



THE ASSOCIATION OF FACULTIES
OF MEDICINE OF CANADA

L'ASSOCIATION DES FACULTÉS
DE MÉDECINE DU CANADA

A National Integrated Health Research Strategy

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Position Paper

Introduction and Background

Health research in Canada has a powerful impact on the quality of the health and healthcare for Canadians as well as supporting economic prosperity. Innovation in research is key in realizing these goals and it is imperative that the systems and strategies in place are responsive to our existing and emerging health care needs. The current COVID-19 pandemic has strongly demonstrated the importance and necessity of coordinated and collaborative research in order to rapidly respond at scale to a health crisis in a productive manner.

Although not a new concept in global terms, collaborative and integrated science at a national scale is an innovation that we as the Canadian research community must embrace if we are going to continue to compete internationally as leaders in research and to provide maximum benefit to our people. Collaboration and connectivity are critical to address complex health challenges both between our academic institutions and the health sector and between these institutions and industry. Building on the successes of COVID-19 research, we must advocate ***for the creation of a National Health Research Strategy*** that focuses on developing the connectivity necessary for continued strategic national team-based and scaled approaches to address the health of Canadians. We need to improve the current climate and infrastructure to create a framework for collaboration across all sectors with common purpose to ensure that Canadians can solve the health needs of our country and contribute solutions with international impact.

There are examples of such successful strategic collaborations in our research community. One such programme is the CGen genomics platform, which is a federally funded collaboration between investigators at the University of Toronto, the University of British Columbia and McGill University that “provides a national platform for genome sequencing and analysis” ([CGen](#)). Another example is the Strategy for Patient Oriented Research (SPOR) networks. These are collaborative networks involving patients, stakeholders, policy makers and researchers and are focused on a variety of areas of health priorities. Although there have been many successes with these networks, many of them remain largely provincial rather than pan-Canadian. A further example lies in the national projects that have emerged to deal with the COVID-19 pandemic. The CATCO Trial is a multicenter, Adaptive, Randomized, Open-label, Controlled Clinical Trial of the Safety and Efficacy of Investigational Therapeutics for the Treatment of COVID-19 in Hospitalized Patients (CATCO: Canadian Treatments for COVID-19), in conjunction with the Public Health Emergency SOLIDARITY trial (World Health Organization). This collaboration involves many Universities including the University of Toronto, University of Calgary and University of Saskatchewan and will allow patients access to potential therapies which may otherwise be unavailable, while contributing to the global scientific community related to the efficacy of such treatments.

However, despite all of this hard-work and collaboration, Canada still faces challenges in conducting research at scale with similar issues regarding connectivity identified by multiple sectors. The close integration of academic research with industry is critical in responding to pandemics but is also critical in many other areas of healthcare. We therefore need a better research ecosystem that works together more cohesively so that we can rapidly move to translate research outputs into meaningful health interventions and into economic benefit. The development of a National Health Research Strategy that focuses on research collaborations across multiple sectors will result in an improved health research

ecosystem that supports scientists doing internationally recognized research to meet the health needs of Canadians. Part of the challenge within our country is that our health care systems are fragmented, and we need to improve integration across Canada. We need to elaborate and scale our research endeavours and enhance our connectivity with one another. Moving forward, we should work as partners at a national scale to develop a plan that builds upon the collaborative success of COVID-19 research and other such programmes for continued collaboration in the future.

Other jurisdictions have done this more successfully than we have in Canada – this includes the USA where collaboration is more effectively resourced by the National Institutes of Health (NIH) through the Translational medicine infrastructure, the United Kingdom that has established the National Institute for Health Research (NIHR) to provide comprehensive Clinical Research infrastructure ([UK National Institute for Health Research](#)), the Science Foundation in Ireland the Centres for Science, Engineering and Technology (CSET) programme promoting connections between academia and industry (<http://www.irdg.ie/centres-for-science-engineering-and-technology-cset/>), and the Horizons program to increase research excellence in Europe (<https://www.horizon2020.ie>). As reported in the AFMC “Health Innovation in Canada: Optimizing health and Canada’s Prosperity” Report ([Health Innovation in Canada: Optimizing health and Canada’s Prosperity](#)), we need to transform our research environment to an innovative/learning healthcare system for sustainability. Improved Pan-Canadian research is one of these critical innovations.

There are a number of key considerations required to enhance Pan-Canadian research efforts. First and foremost, is to put collaboration around clinical need as a priority. The COVID-19 pandemic has demonstrated that in order to deal with a significant health crisis, researchers need to work together. We need to expand this success to other areas of health research including, but not limited to, Precision Health, chronic diseases, communicable diseases, multiple morbidities and aging. This approach would facilitate the advancement of governmental health priorities ([Health Canada](#)) for improved health for all Canadians. Five areas of focus to achieve more scaled and coordinated research include 1) funding, 2) attracting, training and retaining talent from diverse backgrounds 3) infrastructure and platforms 4) partnerships and 5) economic Impact.

