; (2) is now increasingly challenged by India and China; and (3) faces particular problems associated with expansion and integration.^{2006.19} He recommends the following actions: creating promising research careers; building public confidence; research assessment based on health needs; promoting teaching; and restructuring funding. "Restoring academic medicine to the heart of biomedical science in Europe is achievable, and there are signs that the process has begun. Clinical academics must contribute to understanding the issues involved and work to save academic medicine."^{2006.19}

Yusuf provided a comment to the above article indicating academic medicine should provide two systems: one for researchers and one for pure clinicians, who should support each other in academic endeavours.^{2006.20} "Unless we recognise those who spend most of their time looking after patients, we will lose them to the private sector and end up with a glut of researchers and no one to teach clinical skills and bedside medicine to the coming generation."^{2006.20}

2007

The South Calgary Health Centre (SCHC) opened in June 2004 with the mandate to provide a new model for accessible, accountable, integrated, and community-based health services. Suter *et al.* describe the project to determine the performance of the SCHC and also establish the value of the evaluation framework used in measuring the organizational performance of an integrated service delivery model.^{2007.2} Evaluation of findings and recommendations have been used to inform operations at the SCHC and for the planning of future health centers. The evaluation framework may help to standardize evaluation approaches across projects and can be used for monitoring progress of the SCHC as well as future evaluations of integrated service delivery models.

Keroack *et al.* sought to identify organizational factors associated with AMCs that stood out

from their peers in a composite scoring system for quality and safety derived from patient-level data.^{2007.3} A scoring system using discharge data was established and six institutions were selected for site visits. Common qualities shared by top performers included a shared sense of purpose, a hands-on leadership style, accountability systems for quality and safety, a focus on results, and a culture of collaboration.

In 2004, the Faculty of Medical Sciences (FMS) at the National University of Laos (NUOL) and the Lao Ministries of Health and Education joined with the University of Calgary's Faculty of Medicine to develop a new primary care program.^{2007.14} Representatives from the FMS-NUOL, the Ministries, and the University of Calgary developed a two-year primary care training program called the Family Medicine Specialist Program (FMSP). The program offers one year hospital-based training and the second year in community medicine where the trainees work in the provincial hospitals, district health centers, and rural villages. Their experience has shown that a culturally relevant needs assessment for defining a medical curriculum can be performed under circumstances of extremely limited reliable data and minimal resources. The authors hoped that other low-income countries that face challenges similar to those in Lao PDR will find this tailored approach to curriculum development adaptable to their environment with comparable gains.

2008

In the September, 2008 issue of *Academic Medicine*, Dr. Steven A. Wartman served as guest editor and oversaw the publication of articles describing important stories of change at 10 academic health centers in the United States.^{2008.1} In addition, he visited over 50 AHCs and noted the management and leadership challenges that are fundamentally changing the ways in which these organizations operate. *He puts forward **10 important concepts:***

1. *In an academic health center (AHC), research and clinical success are synergistic and interdependent.*
2. *The relationships between leaders are often the most important factor determining success or failure.*
3. *When the proverbial wolf is at the door or, at least, is seen down the lane heading your way, difficult decisions can be made with relative ease.*
4. *Many of the most important scientific problems cross disciplinary boundaries.*
5. *An AHC-wide commitment to a model of full integration has resulted in an efficient, effective, and reputation-enhancing foundation for quality and success.*
6. *A university must be administratively organized in a way that will facilitate achieving university-wide goals.*
7. *The fundamental challenge of leadership development was to get leaders to think, feel, and act as members of the same team.*
8. *Typically, incentive systems in academic medicine are designed by intuition, with insufficient attention to the large literature relevant to optimal design.*

9. *The academic missions of the AHC can be substantially advanced with the financial support that the clinical enterprise has traditionally been able to provide.*
10. *A clear response to the challenges facing the AHC community has been a distinct trend towards more “corporate” management. He has observed this transition in varying stages (depending on the particular institution). It is essentially characterized by a reorganization along non-disciplinary lines towards a management structure that, conceptually and operationally, spans the entire enterprise.*

The decline of the population in rural communities is a worldwide phenomenon and Araas and Swenson describe actions taken with the establishment of the 2007 foundation of the Norwegian National Centre of Rural Medicine (NCRM) in Tromsø.^{2008.14} The NCRM had a number of achievements including a publication that provides a narrative perspective on rural practice, the role of the rural doctor, and how rural culture and context influence proper clinical decision-making. Another achievement is a professional development and research program that has been successful in fostering a number of major studies, and led to the formation of a supportive PhD research group. The NCRM also facilitated networking between rural practitioners and academics, at conferences and via its rural doctor website, and promoted cooperative international activities.

In 2008, the Council for Science & Technology, United Kingdom, published the document *How academia and government can work together*.^{2008.22} They recommended that Government and academia take action in three areas:

1. Build relationships and communication
2. Build capacity to ensure a more productive engagement
3. Rate, value, and reward the engagement

They suggested that the desired outcomes of these recommendations will be:

- A culture change leading to greater clarity in the relationship, better interaction, mutual understanding and a more coherent relationship between academia, Government and professional bodies.
- A more professional, innovative and effective relationship between academia and Government with agreement of where and how to build the necessary capacity.
- Government-academia engagement being seen as career developing on both sides due to the mechanisms to value and reward the interaction.

CST believes that by implementing these core recommendations Government and academia will take major steps to improve engagement. CST intends to conduct a further study in twelve to eighteen months time to investigate what progress has been made against these recommendations, and will report its findings to Government.

Out of Order, Out of Time: The State of the Nation’s Health Workforce was a report undertaken by the Association of Academic Health Centers to focus attention on the critical need for a new, collaborative, coordinated national health workforce planning initiative in the USA.^{2008.22} The report is based on the following premises:

- The dysfunction in public and private health workforce policy and infrastructure is an outgrowth of decentralized decision-making in health workforce education, planning, development and policymaking (*out of order*);
- The costs and consequences of our collective failure to act effectively are accelerating due to looming socioeconomic forces that leave no time for further delay (*out of time*);
- Cross-cutting challenges that transcend geographical and professional boundaries require an integrated and comprehensive national policy to implement effective solutions;
- The issues and problems outlined in the report have not been effectively addressed to date because of the inability of policymakers at all levels to break free from the historic incremental, piecemeal approaches; and
- Despite many challenges, the prospects for positive change are high.

The report recommends that all public and private stakeholders work together to:

- Make the U.S. health workforce a priority domestic policy issue;
- Begin addressing national health workforce issues immediately to avert crises in national workforce capacity and infrastructure;
- Develop an integrated, comprehensive national health workforce policy that recognizes and compensates for the inherent weaknesses and vulnerabilities of current decentralized multi-stakeholder decision-making;
- Create a national health workforce planning body that engages diverse federal, state, public and private stakeholders with a mission to:
 - o Articulate a national workforce agenda;
 - o Promote harmonization in public and private standards, requirements and prevailing practices across jurisdictions;
 - o Address access to the health professions and the ability of educational institutions to respond to economic, social, and environmental factors that impact the workforce; and
 - o Identify and address unintended adverse interactions among public and private policies, standards, and requirements.

The Canadian Academic Healthcare Leaders' Forum held on 15 May 2008, brought together Chief Executives and Deans for a dynamic exchange of information, ideas and experience on critical issues that will impact the future of University Hospitals, Medical Schools and the broader health care system.^{2008.23} Victor Dzau noted that Duke Academic Health Sciences Center is able to reduce the time it takes for a discovery to be translated into global health practice from over 20 years to less than ten years. During the discussion it was agreed that the innovation-care continuum was not simply a linear process from bench

to bedside and the continuum needed to embrace broader societal and global dimensions of healthcare and health research. National and global populations should be served early on by proper involvement of Primary Health Care in the development of a shared vision, and later by applied research involving Primary Health Care Centres. Sir John Savill appealed directly to the Chief Executives by highlighting how investing in research and development can benefit the Trust. A strong research and development portfolio serves to boost an institution's reputation, attracts funding, provides opportunities for teaching and training to draw on cutting edge research and facilitates recruitment and retention by attracting new and attractive career pathways across professions. Canadian colleagues pointed out the advantage of demonstrating the economic dividends that could flow from such Centres as a means of generating support. An important pre-requisite and consequence of effective translation was the creation of a culture that fuelled success. The culture was seen as the emergent key property created from the development of profound relationships fostered in the pursuit of a shared vision.

The consensus from the meeting pointed out the need for a plurality of models of Academic Health Centres and that form needed to follow function which follows purpose. The precise purpose of the Academic partnership would reflect the local context and opportunities. The UK delegates supported the use of this summary to make clear to government and other constituencies the value of such enterprises.

2009

During the past five years, a number of very innovative interprofessional education projects have been developed across Canada, in many cases with the support of Health Canada. *The Canadian Interprofessional Health Collaborative* is a national hub for interprofessional projects (www.cihc.ca/). The projects include the CIHC projects as well as other projects relating to interprofessional education. This web site contains the final reports of all the Canadian projects.

The Accreditation of Interprofessional Health Education (AIPHE) www.aiphe.ca is a partnership of eight national organizations that accredit pre-licensure education for six health professions in Canada. The goal of this collaboration is to create and support the use of core joint principles/guidelines in formulating standards for interprofessional education. The Partnership, representing the disciplines of physiotherapy, occupational therapy, pharmacy, social work, nursing and medicine, will consult with a wider range of stakeholders to develop principles guidelines for use in formulating standards for their organizations and promoting their use among other stakeholders. There is also a *Principles and Implementation Guide*, which provides links to resources that will assist education programs to make curricular changes in support of the IPE standards.

1.4. Concluding Remarks

This literature review focussed on identifying the issues and challenges facing Canadian AHSCs and described recommendations for dealing with those issues. The issues and challenges were identified within the three components of academic health centre responsibilities:

Patient Care and Service Delivery

- Recruitment & Retention of Health Care Professionals
- Levels of funding for tertiary & quaternary care
- Continuity of care
- Improving access to care
- Establishing interdisciplinary approaches to care
- Increasing demands for new technology
- Appropriate levels of funding for capital infrastructure
- Governance
- E-Health

Education and Training

- Accelerating the trend towards inter-professional education
- Funding education within the AHSC budgets
- Redefining the relationship between the AHSC and the University
- Increasing number of health professional students who receive their clinical education in AHSCs
- Balancing service requirements with educational opportunities - students and preceptors
- Decentralization of clinical education

Research and Innovation

- Accelerate promotion of knowledge transfer/research findings to the clinical practice community
- Obtaining highly qualified researchers including clinician scientists
- Provision of protected research time for clinician scientists
- Recent economic downturn and its effect on funding of research activities within the AHSCs
- Effective communication of the “return-on-investment” to the public and governments
- Relationship between the AHSC and the funding agencies for health science research

- Funding increased costs of new technologies/equipment to conduct research within the AHSC

The Executive Summary provides an overview of the recommendations gathered from the literature to address these issues facing Canadian AHSCs.

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2. The AHSC Leadership and Stakeholder Survey

The AHSC Leadership and Stakeholder Survey section is composed of the following chapters

- 2.1 Executive Summary**
- 2.2 Description of Survey Development and Distribution**
- 2.3 Overview of Respondents**
- 2.4 Overall Impression of AHSCs Performance**
- 2.5 Patient Care and Service Delivery**
- 2.6 Education and Training**
- 2.7 Research and Innovation**
- 2.8 Governance and Administrative Structures**
- 2.9 Concluding Remarks**

Appendices:

- 2.1 AHSC Survey Distribution List
- 2.2 AHSC Institutional Survey

2.1. Executive Summary

A survey of institutional and academic leaders of Canadian academic health sciences centres, government ministries (Health and Advanced Education or its equivalent) and stakeholders to those institutions was circulated in the time period December 3, 2008 to January 20, 2009. The survey questions related to three major issues to be addressed by AHSCs: (1) patient care and service delivery; (2) education and training; and (3) research and innovation. A fourth section asked questions on the AHSC governance structure, both external and internal.

E-mails that described the survey and included a web link to the survey instrument were forwarded to 280 potential respondents. One hundred and twenty-four survey questionnaires were completed, compiled and analyzed (43.5% response rate).

Respondents were requested to evaluate academic health centre's performance using a five point scale with 5 being "very satisfied". The means were:

- overall impression – **3.72**
- patient care and service delivery – **3.85**
- education and training – **3.80**
- research and innovation – **3.89**

Academic leaders tended to have a lower satisfaction level of performance than the other groups.

The importance of the issues facing academic health sciences centres were assessed and respondents provided recommendations for addressing these issues. A fourth section of the survey examined the current governance and reporting structures and invited respondents to make recommendations to address the challenges.

A number of recommendations in this report are worthy of the attention of *The National Task Force on the Future of Academic Health Sciences Centres in Canada*. These recommendations are combined with those from the Interview Section and are presented in Section 4 Summary Report.

2.2. Description of Survey Development and Distribution

1. Survey Console was the online survey provider used for the preparation of the survey questionnaires and served as the medium for accumulating the responses.
2. The survey questionnaire was prepared by Blackburn & Associates (with the assistance of Arcturus Solutions) using information obtained from the literature search and with the input of members of the Steering Committee. The survey questions related to the major issues to be addressed by AHSCs within the three areas of patient care and service delivery; education and training; and research and innovation. A fourth section of the survey sought to determine views on the AHSC governance structure, both external and internal.

3. The surveys were prepared for distribution to:
 - a. AHSC Institutional Leadership - CEOs, Vice Presidents of Research, Chief Medical Officer/Medical Director, Head Nursing Leader
 - b. Academic Leaders – University VP for Health Sciences, Deans of Medicine, Nursing, Pharmacy, Rehabilitation/Physiotherapy
 - c. Government representatives of Ministry of Health and Advanced Education (or appropriate ministry)
 - d. Stakeholder organizations
 - e. Research Stakeholder organizations

The list of individuals and organizations (285) that received e-mails inviting them to participate is attached as Appendix 2.1.

4. There were minor differences in the wording of the questions dependent upon the respondent's category; however, the basic questions remained very similar for all groups.
5. Version 1 of the survey for Institutional Leadership, Academic Leadership and Stakeholders was prepared in both English and French. An e-mail message describing the project and identifying the link for each respondent category was forwarded to either the individual or the national association who subsequently forwarded the survey to the individual.
6. Version 1 was distributed on December 3, 2008. The distribution was temporarily stopped on December 5.
7. Minor revisions were made to the survey and the Version 2 e-mails were forwarded January 3 – 10 to Institutional Leadership, Academic Leadership, Governments and Stakeholders (General and Research versions) in both English and French. The actual survey questionnaires are attached as Appendix 2.2.
8. In most cases, two reminder e-mail messages were forwarded between January 8 and January 20.
9. The survey deadline was set at January 16 with an extension of the deadline set to January 20.

