



THE ASSOCIATION OF FACULTIES
OF MEDICINE OF CANADA

L'ASSOCIATION DES FACULTÉS
DE MÉDECINE DU CANADA

AFMC's Prescription for CIHR's 2020-2025 Strategic Plan

April 1, 2019

As approved by the AFMC Board of Directors

AFMC PROPOSAL FOR CIHR 2020 STRATEGIC PLAN



Figure 1

Executive Summary:

AFMC is excited about CIHR's future and strengthening the path from research to action. We believe that CIHR innovation focussed on interdisciplinary teams investigating disease processes using modern enabling platforms at all levels of health research (molecules to health systems) in a manner that is socially accountable to develop innovations for use by patients/providers/policymakers will better the lives of Canadians (see Figure 1).

AFMC advocates for the following: 1) First and foremost, greater open, curiosity driven, investigator grant funding, 2) Greater emphasis on funding for interdisciplinary integrated research teams following the model successfully piloted by ICRHs small network/community development grants and extrapolation to larger interdisciplinary ecosystems, 3) Greater funding opportunities for research team members throughout the life cycle of a scientists with emphasis on funding for trainees (graduate students/post-doctoral fellows), clinician scientists and early career investigators; 4) CIHR institute re-alignment with an integrated understanding of disease processes; 5) Funding for complimentary expertise required for modern enabling platforms of research (e.g. methodologists, big data scientists, AI experts)); 6) Greater consultation with Canada's scientists to identify health research priorities and less "ringed fenced" funding to capitalise on Canada's research strengths; 7) Use of evaluative mechanism to support priority areas including research that embraces equity, diversity and inclusion.

AFMC's Prescription for CIHR's 2020-2025 Strategic Plan:

The AFMC is pleased to provide input to CIHR as CIHR maps out its strategic plan for 2020-2025. The proposed strategy is the collective vision of the AFMC Board, Deans and Vice-Deans of Research and Graduate Studies of the Faculties of Medicine of Canada.

The Faculties of Medicine in Canada are key players in biomedical research in areas ranging from the discovery science through the molecular basis of disease and into translation into improvements in human health. As such, the interest of the AFMC ranges from molecules and cells all the way through to the creation of an understanding of what are the best systems approaches for health care delivery and for the fostering of innovation. Specifically we strongly believe that high quality research has an impact on the health of patients and populations and also on the Canadian economy and that the impact of CIHR funding should ultimately reflect our societal obligations.

AFMC has devised a research to action model (Figure 1) that we believe optimally reflects the links/relationships of health research to the goal of improving the health and wellness of Canadians. The AFMC model is focussed on interdisciplinary teams investigating disease processes using modern enabling platforms at all levels of health research (molecules to health systems) in a manner that is socially accountable to develop innovations for use by patients/providers/policymakers to better the lives of Canadians.

Enhanced support for all levels of research- AFMC strongly supports ongoing investment in all levels of research from molecules to cells, animals, humans, populations and health systems. Through investigator-initiated programs at all levels, CIHR has built a strong platform from which to support development of interdisciplinary teams.

AFMC believes a greater investment is required in open operating grants that take advantage of the abilities of Canada's research teams/ecosystems to explore areas that these research ecosystems believe are priority and where Canada has strengths. There are many examples where predictions of what will move science have not come to pass and conversely transformative technologies have been developed that could not have been predicted. As such it is important that research eco-systems be nimble and that the structures that support them are also nimble to permit the scientists to capitalize quickly on emerging trends. AFMC believes that fully open, curiosity driven, investigator grant funding has the greatest likelihood of maximising societal impact in the long-term.

All stakeholders acknowledge that the current low rates of success in open operating grant competitions are reaching a crisis point. AFMC will advocate, to the public and government, for greater health research funding. CIHR must also work with its sister agencies to better define CIHRs scope of research to ensure that CIHR funding for health research is not compromised.

AFMC also advocates for strengthening of this chain of impactful health research by focussing investments in...

Interdisciplinary Teams- We recommend that CIHR enhance its capacity building for interdisciplinary team-based research in addition to supporting outstanding individual science. CIHR should support multi-disciplinary teams that include clinician scientists (inclusive of clinician scientists from all disciplines), trainees, patient partners, non-profit and for-profit organizations and knowledge users, to create health research ecosystems that are more likely to be optimally aligned and ultimately deliver research that changes practice.

With the decision to wind down NCE funding, opportunities for large research team support are reduced. One mechanism to support team capacity building at a small scale is by funding small networks/community development grants (as successfully piloted by CIHR's Institute of Circulatory and Respiratory Health). These small team pilots have shown that modest CIHR investments (~\$300,000-500,000 per year) can be successfully leveraged with non-profit and for-profit partners to create impactful health research ecosystems. These teams can support trainees, mentor and provide opportunities for early career investigators, imbed patient partners throughout the research lifecycle and engage knowledge users from prioritisation of research questions to conducting high quality research to knowledge translation (KT). Many of these small networks have leveraged CIHR funding in ratios of 1-2 to 1-5 from non-profit and for-profit stakeholders. Mechanisms should also be established for larger scale networks that can have meaningful impacts in key strategic areas. However, CIHR funding mechanisms should be flexible on leveraging arrangements. Not all worthy research communities have natural funding partners and matched funding may come with pre-conditions that may not be aligned with CIHR's objectives. CIHR should require that these eco-systems support trainees, early career investigators, patient engagement, consider indigenous health issues and include integrated knowledge translation activities in order to be eligible for CIHR support.