- 1) Funding** - Research in Canada has traditionally been very individualistic, and areas of research have largely been driven by individual investigators. Many of the current funding processes and models are not conducive to scaled, coordinated, team-research and we need to improve this to maximize our impact of funding. Not only do we need collaboration between our Academic Health Science Systems and Industry, both local and international, but we also need an intersection between different disciplines in our Academic Systems where potential solutions may lie in Data Science, Biomedical Engineering or even in Business or Policy areas (see partnerships). We need new funding approaches that support and promote interdisciplinary research at scale within our ecosystem.
- 2) Attracting, training, and retaining talent from diverse backgrounds** – We need great people in order to accomplish our collective goals. A sustained commitment to developing, engaging and fostering our scientists is critical for the success of the research ecosystem in Canada. However, we also need to focus on developing talent for other areas of the ecosystem including business, IP and regulatory capabilities. We will need to invest in our best researchers and provide them with excellent training environments that promote collaboration and interactions. A commitment

to equity, diversity and inclusion is essential for excellence - diversity drives innovation. We also need to develop excellent training environments for our future researchers and clinician scientists and provide ongoing support for our researchers regardless of career levels and trajectories, so they are best equipped to address future health and research challenges.

- 3) Infrastructure and Platforms** - We need to build world-class infrastructure that will provide the platforms that we need to translate our basis-science discoveries into treatments. Such national platforms could include —data access, artificial intelligence, biobanking, genomics, molecular pathology, early stage first-in-human clinical trials, national clinical trials networks and national ethics platforms that would improve our ability to scale research and function in a more productive manner to support collaborative research for better health for all Canadians. In order to achieve this goal, we need to break down barriers and improve the coordination and develop streamlined regulatory processes and procedures that will expedite research and access to data while still protecting privacy. A National Health Research strategy could accelerate “Made in Canada” innovations by reducing the “red tape” in government approvals to rapidly, yet safely deliver, new therapeutics to Canadians and reduce the barriers and bureaucracy allowing better access to data across the country.
- 4) Partnerships** - Faculties of Medicine in Canada cannot accomplish this goal in isolation. Many of the challenges that the academy is facing are also challenges and priorities for industry. Provincial health regulations and jurisdictions are inherently not structured to promote collaboration. We need to establish relationships with and integrate with businesses, health authorities, government and faculty members. We need to speak collectively with the support of the Tri-Agencies (Canadian Institutes for Health Research, Natural Science and Engineering Research Council and Social Sciences and Humanities Research Council), Canadian Research Coordinating Committee, Canadian Foundation for Innovation, Office of the Chief Science Advisor and the Federal Government (Health, ISED, and Finance). In order to achieve a National Health Research Strategy vision, we need to strengthen our collaborations with industry partners. Faculties of Medicine in Canada can collaborate with industry to help enhance the development and implementation of scientific discoveries, and this is currently a weakness in the Canadian research environment. ***Such collaboration must be incentivized through funding.*** Furthermore, partnerships with industry can help to stimulate health and bioscience companies to start, grow and remain in Canada. Relationships with industry can also help strengthen our ability to conduct clinical trials. Each of these strategic partnerships will result in increased collaboration across Canada and will allow us to work together to build and enhance health research in Canada.
- 5) Economic Impacts** - There is a direct economic impact for supporting research and team science in Canada. The ISED report “The Innovation and Competitiveness Imperative – Seizing opportunities for growth” ([ISED](#)) details how the academic sector is critical for training researchers and the next generation of health scientists, but we have the potential to do more. Training of highly qualified personnel in a scaled, team environment will support Canada’s youth, create jobs and provide innovative and entrepreneurial opportunities not yet realized. In 2014 the AFMC published the “Economic Impact of Canada’s Faculties of Medicine and Health Science Partners” which demonstrated the substantive economic and social impact that Faculties of Medicine have in their cities and provinces ([AFMC Economic Impact Study](#)). Our current pandemic has shown us

that health research and collaboration at scale is imperative to solve this crisis. We need to continue this team-based approach to science and expand to other critical clinical research areas and demonstrate the impact of collaboration on health and economic prosperity.

Conclusion: In order provide the best healthcare for Canadians and to be competitive on an international scale, “Made in Canada” treatment options need to be developed. Translation of discovery-based research to clinical applications for patients that are available for all Canadians must go through many steps. These include the basic scientific finding, “pre-human” research to determine if a treatment is likely to work and be safe in humans, “first in human” studies to obtain early results, randomized control trials to look at the efficacy of a treatment compared to the standard, and then analysis of multiple clinical trials.

In order to achieve this vision, we need to create in a National Health Research Strategy a research ecosystem that facilitates the development of these “Made in Canada” approaches. We need to create a better opportunity to conduct co-ordinated “Team-based” Science at a national scale that will allow researchers to collaborate more effectively together and with industry partners to solve existing and emerging health issues. Such a collaborative approach between universities and industry will be essential to create an environment to promote a strong national biomedical research ecosystem with economic benefit to Canadians arising from discovery research, translation to clinical trials, intellectual property and research-based industries. The impact of a strong research ecosystem that promotes health research innovation is clear – better research, promotes better healthcare, which results in better outcomes for Canadians. The creation of a National Health Research Strategy is critical for Canada to achieve these goals.