2.3. Overview of Respondents

One hundred and twenty-four surveys were completed which represents a 43.5% response rate. The two graphs below describe response rates by category and % of respondents within each category.

Table 1.		
Institutional Leaders		% Responses
English	48	
French	8	
Total	56	40%
Academic Leaders		
English	31	
French	7	
Total	38	44.7%
Government Officials		
English	5	
French	1	
Total	6	30%
National Stakeholders		
English	17	
French	0	
Total	17	65.3%
Research Stakeholders		
English	6	
French	1	
Total	7	46.6%
TOTAL	124	43.5%

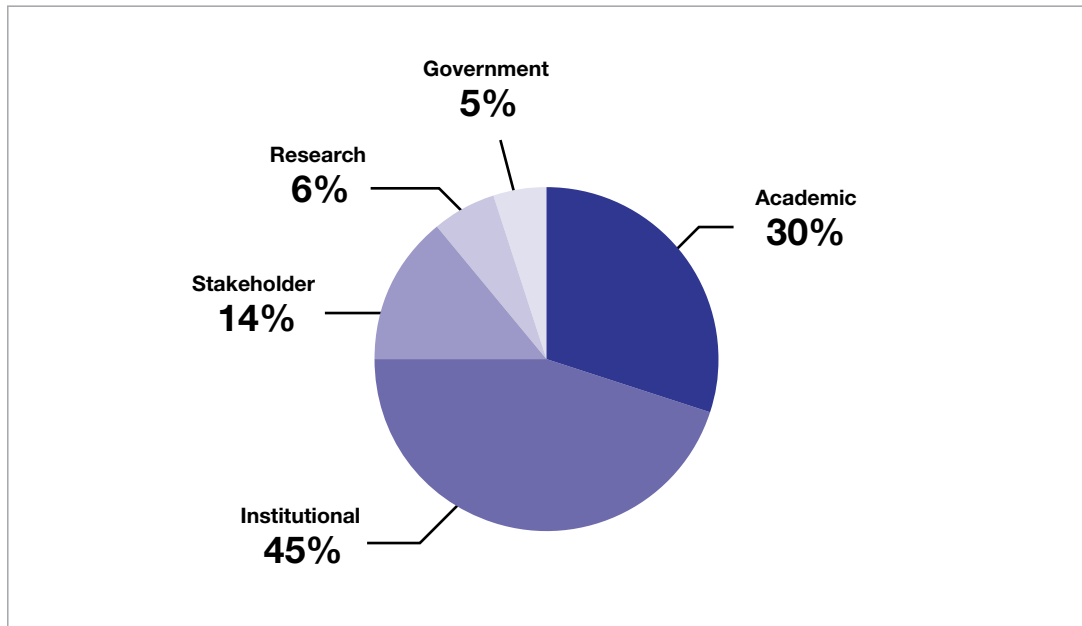


Figure 1. Respondents

As noted the response rates were similar with the exception of the government representation which was considerably lower. One possible reason for the low response rate may have been that the government representatives found the survey more difficult to provide responses due to their lack of involvement in the operation of the AHSC.

Table 2.

Your province or territory:	Institutional		Academic		Governments		Stakeholders		Research		Total
	E	F	E	F	E	F	E	F	E	F	
Alberta	2	0	4	0	1	0	2	0	0	0	9
British Columbia	3	0	6	0	0	0	3	0	1	0	13
Manitoba	3	0	1	0	1	0	1	0	1	0	7
New Brunswick	1	0	0	0	0	0	0	0	0	0	1
Newfoundland & Labrador	1	0	1	0	0	0	0	0	0	0	2
Northwest Territories	0	0	0	0	0	0	0	0	0	0	0
Nova Scotia	5	0	3	0	1	0	1	0	0	0	10
Nunavut	0	0	0	0	0	0	0	0	0	0	0
Ontario	31	1	11	0	1	0	8	0	2	1	55
Prince Edward Island	0	0	0	0	0	0	0	0	0	0	0
Quebec	1	7	2	7	0	1	0	0	1	0	19
Saskatchewan	1	0	3	0	1	0	2	0	1	0	8
Yukon	0	0	0	0	0	0	0	0	0	0	0
TOTAL	48	8	31	7	5	1	17	0	6	1	124

E = English F = French

Table 2 and Figure 2 describe the geographical distribution of the respondents according provinces/territories. There were no responses from the three territories and Prince Edward Island. It should be noted that in those territories and province only the Ministry of Health was requested to complete a survey since there are no AHSCs in those regions. However, there are important routes of referral that have been established to ensure that these populations have access to tertiary and quaternary health care services.

The governments of six of the ten provinces responded to the survey.



Figure 2. Responses (%) by Provinces/Territories

Table 3. What is your present position?			
	English	French	Total
Institutional			
CEO	14	3	17
Chief of Medicine/Head Physician	3	1	4
VP Research	15	2	17
VP Other	10	2	12
Other (Please specify)	6	0	6
Total	48	8	56
Academic			
VP Health Sciences	1	0	1
Deans of Medicine	11	1	12
Dean/Director of Nursing	10	1	11
Dean/Director of Pharmacy	4	2	6
Dean/Director of Rehabilitation Sciences, Physiotherapy	2	0	2
Other	3	3	6
Total	31	7	38
Government			
DM	0	0	0
ADM	0	1	1
Other	5	0	5
Total	5	1	6
Stakeholders			
CEO	8	0	8
Other (Please specify)	9	0	9
Total	17	0	17
Research Stakeholders			
CEO	2	0	2
Other (Please specify)	4	1	5
Total	6	1	7

There was a significant percentage of “drop outs” (approximately 40%). Therefore, many of the initial questions were completed by more respondents than indicated above.

2.4. Overall Impression of AHSCs Performance

The first survey question requested respondents to rate their overall impression of performance of AHSCs according to patient care and service delivery, education and training, and research and innovation. At the beginning of each section, respondents were then asked to rate their satisfaction with the particular component under consideration. The mean satisfaction ratings varied from 3.41 to 4.43 with the majority within the range of 3.5 to 4.1

Table 4. Satisfaction with Performance Questions (5 point scale)				
5 – very satisfied	4 – satisfied	3 – neutral	2 – dissatisfied	1 – very dissatisfied
How satisfied are you with the overall performance of your AHSC(s) in seeking to achieve overall excellence and innovation in patient care and service delivery, education and training, and research?	Overall			3.72
	Institutional			3.88
	Academic			3.41
	Government			4.16
	Stakeholder			3.80
	Research Stakeholder			3.64
How satisfied are you with the performance of your AHSC(s) in achieving excellence in patient care and service delivery?	Overall			3.85
	Institutional			3.97
	Academic			3.63
	Government			4.18
	Stakeholder			3.80
	Research Stakeholder			3.75
How satisfied are you with the performance of your AHSC(s) in achieving excellence in education and training?	Overall			3.80
	Institutional			3.91
	Academic			3.67
	Government			3.71
	Stakeholder			3.72
	Research Stakeholder			4.14
How satisfied are you with the performance of your AHSC(s) in achieving excellence in research and innovation?	Overall			3.89
	Institutional			3.90
	Academic			3.20
	Government			4.00
	Stakeholder			3.77
	Research Stakeholder			3.63

When assessing the various groups regarding their satisfaction with performance, the academic leadership had a lower overall satisfaction level than the other categories that were fairly similar. Governments had the highest satisfaction levels for overall performance and patient care and service delivery.

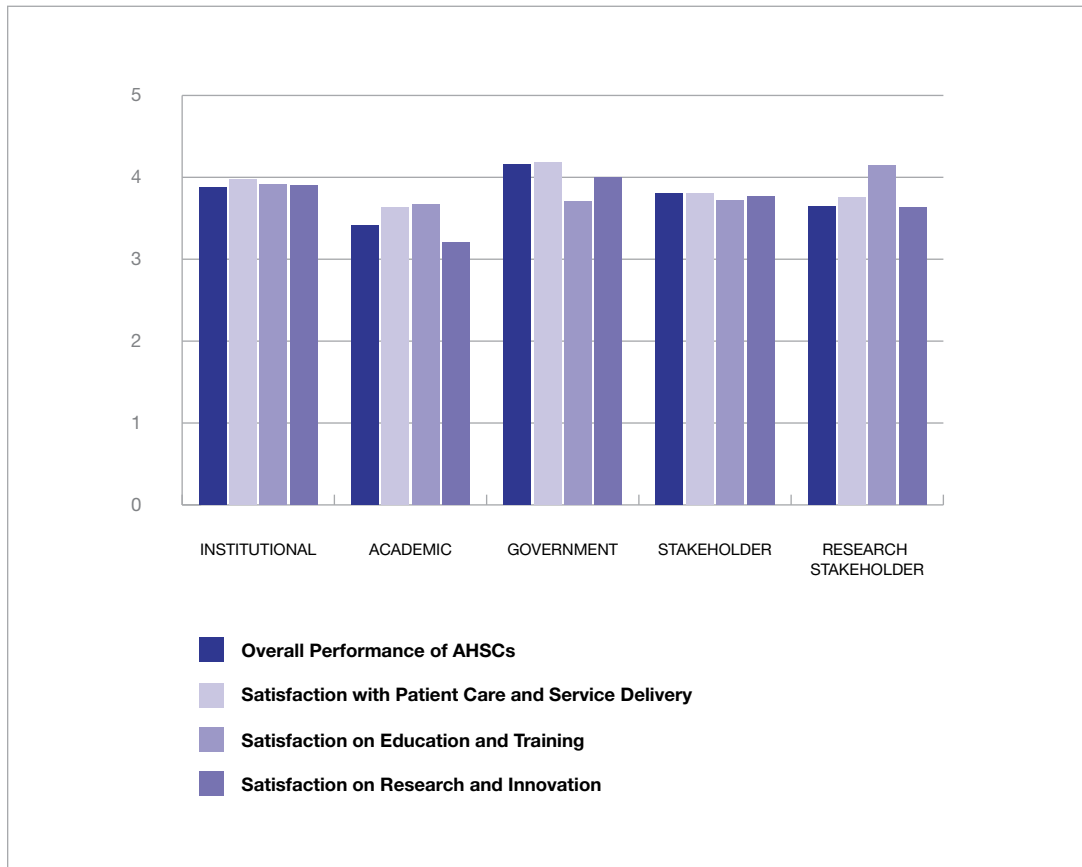


Figure 3.

2.5. Patient Care and Service Delivery

Respondents were requested to rate the importance of ten factors identified for AHSCs to achieve excellence in patient care and service delivery. These ten factors were selected as key issues noted in the literature review.

Table 5. Important Issues that Need to be Adressed		
7 – very important to 1 – not at all important		
	Overall Importance (7 point scale)	# of respondents identifying it as most important issue
HR Issues - Recruitment & Retention of Health Care Professionals	Mean 6.21 (139 responses)	41
Improving access to care (e.g. to treatment, hospital beds, services)	Mean 6.0 (146 responses)	12
Establishing interdisciplinary approaches to care - “changing the way of delivering health care”	Mean 5.97 (149 responses)	25
Improving the continuity of care - through its external relationships with other hospitals, regional health authorities and community-based health organizations	Mean 5.97 (149 responses)	11
Appropriate levels of funding to reflect the tertiary and quaternary patient care services	Mean 5.96 (148 responses)	11
Appropriate levels of funding for capital infrastructure	Mean 5.87 (150 responses)	6
Availability of E-health information systems	Mean 5.60 (148 responses)	12
Increasing demands for new technology	Mean 5.38 (145 responses)	1
Changes in the internal governance structures to improve the overall impact/effectiveness of AHSCs	Mean 4.9 (144 responses)	1
Changes in the external governance structures to improve the overall impact/effectiveness of AHSCs	Mean 4.71 (145 responses)	8

It should be noted that the additional issues identified by the individual respondent was selected as the most important issue by 15 respondents. The following additional issues were suggested by respondents in the open ended questions where up to three additional issues were requested:

- Meaningful partnerships with stakeholders
- Improving relationships among service, education, and research entities in the AHSC
- Collegial interactions between various specialty services
- Transparency in collaboration between the academy and the service sector

- System functions - coordination of multiple components of patient needs and flow
- Family Health Centres, prevention, health promotion
- Impact of legislated or mandated provincial initiatives on local needs and priorities i.e. Wait time strategies, pandemic planning
- Clarity in defining the different patient care responsibilities of AHSC's as compared to community and regional centres
- Patient demand - not only volume but expectations of level of care/access to specific treatments/therapeutics

2.5.1. Recommendations for Consideration – Patient Care

The next question asked respondents:

What potential solutions would you suggest to assist AHSCs to address the major issue you identified as most pressing, either as a collective entity or in collaboration with the relevant stakeholders?

One General response:

“Many of the issues are related. It will be difficult to retain or attract qualified staff with inadequate funding or out-dated technology, so many of these have to be coordinated in a packaged approach, that is tackling one issue on it’s own may not achieve the desired outcome.”

Human Resource Issues

There is a need for a national approach with effective engagement of provincial Ministries of Health and Advanced Education, health science faculties, and academic hospitals to fully address current and future human health force issues.

- Plan focused on education of health professionals linked to interdisciplinary care.
- Improve utilization of health professionals and seek appropriate changes in scope of practice.
- Examine reimbursement models for MDs and other health professionals.
- Increased information on health professional demographic stats.
- Examine the training of physicians who are entering internship/residency programs, including IMGs.
- Examine the shortage of trained physicians for particular specialties.
- Review clinical student placement opportunities to ensure adequate numbers of highly trained new practitioners.

Improving access to care: to treatment/hospital bed/services

- System wide review of service delivery to avoid duplication, and clear and accountable metrics for all players that identify best practices and establish pilot examples.
- Funding for the appropriate health care worker resources; however, more is not necessarily better unless the delivery system changes.

Continuity of Care

- There needs to be an explicit focus on a patient-centred approach that links back to primary and secondary care - this might involve service-based funding that would cover both institutional and community-based care.
- Plan for transition funding in order to ease the changes, better support the inter-institutional care continuum, service agreements.
- There needs to be clarity in defining the different patient care responsibilities of AHSC's as compared to community and regional centres.
- Cultivate a network of referral lines and facilitate information exchange.