Research Support for Clinician Scientists and Early Career Researchers

There is a critical need to revise how clinicians from all health professions are trained, encouraged and supported to engage in research. Clinician scientists dwell at the interface of today's clinical care realities and can be the researchers that deliver tomorrow's solutions to our current and future health care challenges. Very few clinicians pursue clinician scientist training due to a lack of support for concomitant clinical and science training or scientist training after lengthy clinical training. The minority that complete clinician scientist training have difficulty securing funding for post-degree fellowships and protected time in the crucial early years after initial Faculty appointment, leading many to abandon research careers.

AFMC recognizes the importance of CIHR support for health research trainees. Graduate students, post-doctoral scholars and clinical research fellows, are the drivers of much of the health research workforce. AFMC strongly encourages increased funding

for health research trainees to grow capacity for current and future research teams. Funding for graduate students and post-doctoral researchers strongly positions Canada's workforce for a knowledge economy.

AFMC supports protecting time through salary awards for scientists at all career path stages. Early career investigators must be protected, nurtured and mentored to ensure a successful launch to their research careers. Later career scientists, whose lengthy training and experience is an invaluable resource, must also be retained in productive scientist career paths.

AFMC also suggests that CIHR consider encouraging that all operating grants include a senior investigator, an early career co-investigator and trainees (triads) to strengthen capacity building efforts and to further focus on working in teams.

“Disease Process” structures- The AFMC believes that CIHR's thirteen Institutes were an excellent starting point but that the time has come to rethink the initial strategy. Moving forward the CIHR should consider “disease process”-based structures rather than Institutes based on anatomic structures or body systems exclusively. Disease processes align better with modern medicine and research realities and are reflected in the Ageing and Childhood Development themes in the current Institute structures. For example, the commonalities of inflammatory disease in the heart, brain, gut and kidneys may be more relevant in terms of diagnostics and therapeutics than approaches based on multiple disease processes at a single site eg heart. Moving Institute structures to align with disease processes may allow us to better gauge where investments are required to more successfully move areas of translational research, therapeutics and biomarker discovery.

Environment and Health- AFMC also supports an enhanced focus on environmental impact on health and gene-environment interactions. Such approaches should include research in areas such as the impact of climate change and environmental contaminants on the health of Canadians and global citizens.

Investing in enabling research platforms- AFMC recognizes the importance of development, implementation and support of exciting new technologies in research including regenerative medicine techniques, artificial intelligence, big data manipulation, precision medicine tools (the “omics”), e-health records accessible for research, wearable technologies, optimal early stage intervention trials and robust observational studies. CFI is the primary funder for research equipment and infrastructure that are important parts of the research engine. In addition, AFMC recognizes that increasingly needed infrastructures cannot work without complementary expertise and that complementary experts, in and of themselves, are becoming required infrastructures (e.g. big data scientists, AI experts, trial methodologists); these specialists and corresponding research technology expertise are essential to support complex modern research environments. Support for these enablers does not exist in current research funding programs. AFMC recommends CIHR supports funding the development and

enhancement of appropriate support for advanced technology and translational platforms and increasing access to such enablers to significantly accelerate health research in Canada.

Digital Health Platforms- Digital health technology and patient centered health records (e.g. My Chart initiatives) increasingly permit continuous and seamless data collection that can be efficiently exploited in observational research, intervention research and precision medicine efforts. This will be facilitated by the internet of things, wearable technology and ubiquitous personal devices. This will transform not only the delivery of health care but also health care research. Careful consideration of the potential unintended consequences of these technological advances will be required. CIHR must ensure that Canada's scientific community can optimally capitalise on these digital health innovations while minimising unintended consequences. CIHR should fund and lead the development of optimal approaches to design and conduct of studies utilizing digital health platforms.

Increasingly consumers will demand, expect and practice a greater degree of involvement in their own health care. Clinicians will be called upon to a greater degree to interpret the quality of medical information to guide patients in their own decision making. This will necessitate a greater emphasis on health research methods training in medical school, residency training and continued medical education. Direct to consumer knowledge translation and direct to frontline practitioner knowledge translation will grow in importance and relevance. CIHR's current efforts to support optimal KT including encouraging integrated KT approaches in CIHR funded research and funding of primary KT research should continue to be supported.

Consultation with Scientific Community- AFMC believes that CIHR and government should consult Canada's health scientific communities to inform government priorities, strengthen current priorities and better direct government to emerging health challenges. AFMC supports the use of evaluative tools to push towards these priorities (e.g. additional points at peer review for research in priority areas) rather than "ring fence" funding that limit the opportunities for organic research growth and may not align with research excellence in Canada. If teams are properly structured and inclusive, priorities will match needs of our populations and health care systems.

Social accountability- AFMC strongly supports consideration of equity, diversity and inclusion (EDI) in the determinations of the type of research that is funded, the diversity of the applicants encouraged to apply for funding and the populations studied. These considerations, throughout the health research enterprise, will enable a greater impact on the entire Canadian population. The benefits derived from health research advances must be deliverable and accessible to all Canadians including the disadvantaged and those in northern, remote and indigenous communities. CIHR must also continue its efforts to ensure gender parity throughout the health research ecosystem, at all levels of research and through all stages of career paths.

Putting innovations to use- AFMC supports that all scientists should imagine how their work may ultimately lead to action in patients, providers and policymakers that will improve the health and wellness of Canadians and of global citizens. Ensuring that the products of research ultimately impact health is especially important for later pillar research (beyond discovery). Discovery science often has outputs that are not immediately apparent but can be transformational. CIHR's support of integrated technology transfer processes and of KT is crucial to optimise delivery of innovations to Canadians and to enhance health at a global level. Due consideration should be given to the development of innovative processes to ensure the strengthening of the value chain for research within Canada during the process of translation. Such processes would include enhancement of early stage trial capability and the creation of grant funding processes specifically designed to enhance the value of the innovations being developed within Canada.