Demands for increased technology/diagnostic equipment treatment approaches (includes E-Health)

- Leadership and collaboration that result in a system-wide adoption of technologies rather than a piecemeal approach.
- First we need a coherent approach to health data - with access agreements so that good and timely data can be appropriately accessed by all stakeholders.
- Adequate funding to establish a pan-Canadian comprehensive electronic system. It needs to be a universal system which can be accessed anywhere in Canada because people are transient.

Financing AHSC patient care services and capital infrastructure

- A funding policy, supported by a formula if possible, to support long term sustainability of AHSC's, especially as provinces change their structures for delivery of health services.
- AHSC's should be considered provincial or in some cases national 'programs'.

2.6. Education and Training

Respondents were requested to rate the importance of six factors identified for AHSCs to achieve excellence in education and training. These six factors were selected as key issues noted in the literature review.

Table 6. Important Issues that Need to be Addressed		
7 – very important to 1 – not at all important		
	Overall Importance (7 point scale)	# of respondents identifying it as most important issue
Accelerating the trend towards inter-professional education, resulting in team-based approaches to patient care	Mean 5.75 (122 responses)	37
Funding education within the AHSC budgets (including HHR infrastructure to support the educational experience and clinical teachers)	Mean 5.67 (117 responses)	25
Balancing service requirements with educational opportunities for both students and preceptors	Mean 5.49 (120 responses)	14
Redefine the relationship between the AHSC and the University (health professional faculties and schools)	Mean 5.42 (109 responses)	17
Decentralization of clinical education (distributive health professional education) and the resulting relationship between the AHSC and other hospitals and community-based health organizations that also provide educational opportunities for students	Mean 4.94 (119 responses)	13
Increasing the number of health professional students who receive their clinical education in AHSCs	Mean 4.92 (118 responses)	15

The following additional issues were suggested by respondents in the open ended questions where up to three additional issues were requested:

(Only five respondents selected their additional issue as the most important)

Additional Institutional Leader Suggested Issues:

- More clarity on the role of the University and the AHSC in the responsibility for the infra-structure to support the education programs, particularly as it relates to new demands.
- Having resources to properly address organization and innovation of health professional education and training.
- Research is foundational for providing the best practices in education as well as that which is being imparted through the educational processes.
- Professionalism: a lot of carelessness, and lack of accountability of physicians in their professional duties, for ex., quality orientation, day care service, best practices, etc.

Additional Academic Leader Suggested Issues:

- Encourage governments and related agencies to fund health science education on a balanced basis for all disciplines.

- Creating inter-professional learning competence pathway acceptable to all professional schools and regulators.
- Addressing current disincentives with the service sector for full engagement in the shared responsibility of clinical education.
- Two different provincial ministries with different accountabilities, expectations, cultures etc.

2.6.1. Recommendations for Consideration - EDUCATION AND TRAINING

The next question asked respondents:

What potential solutions would you suggest to assist AHSCs to address the major issue you identified as most pressing, either as a collective entity or in collaboration with the relevant stakeholders?

One General Response:

Incentives for intersectoral/interministerial planning and commitments for structural reform to permit shared accountabilities associated with the clinical training aspect of health professional disciplines. Simplistic answers such as joint appointments are insufficient to resolve this. We need a coordinated vision by unions, schools, and service delivery partners to create the conditions under which students are welcomed, integrated, mentored and evaluated in relation to the development of clinical competencies. And this must be supported by stable funding mechanisms distinct from the current available options, and contractual arrangements that serve both sectors in a sustainable manner.

Increasing number of health professional students who utilize the clinical education in academic health science centres

- Create a Council made up of Leaders of Professional Health Provider Associations, University educators and Government to create new inter-professional curricula based on needs of the patient.
- Continue increasing the use of family health centers, community health centres, regional hospitals and other community resources as partners in the education of health professional students.
- Why is it assumed that students in early basic education have to be exposed to the AHSC environment? They need basic skills that can be given by well trained clinicians in clinics linked to the Faculty. Where possible, utilize simulation and the introduction of case history training sessions with the intervention of all the university disciplines concerned.

Trend towards inter-professional clinical education

- Need a board that can direct and oversee an optimal approach to linking education and practice. Preceptor development within the institution will be a major priority if you desire a significant number of students to be accommodated within one or more institutions that excel in the inter-professional approach.
- Encourage governments to provide increased funding to support inter-professional education opportunities and to be strategic in guaranteeing that funding is balanced among disciplines.
- Establishment of true coaching, and mentoring processes in order to supervise and evaluate the inter-professional training and work collectively to remove barriers that inhibit inter-professional collaboration.
- Funding for systems to facilitate collaborative learning and support for team-based care after graduation. All issues should be tied to patient outcomes. Inter-professional care is only of value when it makes a difference to outcomes.

Financing of education within the health sciences centre budget (funding HHR infrastructure to support educational experience, clinical teachers)

- Clear dialogue with the Government agencies involved in Education / Health. There must be a provincial approach to the role of AHSC's in teaching and there needs to be a provincial funding model that is transparent to all parties.
- Currently there is an expectation of universities and colleges that this is an implicit function of AHSCs. Additionally funding needs to be provided for education to be occurring on a supernumerary basis – e.g. a preceptor does not have a full patient load and a student - there needs to be funding provided per student to allow 'backfilling' for preceptors on busy clinical units/settings.
- Develop clearly articulated and accurate economic modeling of the true cost of health professional education that affects both University and hospital funding.

Relationship between the AHSC and the University (health professional programs)

- Need a process of funding incentives to result in the alignment of goals for AHSCs and the University for seamless integration of education from classroom to bedside with better definition of the roles.
- Better allocation of university resources for training and education. Presently, funds are not granted to AHSCs to support the careers of teachers and researchers employed at the AHSCs.

Decentralization of clinical education and the resulting relationship between the academic health sciences centre and other hospitals and community health organizations that also provide clinical education opportunities for those students

- Develop appropriate funding models for decentralized medical education programs that provide quality care and achieve excellence in education and training.

- Need for improved training in rural family medicine and core specialties to better prepare physicians in rural practice and meet patient needs. Educators and students should develop stronger relationships with rural practitioners and facilities.
- Governance models should accommodate community care in addition to tertiary and quaternary care.

2.7. Research and Innovation

Respondents were initially requested to rate the importance of eight issues identified for AHSCs to achieve excellence in research and innovation. Three additional issues were added when the survey was forwarded to the Research Stakeholders. Therefore the latter three issues are only identified for those respondents.*

Table 7. Important Issues that Need to be Adressed		
7 – very important to 1 – not at all important		
	Overall Importance (7 point scale)	# of respondents identifying it as most important issue
Accelerate knowledge transfer/research findings to the clinical practice community	Mean 6.02 (121 responses)	36
Obtaining highly qualified researchers including clinician scientists	Mean 5.88 (119 responses)	24
Effective communication of the “return-on-investment” to the public and governments	Mean 5.64 (118 responses)	10
Provision of protected research time for clinician scientists	Mean 5.63 (117 responses)	16
Recent economic downturn and its effect on funding of research activities within the AHSCs	Mean 5.42 (114 responses)	15
Relationship between the AHSC and funding agencies for health research	Mean 5.2 (116 responses)	6
Funding increased costs of new technologies/equipment to conduct research within the AHSC	Mean 4.93 (116 responses)	3
Trend of private industry to move clinical research studies to foreign countries due to the lower costs of undertaking the study	Mean 4.11 (105 responses)	0
Relationship between the AHSC and its partner university degree granting institution	Mean 6.43* (7 responses)	
Ability of the institution to facilitate community based and population health research	Mean 6.29* (7 responses)	
Commitment of the AHSC to research as shown by evidence-informed decision making	Mean 6* (7 responses)	

The following additional issues were suggested by respondents in the open ended questions where up to three additional issues were requested:

(Thirteen respondents selected their additional issue as the most important)

Additional Issues

- Integration of the ‘basic research’ environment with the ‘clinical environment’
- Lack of bridge funding for translation of research
- Collaboration across universities and AHSCs is paramount - overcome excessive competition
- Lack of vision among many provincial and current federal governments for the value of supporting health research
- To be resolute on the research mission. Liability of the professionals to engage in a research project whenever the opportunity arises
- Create pay structures for physicians that encourage a better balance among research, teaching and service

2.7.1. Recommendations for Consideration – RESEARCH AND INNOVATION

The next question asked respondents:

What potential solutions would you suggest to assist AHSCs to address the major issue you identified as most pressing, either as a collective entity or in collaboration with the relevant stakeholders?

General Recommendations:

- Encourage the development of “AHSC cultures” that support innovation at all levels - looking at various change management techniques that can help change practices and mindsets within hospitals.
- Work with the governments (politicians and staff) to help them understand that investments are needed within the system in order to make the desired improvements. (i.e. investment not an expense).
- Look at the Toronto model and attempt to adapt it for elsewhere - not just with respect to research but also with respect to the innovation agenda through the MaRS partnership.

Accelerate promotion of knowledge transfer/research findings to the clinical practice community

- Establish a ‘clearing house’ to assess the quality of research outcomes. Such an assessment and review body should have the power to recommend (or not) an innovation.

- Explore the case studies created by the funded NIH Translational projects in the US.
- Develop closer collaboration with CIHR and other funding agencies to promote clinical and health services research.

Human Resource Issues - obtaining highly qualified researchers including clinician scientists

- Well focused interdisciplinary teams that are fundable take months, if not years, to develop. Investment in this development will pay off in the KT end.
- Discussions with provincial and federal ministries of health about fees vs. salaries and how to create incentives for engaging in research and using evidence-informed practice.
- A joint research committee, together with its medicine faculty and, whenever possible, the key stakeholders of their university network.

Effective communication of the “return-on-investment” to the public

- Coordinated and compelling arguments and strategies toward aligning the development of a thriving health research ‘industry’ in Canada with the health of the population and the health of the economy. Create a national public data/ knowledge repository.
- There is too much focus on a top-down approach to pushing out research findings to the community - there needs to be more emphasis on a bottom-up approach - what does the community need/want in terms of research evidence?

Increased costs of technology/equipment to conduct research within the health science centres

- As in the clinical domain, governments and AHSCs need to work together to ensure research is funded and supported. This has particular value during an economic downturn as research is an excellent long-term infrastructure investment.
- AHSC research tends to be a very medical model and mostly pillars 1 and 2 of CIHR. Pillar 3 work never gets scaled up and the support and infrastructure for Pillar 4 is sorely lacking. Pillar 4 needs dedicated infrastructure funding and needs to build community capacity in addition to researcher capacity.

2.8. Governance and Administrative Structure

Over the last 15 years, dramatic changes have occurred in the governance and administrative structures of the health system within the Provinces and Territories. Which the following funding and reporting relationships best represents the current reporting process for your AHSC?

Funding/Reporting Relationship	Institutional	Academic	Governments	Total
Institutions report directly to and receive financing from the same government department for health services, educational and research programs.	5	2	1	8
Institutions report directly to te provincial government but receive funding from two or three separate departments for health services, educational and research programs.	8	14	3	25
Institutions report directly to and receive funding from a Regional Health Authority (or Local Health Integration Network) for health services, educational and research programs.	8	4	0	12
Institutions report directly to and receive funding from the Regional Health Authority (or Local Health Integration Network) for health services programs but report to and receive funding from the provincial government for educational and research programs.	26	10	1	37
Other/Don't Know	7	9	0	16
Total Responses	54	39	5	98

As expected, the reporting structures for funding vary across the provinces. However, the largest group reported to and received funding from a regional health authority or health network group with the next largest group receiving funding directly from the provincial government but from two or more departments. These two situations cover 75% of the reporting from the leaders of the AHSCs.

How satisfied are you with the current reporting/financing structure of your AHSC?	Institutional Mean 2.8 (51 responses)	Academic Mean 2.73 (34 responses)	Governments Mean 3.4 (5 responses)	Total Mean 2.81 (90 responses)
5. Very satisfied.	2	1	1	4
4. Satisfied	11	6	1	18
3. Neutral	17	14	2	33
2. Dissatisfied	17	9	1	27
1. Very dissatisfied	4	4	0	8
Total Responses	51	34	5	90

Both the Institutional and Academic Leaders mean responses were below “3” and 68 out of the 90 respondents (75.6%) to this question were either neutral or dissatisfied with the current reporting/financing structures.

2.8.1. Recommendations for Consideration – EXTERNAL GOVERNANCE AND ADMINISTRATIVE STRUCTURES

The respondents provided the following recommendations in order to improve the governance and interrelationships between governments, intermediary administrative bodies, and the AHSCs.

A. Government Relations:

Governments and AHSCs should collaborate to create an understanding of the needs of AHSCs and in turn, the difficulties governments face in providing funding.

- A provincial policy - similar in each province - should support AHSC's, regardless of the structure in place in each province. Constant change in the structure across Canada with little or no reference to the AHSC's in the provinces has had a very negative effect on the efficiency and effectiveness of the AHSC's.
- The Ontario government in close collaboration with AHSCs in the province including the Health Science Faculties should engage in a comprehensive plan for health and biomedical research that includes the financial plan.
- Health Canada, in close collaboration with CIHR, should engage in comprehensive strategic planning process for a national health and biomedical research agenda for the next decade, which includes a defined budgetary plan.
- A coordinated and preferably centralized approach would likely work best. Whatever our reservations about provincial Departments of Health, they are the logical 'one-stop' for funding AHSCs.
- Renforcer les liens avec le ministère de la santé et subventionner les centres de recherche des hôpitaux en fonction de leur pertinence aux services de santé dont le ministère de la santé a la responsabilité. Dans ce plan, prendre en compte autant la recherche fondamentale que clinique.

B. Intermediary Relationships Between Government and the AHSCs:

- The method of allocating resources from central agencies to LHINs is not transparent nor is it well understood and the cost of teaching and research is not appropriately reflected in payment.
- Health regions (containing the AHSC) must be made to realize the importance of and support for education and research.
- Interdependence of institutions must be governed/managed by more explicit arrangements; a well functioning network of hospitals, with common governance will ensure that the correct patient will be in the correct bed at the correct time.
- AHSCs belonging to the same university network must agree on their respective role and then respect them.

- A meeting of the minds between service delivery entities (preferably integrated across the system), university training centres, and the regulators and accreditation bodies.

C. Relationships with Health Service Organizations in the area being served

- More transparent leadership of the AHSC with a focus on active communication with the Community it serves.

2.9. Concluding Remarks

The survey findings provide a good overall assessment of the issues facing Canadian AHSCs from the perspective of the leadership of institutions, academic faculties and stakeholders.

The respondents indicated that the identified issues need to be addressed and suggest a national approach is required to coordinate and deal with these challenges. These recommendations are presented for consideration by the Task Force in combination with the Interview Recommendations within the Executive Summary Report.

3. AHSC Leader and Stakeholder Interview Project

3.1. Description of Interview Process and Procedures

1. Individuals willing to be interviewed for this project were asked to identify themselves when completing the survey. A total of 60 respondents indicated their interest.
2. A list of 38 potential interviewees was prepared which provided both geographical and employment categories with the intent to conduct 30 interviews within a very short time frame. Geographical considerations are important due to the differing provincial systems. It was also desirable to consider the background of the individuals to ensure an appropriate cross section of institutional and academic leaders, government and stakeholder representation.
3. The perspective interviewees were contacted by an invitation e-mail distributed on February 9 – 11 and interviews are being arranged to take place between February 17 and March 24, 2009.
4. An Interview Guide (Appendix 3.1) was prepared which seeks verification of the key issues that AHSCs need to address and the appropriate actions to be taken in order to address the issues.
5. Each of the perspective interviewees was contacted by e-mail and/or telephone to arrange an appropriate time for the 30 minute telephone interview during the time period noted above in 3.
6. Once the interview time was confirmed, the Interview Guide was forwarded to the interviewee for review prior to the interview.
7. The list of 29 key leaders and stakeholders who were interviewed is attached as Appendix 3.2.
8. Notes were made on each interview and these notes serve as the basis for the findings reported in the next chapter of this report.

3.2. Demographic Information on Interviewees

Information on Interviewees:

Institutional Leaders	10
Academic Leaders	13
Government Representatives	2
Stakeholder Groups	4

Province and Territory	#
Alberta	4
British Columbia	3
Manitoba	2
New Brunswick	1
Newfoundland and Labrador	1
Northwest Territories	0
Nova Scotia	4
Nunavut	0
Ontario	6
Prince Edward Island	0
Quebec	3
Saskatchewan	2
Yukon	0
National Organizations	3

3.3. Compilation of Responses from the Interviews

The interview process had two primary objectives:

1. Confirm the findings of the survey relative to the issues to be addressed for each of the components of patient care, education and research.
2. Provide an opportunity for key leaders and stakeholders to express their views and concerns regarding specific issues and recommendations that should be addressed by the Task Force.

There was general endorsement of the findings reported from the survey. Therefore, this section of the report will address the recommendations identified by the interviewees as the most important issues.

3.3.1. Definition and Advocacy of the AHSC

The discussions during most of the interviews made reference to how an AHSC should be described within the current context of the regionalization of health care and the distributive approach to health professional education. The following quote seems to identify the current dilemma:

“most of the country has morphed into regional health authorities that are not integrally interconnected with research and education. Mission of faculty – education, research and patient care: Mission of regional centre – patient service, patient service, education and some research. The regional authorities

have to be convinced that they have a research mandate as their mandate is service and education.”

The interviews confirmed that the research focus differentiates AHSCs from other institutions and this research should contribute teaching and patient care. The vital need for a select group of special research AHSCs across Canada, set up as Centres of Excellence and generating a high level of research accomplishments, was emphasized during the interview process. These Centres of Excellence would need a critical mass and the support of senior management to support their mission.

It was noted that AHSCs are really becoming a **network** rather than centres since so many have become a group of hospitals/health care facilities where various disease state patient care, teaching and research are spread across the facilities.

The most emphatic recommendation from the series of interviews concerned the intrinsic value of the AHSCs which can be summed up as follows:

“The Task Force must focus on making the governments and the population understand the immense value of academic health science centres as a treasured resource in Canada. They provide the highest quality of care, they educate the practitioners for the 21st century, they are the source of almost all innovation in health care, and they are the site of health care research. AHSCs must be celebrated and nurtured.”

“Advocacy is a very important issue for this task force to consider at both the provincial and national scene. They are unique resources with great emphasis on both teaching and research.”

“Take advantage of the opportunity with the community at large and the business community to make them understand the value of AHSC and the research component – develop a strategy.”

3.3.2. Governance

The actual process and effectiveness of the external governance and the AHSC’s relationship with the government funding ministries were identified as important issues. AHSCs in most provinces, (with the exception of Alberta and New Brunswick who have gone more centrally) were working through regional health authorities, LHINs or RHUS in dealing with provincial funding authorities. As noted above, the goals and expectations of the two are different relative to support for research and scholarly activity. In some cases where the region is spread out, it is important for the AHSC to convince leaders from the rural areas to support initiatives for teaching, research and scholarly activity. It is important that everyone recognize the role of the AHSCs and the needs for appropriate supporting resources by governments and the public. Governments don’t seem to “put their money where their mouth is”. The process requires an ongoing working association with the Deputy Ministers of the Health and Education Ministries and the recognition that the cooperative approach between the AHSC and the University results in a huge economic impact and the translation research, etc.

Natural tension between the AHSC and the University was frequently identified as an important issue. In some instances, the goals and expectations of the two differ with respect to the distribution of funding received for research projects:

“The research is done in the hospitals, paid by the hospitals and the university contributes nothing to it. However, the administration claims it as university health research to obtain more funding from government, but little of this money is given back to the hospitals. The hospitals pay the health researchers’ salaries and provide the infrastructure for the research.”

Tensions also revolve around patient care versus academic issues. The interview responses indicate that there must be a formalized interrelationship/organization between the University and the physical AHSC at the policy, procedure and decision making levels. The approach of joint appointments of Dept Chairs/Medical Dept Heads for the University and the affiliated hospitals/health facilities were frequently recommended.

“Universities are their most important partner; who leads and who gets credit – productive tension; normally everyone hired on medical staff or researchers have an appointment with university.”

Funding the AHSC Academic Educators/Researchers

The funding to support health care educators/researchers within the AHSC is a combination of nearly every conceivable funding source. Although this is not likely to change in the near future, alternate funding plans to support medical academics need to be further developed to support the education research functions within the AHSC. Essentially, no specific system exists to support non-medical health care academics within the AHSC. These issues need to be addressed by the collaboration of the Departments of Advanced Education and Health and with Universities/AHSC leaders within each province/territory.

3.3.3. Patient Care

Lack of funding and human resources to handle the patient volume capacity – *Work force production – quantity, quality, resources and space.*

A significant number of interviewees indicated that the major problem is obtaining sufficient resources to properly organize a care delivery system within the academic health sciences centre environment. It is the role of the AHSC to develop and establish best practices and patient safety procedures together with the education and research responsibilities while continuing to provide patient care. It must be realized that from a funding perspective, patient services within the AHSC environment cannot be directly compared with community hospitals and regional centres that do not carry the additional responsibility for education and research.

The interdisciplinary system is designed to utilize health human resources to fully take advantage of health professional abilities with skilled responsibilities.

The major Health Canada interdisciplinary education system grant (co-chaired by Dean Carol Herbert from Western) produced a wealth of completed projects across Canada.

The Canadian Interprofessional Health Collaborative is a national hub for interprofessional projects (www.cihc.ca/). Primary Care Teams (ON – Family Health Teams) are being formed across the country.

The Task Force is encouraged to recommend the interdisciplinary process must continue as a national issue with ongoing support from the federal government through the provinces (shared). There is a need to develop an interdisciplinary framework that includes interdisciplinary competencies. A new health system is being developed that relies on interdisciplinary teams, so there is a strong need to remove all the barriers created by health professional regulatory agencies, accreditation agencies, and educators to permit the new system to materialize. The health professional program accreditation bodies are working on developing a set of guidelines/principals that are flexible, not prescriptive. The project is expected to be completed by in the spring of 2009.

To date, we have not yet fully examined the efficiency part of the new interdisciplinary systems. This is where we can potentially make the biggest gains. A permanent system of payment for personnel that acknowledges team based care needs to be clarified.

Continuity of Care

The interviews indicated the care of patients within the health region is better coordinated within a clearly defined system. There needs to be a clearer delineation of responsibilities by governments as it is now felt that AHSCs pick up the slack. Although AHSCs primarily are intended to provide tertiary and quaternary care, the primary and secondary care provisions need a well managed network of hospitals within the system. It was recommended that a national approach is required to define the AHSC role rather than operating within a response or reactive mode. Longterm care responsibilities also need to be included in this discussion.

Electronic Patient Data Bases and Other Patient Information

“Everyone developed their own IT systems independently, largely because governments did not move quickly enough. So it’s very difficult now to get everyone to adopt the same or compatible systems since there’s already been much investment.”

“Why is it that I can go anywhere in the world and withdraw money from my Canadian bank account, but when I go to the hospital a few blocks away they cannot access my medical file.”

Interviewees expressed frustration with the “snail like speed” of electronic data developments, both for providing optimum patient care and for health care research efforts. The Task Force recommendations should address this issue. Integration of the AHSCs with the health care systems should include better access to the provincial data bases – health, social housing, education and all the other data. This would contribute greatly to health care/population health research. These databases are not easily accessible to researchers and they would be very useful in assisting government to improve access to and the quality of health care. They are critical for population health research. The Manitoba database is the gold standard and great encouragement should be placed on the other provinces to

develop their systems with an approach to eventual compatibility of the data bases on a national level.

3.3.4. Education

Distributive Education

“Distributive education is the biggest challenge as it is no longer piece meal but is a continuing expectation – requires a great deal of cooperation from the partners in these institutions. No one really knows who to pay in these situations and it should be negotiated with governments. Financial resources are a piece of this problem but not all of it.”

As more of the undergraduate health professional clinical education leaves the AHSC, what is the role of the AHSC?

Interdisciplinary Education

“Currently there are silos around each of the health professional educational programs with no room in the curricula for truly interdisciplinary learning of key material.”

As with interdisciplinary practice, there are major strides being made in pockets across Canada. However, governments need to financially support these initiatives within a unified system. There must be a supply of trained instructors and preceptors necessary to fully enhance the educational experience. One of the biggest barriers to interdisciplinary teamwork is the University or AHSC collective agreements which inhibit these activities as they are currently very restrictive.

3.3.5. Research

Strong Support for enhanced funding for CIHR and other national funding agencies, both public and private.

AHSCs are very significant players in health research across Canada and they represent the bridge between science and practice. The Task Force needs to forcefully advocate for increased funding for health research in Canada.

CIHR needs to develop a better mechanism for personnel and infrastructure support. There is great concern for the cutting of funding to granting agencies and the Task Force needs to convince the federal government to support the tri-council and provide infrastructure support as well as promoting to the provincial governments as well.

“The biggest issue is proving to the paymaster that there is a return on investment. Need a better documentation of research effects on health – hard evidence that research makes a difference. Three good documents: Canadian Academy of Health Sciences Return on Investment Document; UK document and Ernst and Young.”

Transitional Research - Incorporating new methods of health care services delivery

There is still not good integration of best practices/research findings into practice (good at promotion but not a robust system of new knowledge transfer into practice). Consideration could be given to an “academic detailing” approach. There is also concern over the emphasis on immediate return on investment and there needs to be reality check. There are not good mechanisms for getting the “right people” to fully understand the system and the appropriate expectations.

Population Health Research

As noted under patient care, provincial health databases are an integral resource for population health in regard to measuring best practices, and care assessment as well as for patient care. Funding for intervention research – require provincial public health observatories, teaching units, Often require a strong link with the university (RHA and the province); end up doing applied research.

How do we measure teaching and research productivity?

In addition to measuring health research impact, must also develop systems for measuring teaching and research productivity.

3.4. Concluding Remarks

It was difficult to fit in the interviews during the time frame due to the very busy schedules of the AHSC Leadership, government representatives and stakeholder organizations. Consequently only 29 of the planned 30 interviews were conducted.

There was general endorsement of the lists of important issues facing AHSCs and they provided excellent comments on how these issues should be addressed.

The previous six pages outline the suggestions addressing the issues and they deserve to be considered in their entirety rather than to be summarized. Regionalization, the relationship with government funding ministries, distributive education and the need for new systems of funding health professional educators/researchers are important issues that are affecting the role of AHSCs within the current environment.

It will be interesting to observe the actions being taken by the Alberta government with the “de-regionalization” of health care as well as their approach to health professional HR issues and revised health research agenda. It would appear that this will have significant effect on the future of the AHSCs within the province. Will it also signal a new wave in the constant changing health care environment in Canada?

4. Final Commentary

Blackburn & Associates are pleased to provide the Environmental Scan Final Report.

Research question # 1 was addressed by the Literature Review and Information Sources. Research question # 2 was addressed by the survey and interviews of AHSC leaders, government representatives and stakeholder organizations.

We believe that this report meets the goals and addresses the research questions. We categorized the literature review according to the over-arching themes. For the other sections of the project, we did not specifically categorize recommendations accordingly to those themes as there was extensive overlap. For example, it is very difficult to distinguish the principles of excellence and quality. Most factors and recommendations for action addressed a number of the over-arching themes.

We recognize the extensive length of this report, particularly the published literature and information sources section. However, hopefully it will provide a background document for the Task Force on the Future of Academic Health Sciences in Canada.

We express our sincere appreciation to the Steering Committee and the National Task Force members for their helpful comments and suggestions throughout the project. We especially offer our thanks to Christine Da Prat, Dr. Nick Busing and Mr. Glenn Brimacombe for their leadership of this project.

This report is respectfully submitted,

Jim L. Blackburn, Pharm D

on behalf of

David Blackburn, Pharm D

Laurie Dmytryshyn, MBA

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Appendix 1.1 – AHSC Environmental Scan - Article Citations and Abstracts (organized according to the year of publication)

Table 1. Appendix 1.1

Legend			
Major Focus Area	Minor Focus Area	Themes Addressed	Factor Type
1= Patient care & service delivery 2= Education and training 3= Research 4= All three 5= Governance model	1= Patient care & service delivery 2= Education and training 3= Research 4= All three 5= Governance model	1= Accessibility 2= Accountability 3= Excellence 4= Innovation and KT 5= Interdepend. /collaboration 6= Interdisciplinary 7= Quality 8= Sustainability 9= All	1= Internal 2= External 3= Both

Year #	Citation	Major Focus Area	Minor Focus Area	Themes Addressed	Factor Type
2009.1	Web Site: www.cihc.ca/ . Canadian interprofessional health collaborative web site of projects and information	1	2	5,6	3
2009.2	Pololi L, Conrad P, Knight S, Carr, P. A Study of the Relational Aspects of the Culture of Academic Medicine. <i>Acad Med</i> 2009; 84:106-114	4	5	9	1
2009.3	Wietecha, M, Lipstein SH, Rabkin MT. Governance of the Academic Health Center: Striking the Balance Between Service and Scholarship. <i>Acad Med.</i> 2009; 84:170-176	5	4	9	1
2009.4	Philibert I, Can Hospital Rankings Measure Clinical and Educational Quality? <i>Acad Med</i> 2009;84:177-184	4		3,7	1
2009.5	Web Site: www.aiphe.ca . Accreditation of Interprofessional Health Education.	2		6	2
2009.6	Canadian Academy of Health Sciences Report Making an Impact: A preferred framework and indicators to measure returns on investment for health research. www.caahs-acss.ca 2009	3		2	2
2008.1	Wartman ST, Toward a virtuous cycle: The changing face of academic health centres. <i>Acad Med</i> 2008; 83:797-799	4		9	3
2008.2	Pizzo, PA, Case Study: The Stanford University School of Medicine and Its Teaching Hospitals. <i>Acad Med.</i> 2008; 83:867-872	5		9	3
2008.3	Pomeroy C; Rice A; McGowan, W; Osburn, N. Linking Academic and Clinical Missions: UC Davis' Integrated AHC. <i>Acad Med</i> 2008;83:809-815	4, 5	3	9	3
2008.4	Balsler J R, Baruchin, A. Science at the Interstices: An Evolution in the Academy. <i>Acad Med.</i> 2008;83:827-831	3			3

2008.5	Sanfilippo F, Bendapudi N, Rucci A, Schlesinger L, Strong Leadership and Teamwork Drive Culture and Performance Change: Ohio State University Medical Center 2000-2006. Acad Med. 2008; 83:845-854	5		5,6,7	1
2008.6	Joiner K A., Libecap A, Cress A, Wormsley S et al. Supporting the Academic Mission in an Era of Constrained Resources: Approaches at the University of Arizona College of Medicine. Acad Med 2008;83:837-844	5	4	9	1
2008.7	Wilson M, Krugman, R D. The Changing Face of Academic Health Centers: A Path Forward for the University of Colorado Denver. Acad Med. 2008; 83:855-860	5	2	9	1
2008.8	Phillips S E, Rubenstein A H. The Changing Relationships Between Academic Health Centers and Their Universities: A Look at the University of Pennsylvania. Acad Med. 2008;83:861-866	5	4	9	3
2008.9	Barrett D J. The Evolving Organizational Structure of Academic Health Centers: The Case of the University of Florida. Acad Med 2008;83:804-808	5	4	9	1
2008.10	Levine A S, Detre T P, McDonald M C, Roth L H, et al. The Relationship Between the University of Pittsburgh School of Medicine and the University of Pittsburgh Medical Center-A Profile in Synergy. Acad Med. 2008;83:816-826	5	4	9	1
2008.11	Sorensen A A. The Transformation of Research in the Health Professions at the University of South Carolina. Acad Med. 2008;83:832-836	3	5	4, 5, 6	3
2008.12	Hampton, T. Academic Medical Centers Embark on Public Outreach Through the Internet. JAMA 2008;300(9) 1015		1	4	2
2008.13	DiLaura R. Use of informatics and information technologies in the clinical research enterprise within US academic medical centers: progress and challenges from 2005 to 2007." Journal of investigative medicine 56.5 (2008):770-9.	3		4	1
2008.14	Aaraas IJ, Swensen E. National Centre of Rural Medicine in Norway: a bridge from rural practice to the academy. [Journal Article] Rural & Remote Health. 8(2):948, 2008 Apr-Jun.Ul: 18557698	1	4	5, 6	2
2008.15	Andrea Manyon, MD, Joseph Hobbs, Community faculty: caught between the Dean's office, the Academic Health Centers and the fiscal realities of primary care. Ann Fam Med 2008:378-379.	2	1	1, 7, 8	3
2008.16	Schweitzer L, Eells TD. The Forgotten Faculty: Challenges for Ph.D.s in Clinical Medical School Departments. J Clin Psychol Med Settings (2008) 15:7-11	2		5, 6, 8	1
2008.17	Baron, RJ, Medicine cut off from its roots: Context matters in medical education. Health Affairs. 2008 Project HOPE. 27:1357-1361	2	5	1,2,8	2

2008.18	Piwowar H.A, Becich M.J, Bilofsky H, Crowley R.S. Towards a data sharing culture: Recommendations for leadership from academic health centers. PLoS Medicine. Public Library of Science. 2008;5:1315-1319	3	2	1, 2, 4, 5, 6	3
2008.19	Levine SA, Saxton JWF, Johns MME. Viewpoint: Developing integrated clinical programs: It's what academic health centers should do better than anyone. So why don't they? Acad Med 2008;83:59-65	1	5	1, 2, 5, 6, 8	3
2008.20	Council for Science & Technology UK. How academia and government can work together. 2008 Oct. Council for Science and Technology Kingsgate House, 66-74 Victoria Street London SW1E 6SW +44 (0)20 3300 8510 cstinfo@dus.gsi.gov.uk www.cst.gov.uk	5	4	9	2
2008.21	Greeson JM, Rosenzweig S, Halbert SC, Cantor IS, Keener MT, Brainard GC. Integrative medicine research at an academic medical center: Patient characteristics and health-related quality-of-life outcomes. J Altern & Compl Med 2008;14:763-767	3	3,4		1
2008.22	Assoc Academic Health Centers Out of Order, Out of Time: The state of the nation's health workforce. AAHC Report 2008 ISBN: 978-0-9817378-0-5	4,5	9		3
2008.23	Can Academic Health Org. Leaders Forum. Academic Healthcare in a Changing World: Positioning for Success. UK - Canada Academic Healthcare Leaders' Forum 15 May 2008 www.chms.ac.uk/documents	4,5	9		3
2008.24	George S. UK public health research centres of excellence. J Public Health 2008;30:351-352	3	7		2
2008.25	Toner M, Tompkins R. INVENTION, INNOVATION, ENTREPRENEURSHIP IN ACADEMIC MEDICAL CENTERS. Surgery 2008;143:168-171	4	4		1
2007.1	Arora S; Geppert, CMA, Kalishman S, Dion D et al. Academic Health Center Management of Chronic Diseases through Knowledge Networks: Project ECHO. Acad, Med 2007; 82:154-160	3	2	1, 4, 5, 6	2
2007.2	Suter E, Hyman M, Oelke N. Measuring key integration outcomes: A case study of a large urban health center. Health Care Manag Review 2007;32:226-235	1. (actual community health centre)	3. evaluation of model	1, 2, 5, 6	2
2007.3	Keroack, MA, Youngberg, BJ, Cerese, JL, Krsek C et al. Organizational Factors Associated with High Performance in Quality and Safety in Academic Medical Centers. Acad Med 2007;82:1178-1186	1	5. evaluated quality of care and patient safety	7	1
2007.4	Whitcomb M E. Promoting Global Health: What Role Should Academic Health Centers Play? Acad Med. 2007;82:217-218	1. International role for AHSC's	2	1, 5	2
2007.5	Fordis, M, Alexander JD, McKellar J. Role of a Database-Driven Web Site in the Immediate Disaster Response and Recovery of an Academic Health Center: The Katrina Experience. Acad Med. 2007;82: 769-772	5.*	1, 2.	9	1
		* Governance and communication in disaster			
2007.6	Levinson W, Axler H. Strategic Planning in a Complex Academic Environment: Lessons from One Academic Health Center. Acad Med 2007;82:806-811	5	4	9	1

2007.7	Blue Ridge Group. Health care quality and safety in the academic health centre. Blue Ridge Academic Health Group 2007 report 11 www.blueridgegroup.org	1	5	7	1
2007.8	Viggiano TR., Pawlina W., Lindor KD., Olsen KD., Cortese DA. Putting the needs of the patient first: Mayo clinic's core value, institutional culture, and professionalism covenant. Acad Med 2007;82:1089-1093	5	1,2	9	1
2007.9	Kirchner J.E., Rule C., Kramer T.L., Bennett L.A., Otwell S. Blending education, research, and service missions: The Arkansas model. Acad Med 2007;82:107-112	5		2, 4, 5, 8	2
2007.10	Souba WW, Mauger D, Day DV. Does agreement on institutional values and leadership issues between deans and surgery chairs predict their institutions' performance? Acad Med 2007;82:272-280	5		9	1
2007.11	Karpf M, Perman J, Lofgren R, Melgar S et al.Creating an integrated clinical enterprise at the University of Kentucky: The emergence of UK HealthCare. Acad Med 2007;82:1163-1171	5		9	3
2007.12	Nation CL, Gerstenberger A, Bullard D.Preparing for change: The plan, the promise, and the parachute. Acad Med 2007;82:1139-1144	2	1	1, 2,5 8	3
2007.13	Zerhouni EA.Translational research: Moving discovery to practice. Clin Pcol & Ther. 2007;81:126-128	3		4, 5, 6, 7, 8.	1
2007.14	ACAHO. Moving at the speed of discovery:from bench to bedside to business. 2007 ACAHO website www. acaho.org/docs	3		3	3
2007.15	Kanashiro J, Hollaar G, Wright, B. et al Setting Priorities for Teaching and Learning: An Innovative Needs Assessment for a New Family Medicine Program in Lao PDR. Acad Med 2007;82:231-237	2	7,8		1
2006.1	Anderson GF.Controlling U.S. Health Spending: Opportunities for Academic Health Centers. Acad Med. 2006;81:807-811	5	1	2	1
2006.2	Newton WP, DuBard CA, Shaping the future of academic health centers: the potential contributions of departments of family medicine. Ann of Fam Med;2006: 4 Suppl 1:S2-11	1	2, 3	9	2
2006.3	Whitcomb, M E. Helping Meet the Challenges Facing Academic Medicine. Acad Med 2006;81:855	4	5	9	3
2006.4	Boex J.R. Keck C.W. Piatt E. Nunthirapikorn T.N. Blacklow R.S. Academic health centers and public health departments: Partnership matters.	2	5	9	2
2006.5	Schmitz C. Quante S. Debatin J.F. Modern organization of medical centers, why center formation? - The example of the University Medical Center Hamburg-Eppendorf. Chirurgische Gastroenterologie Interdisziplinär. 22(4)(pp 230-235), 2006.	5	4	9	3
2006.6	Gruenwoldt EC, Brimacombe, GG. A View from the top: A survey of ACAHO presidents and chief executive officers. ACAHO document. July 2006	5		9	2

2006.7	Michener JL, Powell DE, Susman JL, Norris T et al. Family Medicine and the Evolution of Academic Health Centers: A dialogue with leadership. Ann Fam Med 2006;4(suppl):S55-S57	5	9		1
2006.8	Roper WL, Newton WP. The role of academic health centers in improving health. Ann Fam Med 2006;4(suppl) S55-S57	5	4	9	1
2006.9	Sostman HD, Forese LL, Boom ML, Schroth L et al. Building a transcontinental affiliation: A new model for academic health centers. Acad Med. 2006;81:Suppl 61-68	5	4	4, 5, 7, 8	2
2006.10	Chatman VS, Buford JF, Plant B. The building and sustaining of a health care partnership: The meharry-vanderbilt alliance. Acad Med 2006;81:Suppl 54-60	5	4	9	2
2006.11	Kirch DG, Grigsby RK, Zolko WW, Moskowitz J et al. Reinventing the academic health center. Acad Med 2006;81:Suppl 10:38-46	5	4	9	1
2006.12	Hafferty F. Viewpoint: The elephant in medical professionalism's kitchen. Acad Med 2006;81:906-914	5	3	2, 5, 7, 8	2
2006.13	Gazewood JD, Rollins LK, Galazka SS. Beyond the horizon: The role of academic health centers in improving the health of rural communities. Acad Med 2006;81:793-797	5	1, 2	1, 2, 4, 5, 7, 8	2
2006.14	Salsberg E, Grover A. Physician workforce shortages: Implications and issues for academic health centers and policymakers. Acad Med 2006;81:782-787	2		8. but also 9	2
2006.15	Garson Jr A. Overview: Health policy and academic health centers. Acad Med 2006;81:781	1	4, 5	9	3
2006.16	Whitcomb ME. The future of academic health centers. Acad Med 2006;81:299-300	2	1	9	2
2006.17	Paller MS, Cerra FB. Investing in research: The impact of one academic health center's research grant program. Acad Med 2006;81:520-526	3		9	1
2006.18	Andreae MC, Blad K, Cabana MD. Physician compensation programs in academic medical centers. Health Care Manag 2006;31:251-258	5		1, 8	
2006.19	Sheridan DJ. Reversing the decline of academic medicine in Europe. Lancet 2006;367:1698-1701	5	4	9	1
2006.20	Yusuf, SW. Itr to editor Re: Decline of Academic Medicine Lancet 2006;368:284	4	7		1
2006.21	McDougle L, Gabel LL, Stone L. Future of family medicine workforce in the United States. Family Practice. 2006;23:8-9	1	8		3
2006.22	Gerber D, Bekes C, Parrillo J. The future of hospital economic health. Crit Care Med. 2006;34:388-394	1	8		3
2005.1	Weiner, BJ, Ricketts TC, Fraher EP, Hanny D et al. Area Health Education Centers: Strengths, Challenges, and Implications for Academic Health Science Center Leaders Health Care Manag Review:2005;30:194-202	5	2	9	2
2005.2	Hespanhol A, Ribeiro O, Costa-Pereira A. Quality assurance in Sao Joao Health Center. Arquivos de Medicina. 19(5-6)(pp 191-197+231), 2005.	2		1,2, 3	2

2005.3	Herrera-Valdes R, Almaguer-Lopez M. Strategies for national health care systems and centers in the emerging world: Central America and the Caribbean - The case of Cuba. <i>Kidney International, Supplement</i> . 68(98)(pp S66-S68), 2005	1		1	2
2005.4	Turisco F, Keogh D, Stubbs C, Glaser J, Crowley Jr et al. Current status of integrating information technologies into the clinical research enterprise within US Academic Health Centers: Strategic value and opportunities for investment. <i>Jr Invest Med</i> 2005;53:425-433	3	5	1, 2	1
2005.5	Shannon GW., Bashshur R, Kratochwill E, Dewitt J. Telemedicine and the Academic Health Center: The University of Michigan Health System Model. <i>Telemedicine Jr and e-Health</i> . 2005;11:530-541	1		1, 2, 3, 4	2
2005.6	Sostman HD, Forese LL, Boom ML, Schroth L et al. Building a transcontinental affiliation: A new model for academic health centers. <i>Acad Med</i> 2005;80:1046-1053	5	4	9	3
2005.7	Cripe TP, Thomson B, Boat TF, Williams DA. Promoting translational research in academic health centers: Navigating the "roadmap". <i>Acad Med</i> 2005;80:1012-1018	3		3, 4, 5, 6	1
2005.8	Kirch DG, Grigsby RK, Zolko WW, Moskowitz J et al. Reinventing the academic health center. <i>Acad Med</i> 2005;80:980-989	5	4	9	3
2005.9	Chervenak FA, McCullough LB. Responsibly managing the medical school-teaching hospital power relationship. <i>Acad Med</i> 2005;80:386-391	5	2	5	1
2005.10	Whitcomb ME. Redesigning clinical education: A major challenge for academic health centers. <i>Acad Med</i> 2005;80: 615-616	5	4	9	3
2005.11	Kane RL, Bershady B, Weinert C, Huntington S et al. Estimating the patient care costs of teaching in a teaching hospital. <i>Am J Med</i> 2005;118:767-772	1	5	2	1
2005.12	Baum KD, Axtell S. Trends in North American medical education. <i>Keio Jr of Med</i> . 2005;54:22-28	2		9	3
2005.13	Retchin SM, Clark RR. Contemporary challenges and opportunities at academic health centers. <i>Jr Healthcare Manag</i> 2005;50:121-135	1	5	9	1
2005.14	Joiner KA., Wormsley S. Strategies for defining financial benchmarks for the research mission in academic health centers. <i>Acad Med</i> 2005;80:211-217	3		2, 4	1
2005.15	Bickel J, Brown AJ. Generation X: Implications for faculty recruitment and development in academic health centers. <i>Acad Med</i> 2005;80:205-210	5	4	2	1
2005.16	Whitcomb ME. Sustaining biomedical research: A challenge for academic health centers. <i>Acad Med</i> 2005;80:203-204	3	5	3, 4	3
2005.17	Joiner KA. The not-for-profit form and translational research: Kerr revisited?. <i>Jr Translational Med</i> . 2005;3:article 19	3	8		3

2005.18	Park ER, Wolfe TJ, Gokhale M, Winickoff JP, Rigotti NA. Perceived preparedness to provide preventive counseling reports of graduating primary care residents at academic health centers. <i>Jr Gen Intern Med.</i> 2005;20:386-389	2	7		3
2005.19	Steiner BD, Calleson DC, Curtis P, Goldstein AO, Denham A. Recognizing the value of community involvement by AHC faculty: A case study. <i>Acad Med</i> 2005;80:322-326	4	5		2
2005.20	Detmer DE, Steen EB. The academic health centre: leadership and performance. 2005; Cambridge University Press. 0521827183 9780521827188	5	2,7,8		3
2005.21	El-Jardali F, Fooks C. Environmental scan of current views on health human resources in Canada: Identified problems, proposed solutions and gap analysis. Health Council of Canada June 23, 2005 www.healthcouncilcanada.ca	4	9		2
2005.22	Rapport finale. Comité sur les capacités d'accueil dans les programmes de formation médical Avril 2005				
2004.1	Cruess, RL, Smith, DH, Wright CJ. Evaluation of the Ontario Academic Health Science Centres Alternative Funding Program (Phase 1): A Major Step Forward. Ontario Report Mrch 26, 2004	5	4	9	3
2004.2	Research Team on Interdisciplinary Education for collaborative patient centred practice. Interdisciplinary education for collaborative patient-centred practice: Research and Findings Report: Health Canada Feb 20, 2004	2		9	3
2004.3	Shortt SED., Stanton S. Does service "leak" to the fee-for-service sector under an alternative funding method? Experience at a Canadian Academic Health Center. <i>Research in Healthcare Fin Manag</i> 2004;9:21-28	1		1, 8	3
2004.4	Chervenak FA., McCullough LB. An ethical framework for identifying, preventing, and managing conflicts confronting leaders of academic health centers. <i>Acad Med</i> 2004;79:1056-1061	5		5	1
2004.5	Whitcomb M.E. Academic health centers: Sustaining the vision. <i>Acad Med</i> 2004;79:1015-1026	5	4	9	3
2004.6	Allan J, Barwick TA, Cashman S, Cawley JF et al. Clinical prevention and population health: Curriculum framework for health professions. <i>Am J Prev Med</i> 2004;27:471-476	2		1, 2, 3, 4, 7	1
2004.7	Betancourt JR, Maina AW. The Institute of Medicine Report "unequal treatment" Implications for academic health centers. <i>Mt Sinai J Med</i> 2004;71:314-321	1	5	1	3
2004.8	Belar CD. The future of education and training in academic health centers. <i>Jr Clin Psych in Med Settings</i> 2004;11:77-82	2		9	1
2004.9	Stevens LM, Lynn C, Glass RM. Academic health centers. <i>JAMA</i> 2004;292:1134	4	5	9	3
2004.10	Kligler B, Maizes V, Schachter S, Park CM et al. Core competencies in integrative medicine for medical school curricula: A proposal. <i>Acad Med</i> 2004;79:521-531	2		9	1

2004.11	Rodin J. A Revisionist View of the Integrated Academic Health Center. Acad Med 2004;79:171-178	5	4	9	3
2004.12	Calleson DC, Seiffer SD. Institutional collaboration and competition in community-based education. Jr Interprof Care 2004;18:63-74	2	5	9	2
2004.13	Litaker D, Cebul RD, Masters S, Nosek T, Haynie R, Smith CK. Disease prevention and health promotion in medical education: Reflections from an academic health center. Acad Med 2004;79:690-697	2	7		2
2004.14	Davies S. Academic Health Organisations: An International Comparative Study Project team and contacts 2004; University of Essex Website (www.essex.ac.uk/hhs/research/projects)	4	9		3
2004.15	Casebeer A. Regionalizing Canadian healthcare: the good--the bad--the ugly. HealthcarePapers 2004;5:12-31	1	9		2
2004.16	Lewis S, Kouri D. Regionalization: making sense of the Canadian experience. HealthcarePapers 2004;5:12-31	1	9		2
2004.17	Curran V. Interprofessional Education for Collaborative Patient-Centred Practice Research Synthesis Paper http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/interprof/synth-eng.php	2	5,6		
2004.18	PRÉSENTATION DU COMITÉ DE SUIVI AU COMITÉ DIRECTEUR MEQ-UNIVERSITÉS-MSSS SUR L'ANALYSE DES BUDGETS AFFECTÉS AU SOUTIEN À L'ENSEIGNEMENT ET À LA RÉMUNÉRATION DES MÉDECINS PROFESSEURS CLINIQUES May 2004				
2003.1	Levine DM, Bone LR, Hill MN, Stallings R et al. The effectiveness of a community/academic health center partnership in decreasing the level of blood pressure in an urban African-American population. Ethnicity and disease 2003;13:354-361	1	2, 3 (evaluation)	1, 5, 6	2
2003.2	Committee on the roles of academic health centres in the 21st century. Academic Health Centres: Leading change in the 21st century. 2003; National Academy Press NAP home page at www.nap.edu.	4	5	9	3
2003.3	Commonwealth Fund Task Force on Academic Health Centers. Envisioning the future of Academic Health Centres. Commonwealth Fund 2003 February at www.cmwf.org.	5	4	9	3
2003.4	Montague T, Cox J, Kramer S, Nemis-White J et al. Improving cardiovascular outcomes in Nova Scotia: A successful public/private partnership in primary health care. Hosp Quarterly 2003;spring:32-38	1	1	9	2
2003.5	Korner EJ, Oinonen MJ, Browne RC. The Power of Collaboration: Using Internet-Based Tools to Facilitate Networking and Benchmarking Within a Consortium of Academic Health Centers. J Med Systems 2003;27:47-56	5	1, 2	4	3
2003.6	Stanton S, Shortt SED. The influence of payment method on patterns of physician practice: Experience at a Canadian academic health center. Research in Healthcare Fin Manag 2003;8:43-58	1	5	2	1

2003.7	Harris DL, DaRosa DA, Liu PL, Hash RB. Facilitating academic institutional change: Redefining scholarship. Family Med 2003;35:187-194	5		2, 3	1
2003.8	MacLeod SM. Hospitals and academic health sciences centres: leaders or followers in health globalization? HealthcarePapers 2003;4:64-68	4,5	5, 6		2
2003.9	Leggat SG, Tse N. The role of teaching and research hospitals in improving global health HealthcarePapers 2003;4:34-38	4,5	5,6		2
2002.1	Dixon JF, Wielgosz C, Pires ML				
2002.2	Bernstein A. AHSCs: More important than ever in the century of health research. HealthcarePapers 2002;2:54-58	3	5	9	3
2002.3	Lozon JC, Fox RM. Academic Health Sciences Centres laid bare. Healthcare Papers 2002;2:10-36	5	3	9	3
2002.4	ON Prov Working Grp on Alternative Funding Plans. Alternate funding plans for academic health sciences centres.ON Government Health Report. February 2002.	1	5	5	2
2002.5	MacLellan K. Begin with ethics. The rest will follow. HealthcarePapers 2002;2:46-53	2	5	9	3
2002.6	Smith ER. Academic Health Sciences Centres: A View from the Academy. HealthcarePapers 2002;2:38 - 45	5	2	9	3
2002.7	Tepper JD. The Disconnect of Twin Pillars: The Growing Rift in Educational Goals and Methods between Medical Schools and the Academic Teaching Hospitals. HealthcarePapers,2002:2: 96-104	2	5	9	3
2002.8	Ludmerer, KM. The Embattled Academic Health Centre HealthcarePapers2002;2:59-65	5	2	9	1
2002.9	Culbertson R, A U.S. Perspective on AHSCs: A Future of Increased Diversification. HealthcarePapers 2002;2:66-72	5	4	9	3
2002.10	Schneller ES. AHSCs: The Movement from Brokers of Scarce Resources to Victims of the Changing Environment of Healthcare Delivery. HealthcarePapers 2002;2:73-79	5	4	9	3
2002.11	Shugart I. AHSCs: An Indispensable Partner for Governments. HealthcarePapers 2002;2:80-84	5	1, 2	9	3
2002.12	Ward TF. Governments, Policy Directions and the Future of Academic Health Sciences Centres. HealthcarePapers 2002;2:85-89	5		9	2
2002.13	Woollard R. AHSCs: The Complex Simplicity of Service. HealthcarePapers 2002;2:90-93	5	3	9	3
2002.14	Fyffe DW, Srigley JR. Solutions Must Include the Community Hospitals. HealthcarePapers 2002;2:105-109	4	5	9	2
2002.15	Lozon JC, Fox RM. The authors respond. HealthcarePapers 2002;2:111-114	5	4	9	3
2002.16	Paller MS, Hostettler L, Dykhuis DA. Clinical trials at AHSCs: The perspective of an academic clinical trials office. Acad Med 2002;77:1201-1206	3	5	4, 5	2

2002.17	Walsh AM, Szabat K, Grass LB. Sustaining the edge: Factors influencing strategy selection in academic health centers. <i>Jr Healthcare Manag</i> 2002;47:360-374	5	4	4, 5	2
2002.18	Bickel J, Wara D, Atkinson BF, Cohen LS et al. Increasing Women's Leadership in academic medicine: Report of the AAMC Project Implementation Committee. <i>Acad Med</i> 2002;77:1043-1061	5		2, 5, 6, 7,8	1
2002.19	Calleson DC, Seifer SD, Maurana C. Forces affecting community involvement of AHCs: Perspectives of institutional and faculty leaders. <i>Acad Med</i> 2002;77:72-81	5	4	9	2
2002.20	Chervenak FA, McCullough LB. Ethical management guidelines for leaders of academic medical centers. <i>Acad Med</i> 2002;77:45-47	5		9	1
2002.21	Andreae MC, Freed GL. Using a productivity-based physician compensation program at an academic health center: A case study. <i>Acad Med.</i> 2002;77:894-899	4,	4,8		1
2002.22	Rodgers DV. Some thoughts on culture, family medicine, and academic health centers. <i>Fam Med</i> 2002;34:237-239	5	9		3
2002.23	Romanow, RJ. Building on Values: The future of health care in Canada. November 2002 Commission on the Future of Health Care in Canada ISBN 0-660-18939-9	5	9		3
2002.24	Govt of Ontario Web Site. Alternative Funding Models for Academic Health Sciences Centres http://www.health.gov.on.ca/english/providers/project/ahsc/literature.html	5	8		2
2001.1	Campbell EG, Weissman JS, Moy E, Blumenthal D. Status of clinical research in academic health centers: Views from the research leadership. <i>JAMA</i> 2001;286:800-806	3		9	3
2001.2	Stevens LM, Lynn C, Glass RM. Academic Health Centers <i>JAMA</i> 2001;286:1132				
2001.3	Rodriguez JL, Peterson DJ, Muehlstedt SG, Zera RT et al. The impact of managed care and current governmental policies on an urban academic health care center. <i>Surgery</i> 2001;130:539-545	1	5	2, 5	3
2001.4	Oinonen MJ, Crowley WF, Maskowitz J, Vlasses PH. How do academic health centers value and encourage clinical research? <i>Acad Med</i> 2001;76:700-706	3	5	9	1
2001.5	Crowley WF, Thier SO. A program to facilitate clinical research in an AHC: The first five years. <i>Acad Med</i> 2001;76:403-409	3	5	9	1
2001.6	Garson A, Levin SA. Ten 10-year trends for the future of healthcare: Implications for Academic Health Centers. <i>Ochsner Journal</i> 2001;3:10-15	5	4	9	3
2001.7	Mulder DS. Current health care crisis: A Canadian perspective. <i>Archives of Surgery.</i> 136:169-171	4	5	9	3
2001.8	Blumenthal D, Causino N, Campbell EG, Weissman JS. The relationship of market forces to the satisfaction of faculty at academic health centers. <i>Am Jr Med</i> 2001;111:333-340	5	8		2

2001.9	Retchin S.M., Perlin J.B., Clark R.R. Clinical service standards at academic health centers. <i>Inter Nat Jr Quality in Health Care</i> . 2001;13:247-256	1	7		1
2001.10	Taheri PA, Butz DA, Dechert R, Greenfield LJ. How DRGs hurt academic health systems. <i>Jr Am College Surgeons</i> . 2001;193:1-11	1	7		2
2001.11	Hauer KE, Wachter RM. Implications of the hospitalist model for medical students' education. <i>Acad Med</i> . 2001;76:324-330	2	7		2
2001.12	Moskowitz J, Thompson JN. Enhancing the clinical research pipeline: Training approaches for a new century. <i>Acad Med</i> 2001;76:307-315	3	8		3
2001.13	Wolff M, Maurana CA. Building effective community-academic partnerships to improve health: A qualitative study of perspectives from communities. <i>Acad Med</i> 2001;76:166-172	1	7		3
2000.1	Retchin SM. Three strategies used by academic health centers to expand primary care capacity. <i>Acad Med</i> 2000;75:15-22	1	4,5		2
2000.2	Gorman PJ., Meier AH, Rawn C, Krummel TM. The future of medical education is no longer blood and guts, it is bits and bytes. <i>Am Jr Surg</i> 2000;180:353-356	2	4		3
2000.3	Gwinner VM, Strauss JF, Milliken N, Donoghue GD, Newman E. Implementing a new model of integrated women's health in academic health centers: Lessons learned from the National Centers of Excellence in Women's Health. <i>Jr. Womens Health & Gender-based Med</i> . 2000;9:979-985	1	4		3
2000.4	Hueston WJ, Mainous AG, Bazell C, Connor MK. Challenges to academic family medicine in the current health care environment. <i>Fam Med</i> 2000;32:240-245	1	9		3
2000.5	Osterweis M, Holmes DE. Global dimensions of domestic health issues. <i>Assoc. Academic Health Centres</i> . 2000				
1999.1	Kindig DA, Dunham NC, Eisenberg JM. Needs and challenges for health services research at academic health centers. <i>Acad Med</i> 1999;74:1193-1201	3	2	9	1
1999.2	Holmes DE. Reflections on Globalization of Health: Consequences of the 3rd Trilateral Conference. <i>Assoc. of Academic Health Centres</i> . 1999				
1997.1	Ontario Medical Association Integrated health systems: A discussion document for physicians April 1997	4	9		2
1997.2	Task Force on the Funding of Academic Health Science Centres. Funding academic health science networks: an investment for the future. September 1997				
1996.1	Aschenbrener CA. News from the future: Health care summit caps decade of transformation, 1996-2005. <i>Acad Med</i> 1996;71:823-827	5	9		3
1996.2	Deckers PJ. Academic medicine: As threatened as most would have us believe?. <i>Gynecologic Oncology</i> 1996;62:151-156	5	9		3

1996.3	Shea S, Nickerson KG, Tenenbaum J, Morris TQ, Rabinowitz D, O'Donnell K, Perez E, Weisfeldt ML. Compensation to a department of medicine and its faculty members for the teaching of medical students and house staff. <i>New Eng Jr Med.</i> 1996;334:162-167	2	9		3
1996.4	Wilson DE. Whither academic health centers? A commentary. <i>Jr Assoc for Acad Minority Physicians</i> 1996;7:56-61	5	9		3
1996.5	Weitekamp MR, Thorndyke LE, Evarts CM. Strategic planning for academic health centers. <i>Am Jr Med</i> 1996;101:309-315	5	9		3
1996.6	Campbell S. Reinventing AHCs to meet financial, clinical, research and educational demands. <i>Health Care Strategic Management</i> 1996;14:18	5	9		3
1996.7	Fargason CA Jr, Fargason RE. The changing academic health center. The death of the traditional academic physician. <i>Physician Executive</i> 1996;22:22-24	5	9		3
1996.8	Shulman LE. Clinical research 1996: stirrings from the academic health centers. <i>Acad Med</i> 1996;71:362-363	3	9		3
1996.9	Vavala D. The new academic health center hybrids: part business, part academic. <i>Physician Executive</i> 1996;22:5-10	5	8		3
1996.10	Rowand RS, Smith ER. Medical education and the changing hospital environment: A discussion paper for consideration at the ACTH Inviational Conference. Oct. 4, 1996				
1996.11	MacLeod SM. Future of Medical Schools: Transition and Turmoil: The work of a medical school dean. <i>Education for Health</i> 1996;9:13-24				
1995.1	Nat Conf on Future & Funding of AHSCs Fulfilling the mission:Conference Summary. 1995(Apr 6-7) HHR Planning ON Ministry Health	5	4	9	3
1995.2	Martin JB. Academic health centers. Vulnerabilities in 1995 and beyond. <i>Arch Int Med</i> 1995;155:1045-1048	5	9		3
1995.3	Shine KI. The future of academic health centers. <i>Physiologist</i> 1995;38:51-55	5	9		3
1995.4	Bondurant S. Health care reform continues: themes for academic medicine. <i>Acad Med</i> 1995;70:93-97	5	9		2
1994.1	Valbert LS, Gonyea MA, Sinclair DG, Wade J. Planning the Future Academic Medical Centre: Conceptual Framework & Financial Design. ISBN 0-920169-51-1	5	4	9	3

Appendix 2.1 – AHSC Environmental Scan -Survey Distribution List (March, 2009)

1. Institutional Leadership

The Institutional Leadership Survey was distributed to the following Academic Health Sciences Centre executives (list provided by ACAHO): Dec. 22-23, 2008

- a. 48 Chief Executive Officers
- b. 30 Chief Medical Officers
- c. 64 Vice Presidents of Research

In addition, the Canadian Association of Executive Nurses distributed the survey to nurses in senior executive positions in AHSCs.(December, 2008)

2. Academic Leadership

- a. Dr. Busing, AFMC distributed survey to all Deans of Medicine Dec. 22/08
- b. Dr. Abbott ADPC distributed survey to all Deans of Pharmacy Dec. 15/08
- c. CASN distributed survey to all Deans of Nursing, December, 2008
- d. Association of Canadian Faculties of Dentistry – distributed survey to all Deans – Jan 6-7, 2009
- e. Rehabilitation Sciences – 11 English and 4 French surveys distributed to Physiotherapy, Occupational Therapy and Rehabilitation Sciences – Jan 5

3. Provincial Government Deputy Ministers or ADMs

A. HEALTH DEPARTMENTS

ALBERTA

Linda Miller
Phone: (780) 422-0747
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BRITISH COLUMBIA

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Deputy Minister
Phone: (250) 952-1911
Fax: (250) 952-1909
Email: marsha.goldie@gov.bc.ca

MANITOBA

Arlene Wilgosh
Phone: (204) 945-3771
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NEW BRUNSWICK

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Deputy Minister
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NEWFOUNDLAND

Don Keats
Darryl Johnson
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Secretary

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NOVA SCOTIA

Deputy Ministers Administrative Assistant
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Deputy Minister
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PRINCE EDWARD ISLAND

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Marlene MacDonald
Administrative Assistant
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Fax: (902) 368.4974
Email: tmmacdonald@gov.pe.ca

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Ministère de la Santé et des Services sociaux
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Phone: (418) 266-7500
Email: (forwarded to) susan.lamy@msss.gov.qc.ca

SASKATCHEWAN

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A/Deputy Minister
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NUNAVIT

Alex Campbell
Deputy Minister
Phone: (867) 975-5702

Dr. Sandy MacDonald
Director of Medical Affairs
Phone: (867) 979-7601

YUKON

Joanne Fairlie
Assistant Deputy Minister - Health Services
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Email: joanne.fairlie@gov.yk.ca

B. ADVANCED EDUCATION**ALBERTA**

Annette Trimbee
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Email: erica.hammermeister@gov.ab.ca

BRITISH COLUMBIA

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Phone: (250) 356-5170
Fax: (250) 356-5468
E-mail: Aved.DeputyMinister@gov.bc.ca
Email: judy.shaw@gov.bc.ca

MANITOBA

Gerald Farthing
Phone: (204) 945-1648
E-mail: dmeduc@leg.gov.mb.ca

Doreen Wilson
Phone: (204) 945-1618

SASKATCHEWAN

Wynne Young
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Regina, SK S4P 2C9
Phone: (306) 787-4855
Email: karin.mellon@gov.sk.ca

ONTARIO

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ADM Ministry of Training, Colleges and Universities
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QUÉBEC

Michel Bureau
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NOVA SCOTIA

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Nova Scotia Department of Education
Higher Education Branch
P.O. Box 578 2021 Brunswick Street
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Fax: (902) 424-0511
Email: mercerdf@gov.ns.ca

NEW BRUNSWICK

Byron James
Deputy Minister
Post Secondary Education and Training
Phone: (506) 453-2343
EMail: Byron.James@gnb.ca

4. The Federal Government

Health Canada

Kathryn McDade
Director General Health Canada
Email: kathryn_mcdade@hc-sc.gc.ca

Karen Dodds
Assistant Deputy Minister
Email: karen_dodds@hc-sc.gc.ca

Since they were funding the project, they declined to complete the survey

Human Resources & Skills Development Canada

Frank Fedyk
Associate Assistant Deputy Minister, Human Resources and Skills
Development

5. Leading Canadian Health Care Organizations including

The Association of Faculties of Medicine of Canada

Dr. Nick Busing

The Canadian Medical Association

Phone: (800) 663-7336 ext 2188 (Chantel)

College of Physicians and Surgeons

Andrew Padmos, MD, FRCPC
Email: ceo@rcpsc.edu

College of Family Physicians

Dr. Calvin (Cal) Gutkin
Email: Jmccracken@cfpc.ca
Email: rhs@cfpc.ca

Canadian Healthcare Association

Pamela C. Fralick
President and CEO
Phone: (613) 241-8005 ext. (246)

Canadian College of Health Service executives (CCHSE)

John Borody
Board Chair
Phone: (204) 944-6237
Fax: (204) 786-7768
Email: jborody@afm.mb.ca

Canadian Nurses Association

Kaaren Neufeld
President
or
Ms. Rachel Bard
CEO
Email: executiveoffice@cna-aiic.ca

Canadian Academy of Executive Nurses

Patty O'Connor
SC member representative

Canadian Association of Medical Radiation Technologists

Charles Shields, Jr.
Chief Executive Officer

Canadian Assoc. of Schools of Nursing

Canadian Pharmacists Association

Jeff Poston
Executive Director
(cc to Janet Cooper)

Association of Faculties of Pharmacy of Canada

Frank Abbott

Canadian Society of Hospital Pharmacists

Myrella Roy

Dietitians of Canada

Marsha Sharp
CEO
Email: msharp@dietitians.ca
Email: centralinfo@dietitians.ca

Canadian Physiotherapy Association

Michael Brennan
CEO
Email: mbrennan@physiotherapy.ca

Canadian Association of Occupational Therapists

Claudia Van Zweck
Email: cvonzweck@caot.ca

Canadian Association of Speech-Language Pathologists and Audiologists

Ondina Love
ondina@caslpa.ca

Canadian Association of Paediatric Health Centres

Ms. Elaine Orrbine
President and Chief Executive Officer
2141 Thurston Drive, Suite 104
Ottawa, Ontario K1G 6C9
Phone: (613) 738-4164
Fax: (613) 738-3247
Email: eorrbine@caphc.org
Email: dschleyer@caphc.org

Canadian Society for Medical Laboratory Science

Shelby Giesbrecht
President
Email: President@csmls.org

Canadian Society of Respiratory Therapists

Christiane Ménard
Executive Director
Phone: (613) 731-3164 ext 222
Email: cmenard@csrt.com

Catholic Health Association of Canada

James Roche
President
Email: jroche@chac.ca

Canadian Institute for Health Information

Glenda Yates
CEO
Email: communications@cihi.ca

Canadian Patient Safety Institute

Philip Hassen
CEO
Email: phassen@cpsi-icsp.ca

Health Council of Canada

Mary Maniates is forwarding the survey to Health Council Members
Suite 900, 90 Eglinton Avenue East
Toronto, ON M4P 2Y3
Phone: (416) 481-7397
Fax: (416) 481-1381
Email: information@healthcouncilcanada.ca

6. Student organizations

Canadian Association of Interns and Residents

Dr. Roona Sinha
President
Email: rsinha@cair.ca

Canadian Federation of Medical Students

Jonathan DellaVedova
President
(Northern Ontario School of Medicine) forwarded request to send survey
<http://www.cfms.org/governance.asp>

7. Research Institutes and Organizations

CIHR

Dr. Alain Beaudet
President
Email: alain.beaudet@cihr-irsc.gc.ca

Friends of the Canadian Institute of Health Research

Dr. Aubie Angel
President
Email: aubie.angel@utoronto.ca

Canadian Foundation for Innovation

Eliot Phillipson
President and CEO
Email: eliot.phillipson@innovation.ca

CANARIE INC.

Guy Bujold
President and CEO
Email: guy.bujold@canarie.ca

Health Charities Coalition of Canada

Elisabeth Ross
Chair/Chief Executive Officer

Ovarian Cancer Canada
Deirdre Freiheit
Executive Director
Email: dfreiheit@healthcharities.ca

Networks of Centres of Excellence

Suzanne Fortier, Ph D.
Chair, NCE Steering Committee

Jean-Claude Gavrel
Associate VP
Email: jean-claude.gavrel@nce.gc.ca

Research Canada

Ms. Deborah Gordon-El-Bihbety
President & CEO
Email: dgordon@rc-rc.ca

Canadian Agency for Drugs and Technology in Health

Dr. Jill Sanders
CEO
Phone: (613) 226-2553
Email: info@cadth.ca

Canadian Diabetes Association

Ms. Ellen Malcolmson
President & Chief Executive Officer

Canadian Cancer Society and National Cancer Institute of Canada

Barbara Whyllie
Chief Executive Officer

Fonds de la recherche on santé du Québec

Dr. Marielle Gascon-Barré
Vice-présidente et directrice scientifique
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Manitoba Health Research Council

Christina Weise
Executive Director
P216-770 Bannatyne Avenue
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Alberta Heritage Foundation for Medical Research

Dr. Jacques Magnan
Interim President and CEO
Suite 1500 10104 - 103 Avenue
Edmonton, Alberta T5J 4A7
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Appendix 2.2 – AHSC Environmental Scan - Institutional Survey

SurveyConsole

My Surveys | Edit Survey | Send Survey | Reports | Integration

Academic Health Sciences Centres Survey

Edit Survey

- Add/Edit Questions
- Survey Outline

Look and Feel

- Survey Layout
- Images/Multimedia
- Validation Prompts

Survey Control

- Finish Options
- Security
- Email Notification

Survey Modes

- Randomization Options
- Multi-Lingual Options

Global Settings

- Global Preferences
- Logic/Quota
- Salesforce.com CRM

Thank you for agreeing to participate in the survey of the leadership of Canadian Academic Health Sciences Centres.

For the purposes of this survey an **Academic Health Sciences Centre (AHSC)** is defined as follows:

An academic health sciences centre is the constellation of functions and organizations that are committed to improving the health of patients and populations through the integration of their roles in patient care, education and research to produce the knowledge and evidence base that becomes the foundation for both treating illness and improving health. Those organizations include the university health professional faculties and schools, care delivery organizations and associated research enterprises.

Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact the Project Director, Christine Da Prat, at (902) 569-1957 or by email at christine@associationstrategygroup.com.

Thank you very much for your time and support. Please start with the survey now by clicking on the **Continue** button below.

How satisfied are you with the overall performance of your AHSC in seeking to achieve overall excellence and innovation in patient care and service delivery, education and training, and research?

- o Very satisfied
- o Satisfied
- o Neutral
- o Dissatisfied
- o Very dissatisfied

Patient Care Services

How satisfied are you with the performance of your AHSC in achieving excellence in patient care and service delivery?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

How important are the following factors for AHSCs to achieve excellence in patient care and service delivery?

*Please check **N/A** if you consider that you are not in a position to comment on a specific item*

	N/A	1 – Not at all important	2	3	4	5	6	7 – Very important
Improving access to care (e.g. to treatment, hospital beds, services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of e-health patient information management systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appropriate levels of funding for capital infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing interdisciplinary approaches to patient care – “changing the way of delivering health care”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource issues – recruitment and retention of an adequate supply of health care professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increasing demand for new technologies, diagnostic equipment, treatment approaches, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appropriate levels of funding to reflect the tertiary and quaternary patient care services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving the continuity of care – through its external relationships with other hospitals, regional health authorities and community-based health organizations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changes in the <u>external</u> governance structures to improve the overall impact/effectiveness of AHSCs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changes in the <u>internal</u> governance structures to improve the overall impact/effectiveness of AHSCs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please identify additional issues, trends and changing needs related to patient care and service delivery that are very important to your AHSC but were not included in the previous question.

Additional issue 1

Additional issue 2

Additional issue 3

Of all the issues identified in Questions 3 and 4, which do you consider to be **the most pressing issue** to address?

- Improving access to care (e.g. to treatment, hospital beds, services)
- Human resource issues – recruitment and retention of an adequate supply of health care professionals
- Increasing demand for new technologies, diagnostic equipment, treatment approaches, etc.
- Implementation of e-health patient information management systems
- Establishing interdisciplinary approaches to patient care – “changing the way of delivering health care”
- Improving the continuity of care – through its external relationships with other hospitals, regional health authorities and community-based health organizations
- Appropriate levels of funding to reflect the provision of tertiary and quaternary patient care services
- Appropriate levels of funding for capital infrastructure
- Changes in the external governance structures to improve the overall impact/ effectiveness of AHSCs
- Changes in the internal governance structures to improve the overall impact/ effectiveness of AHSCs

- Your first additional issue above, if applicable
 - Your second additional issue above, if applicable
 - Your third additional issue above, if applicable
-

What specific solutions (either on their own or in collaboration with the government or other relevant stakeholders) would you propose that would assist AHSC's in addressing the issue you identified as most pressing?

Education and Training

How satisfied are you with the performance of your AHSC in achieving excellence in education and training?

- Very satisfied
 - Satisfied
 - Neutral
 - Dissatisfied
 - Very dissatisfied
-

How important are the following issues, trends and changing needs to achieving excellence in education and training at your AHSC?

Please check **N/A** if you consider that you are not in a position to comment on a specific item.

	N/A	1 – Not at all important	2	3	4	5	6	7 – Very important
Redefine the relationship between the AHSC and the University (health professional faculties and schools)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balancing service requirements with educational opportunities for both students and preceptors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accelerating the trend towards inter-professional education, resulting in team-based approaches to patient care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding education within the AHSC budgets (including HHR infrastructure to support the educational experience and clinical teachers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decentralization of clinical education (distributive health professional education) and the resulting relationship between the AHSC and other hospitals and community-based health organizations that also provide educational opportunities for students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increasing the number of health professional students who receive their clinical education in AHSCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please identify additional issues, trends and changing needs related to education and training and deemed very important that were not included in the previous question.

Additional issue 1

Additional issue 2

Additional issue 3

Of all the issues identified in Questions 8 and 9, which do you consider to be **the most pressing issue to address?**

- Increasing number of health professional students who receive their clinical education in AHSCs
- Accelerating the trend towards inter-professional education, resulting in team-based approaches to patient care
- Balancing service requirements with adequate educational opportunities for both students and preceptors
- Funding education within the AHSC budgets (including HHR infrastructure to support the educational experience and clinical teachers)
- Redefining the relationship between the AHSC and the University (health professional faculties and schools)
- Decentralization of clinical education (e.g. distributive health professional education) and the resulting relationship between the AHSC and other hospitals and community-based health organizations that also provide educational opportunities for students
- Your first additional issue above, if applicable
- Your second additional issue above, if applicable
- Your third additional issue above, if applicable

What specific solutions (either on their own or in collaboration with the government or other relevant stakeholders) would you propose that would assist AHSCs in addressing the issue you identified as most pressing?

Research and Innovation Questions

How satisfied are you with the performance of your AHSC in achieving excellence in research and innovation?

- Very satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very dissatisfied

How important are the following issues, trends and changing needs for AHSCs to achieve excellence in research and innovation?

*Please check **N/A** if you consider that you are not in a position to comment on a specific item.*

	N/A	1 – Not at all important	2	3	4	5	6	7 – Very important
Recent economic downturn and its effect on funding of research activities within the AHSCs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective communication of the "return-on-investment" to the public and governments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accelerate knowledge transfer/ research findings to the clinical practice community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding increased costs of new technologies/equipment to conduct research within the AHSC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obtaining highly qualified researchers including clinician scientists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of protected research time for clinician scientists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relationship between the AHSC and funding agencies for health research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trend of private industry to move clinical research studies to foreign countries due to the lower costs of undertaking the study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please identify additional issues, trends and changing needs related to research and innovation that are important to your AHSC but that were not included in the previous question.

Additional issue 1

Additional issue 2

Additional issue 3

Of all the issues identified in Question 13 and 14, which do you consider to be **the most pressing issue** to address?

- Recent economic downturn and its effect on funding of research activities within the AHSCs
- Trend of private industry to move clinical research studies to foreign countries due to lower costs of undertaking the study
- Accelerate promotion of knowledge transfer/research findings to the clinical practice community
- Funding increased costs of new technologies/equipment to conduct research within the AHSC
- Obtaining highly qualified researchers including clinician scientists
- Effective communication of the “return-on-investment” to the public and governments
- Relationship between the AHSC and the funding agencies for health science research
- Provision of protected research time for clinician scientists
- Your first additional issue above, if applicable
- Your second additional issue above, if applicable
- Your third additional issue above, if applicable

What specific solutions (either on their own or in collaboration with the government and other relevant stakeholders) would you propose that would assist AHSCs in addressing the issue you identified as most pressing?

Institutional Leadership, Governance and Financial Issues

Over the last 15 years, dramatic changes have occurred in the governance and administrative structures of the health system within the Provinces and Territories. Which the following funding and reporting relationships best represents the current reporting process for your AHSC?

- Institutions report directly to and receive funding from a Regional Health Authority (or Local Health Integration Network) for health services, educational and research programs.
 - Institutions report directly to the provincial government but receive funding from two or three separate departments for health services, educational and research programs.
 - Institutions report directly to and receive funding from the Regional Health Authority (or Local Health Integration Network) for health services programs but report to and receive funding from the provincial government for educational and research programs.
 - Institutions report directly to and receive financing from the same government department for health services, educational and research programs.
 - I would not know
 - Other
-

Please describe briefly the reporting and financing structure under which the AHSC operates.

How satisfied are you with the current reporting/financing structure for your AHSC?

- Very satisfied
 - Satisfied
 - Neutral
 - Dissatisfied
-

Do you have any recommendations for enhancing the reporting/financing structure between the provincial government funding agencies and AHSCs?

Demographic Data

While the following questions are optional, your answers would help us analyse and interpret the results. No information that would allow identifying a person or a specific organization will be presented in the reports to the task force.

What is your present position?

- CEO
- Chief of Medicine/Head Physician
- VP Research
- VP Other
- Other (Please specify)

Number of years in this position. (Please enter a whole number only). If less than one year, simply enter 1.

Your province or territory:

- Alberta
- British Columbia
- Manitoba
- New Brunswick
- Newfoundland and Labrador
- Northwest Territories
- Nova Scotia
- Nunavut
- Ontario
- Prince Edward Island

- Quebec
 - Saskatchewan
 - Yukon
-

The second phase of this project will include telephone interviews with a select number of AHSC leaders across Canada. If you wish to be considered for inclusion in this second phase, please provide the voluntary information below. Be assured that none of this personal information will be provided to any third party, the task force or linked to your survey responses.

Name and title:

Name of Academic Health Sciences Centre:

Address:

Telephone # with area code:

E-mail Address:

Appendix 3.1 – AHSC Environmental Scan - Interview Guide

Preamble

We wish to thank you for participating in our recent survey concerning Academic Health Sciences Centres in Canada and volunteering to be interviewed. The interview should take no more than 20 minutes. The purpose of the interview is to examine in more detail your views and suggestions for enhancing the performance of AHSCs in the future.

The survey completed in the first component of this project, focussed on the three components of the AHSC – patient care and service delivery; education and training; and research and innovation. The respondents' views about the major issues and suggestions within each of these three sections were sought.

We will also focus on these three components of the AHSC in this interview.

Confidentiality

Please note that your responses will be confidential and that we will only report the consolidated responses and results of the interviews completed.

You can advise us if there are any questions you are not comfortable responding and also, if at any time you can no longer complete the interview.

Do you have any questions before we start?

Interview questions

1. If I were to ask what are the 3 toughest issues you have had to deal with in the last 3 years in your work related to AHSCs, what would they be?"

Regarding **patient care and service delivery** in AHSCs, the respondents to the online survey indicated that the most frequently identified issues were:

- a. *HR issues – adequate supply of health professionals (specialists and all health professionals)*
 - b. *Interdisciplinary approaches to patient care*
2. Would you agree with this finding or are there other issues that are more important? Please specify these issues that are more important.
 3. What are your recommendations for dealing with this/these issue(s)? Who would you involve in the process and how would you approach bringing the solution to fruition?

Moving to **education and training**, the most frequently identified issues were:

- a. *The resource and personnel issues in supporting increasing number of health professional students*
- b. *The interdisciplinary approach to education*

c. *The subsequent financing of these programs within AHSCs (and increasingly in the broader health care environment)*

4. Would you agree with these findings or are there other issues that are more important? Please specify these issues that are more important.
5. What are your recommendations for dealing with this/these issue(s)? Who would you involve in the process and how would you approach bringing the solution to fruition?

With regard to **research and innovation**, the most frequently identified issue was the need to Accelerate promotion of knowledge transfer/research findings to the clinical practice community. Obtaining highly qualified researchers including clinician scientists was the next priority.

6. Would you agree with this finding or are there other issues that are more important? Please specify these issues that are more important.
7. What are your recommendations for dealing with this/these issue(s)? Who would you involve in the process and how would you approach bringing the solution to fruition?

We would now like to further explore the issues relating to the external and internal governance of AHSCs.

8. What is your view of the major issues relating to external governance of the AHSCs that need to be addressed?
 - a. With Government
 - b. The Universities
 - c. Health care services in the community
9. Do you have suggestions on how these issues should be tackled?
10. What is your view of the major issues relating to internal governance of the AHSCs (between Departments, with Health Professional Colleges and individual institutions within the AHSC) that need to be addressed?
11. Do you have suggestions on how these issues should be tackled?
12. Taking a broader view of the future of AHSCs in Canada, would you recommend approaches or proposals that would be important for the Institutions, Universities and other stakeholders to address within the next five years?

Do you have any further comments you would like to add or any other suggestions to address in addressing the future of AHSCs in Canada?

Appendix 3.2 – AHSC Environmental Scan - Interviewees List (April 2009)

AHSC Institutional Leadership

British Columbia

Providence Health Care Research
Institute
Vancouver, BC

Manitoba

St Boniface General Hospital
Winnipeg, MB

New Brunswick

Regional Health Authority “B” (Formerly
Southeast Regional Health Authority)
Moncton, NB

Nova Scotia

Capital District Health Authority
Halifax, NS

IWK Health Centre
Halifax, NS

Ontario

Children’s Hospital of Eastern Ontario
(CHEO)
Ottawa, ON

University Health Network
Toronto, ON

Sunnybrook Health Sciences Centre
Toronto, ON

Québec

McGill University Health Centre
Montreal, Québec

CHU Québec
Québec, QC

Institutional Leaders – 10

Academic Leaders

Alberta

University of Alberta
Edmonton, AB

University of Calgary
Calgary, AB

Faculty of Medicine
University of Calgary
Calgary, AB

British Columbia

School of Nursing
University of British Columbia
Vancouver, BC

University of British Columbia
Vancouver, BC

Newfoundland

School of Nursing
Memorial University
St. John’s, NF

Nova Scotia

Faculty of Medicine
Dalhousie University
Halifax, NS

Ontario

University of Western Ontario
London, ON

Northern Ontario School of Medicine
Sudbury, Ontario

Queen’s University
Kingston, ON

Québec

McGill University
Montreal, QC

Saskatchewan

University of Saskatchewan
Saskatoon, Saskatchewan

School of Physical Therapy
University of Saskatchewan
Saskatoon, SK

Academic Leaders – 13**Government and
Stakeholder Groups****Government****Nova Scotia**

NS Department of Education
Halifax, NS

Alberta

Alberta Health and Wellness
Edmonton, AB

National Stakeholders

Health Council of Canada and Medical
Council of Canada
Ottawa, ON

Canadian Medical Association
Ottawa, ON

Canadian Public Health Association
Saskatoon, SK

Provincial Research Organization

Manitoba Health Research Council
Winnipeg, MB

**Total Government and Stakeholder
Groups – 6**

Total - 29

Alberta – 4

British Columbia - 3

Manitoba - 2

New Brunswick - 1

Newfoundland – 1

Nova Scotia - 4

Ontario - 6

Québec - 3

Prince Edward Island - 0

Saskatchewan – 2

Stakeholder - 3