

## **DISCUSSION PAPER**

### **DIMENSIONS OF HEALTH RESEARCH: The Four CIHR Sectors - Perspectives and Synergies**

Draft discussion document prepared by Janet E. Halliwell in collaboration with the Social Sciences and Humanities Research Council (SSHRC) Advisory Committee on Health and Jonathan Lomas, Executive Director, Canadian Health Services Research Foundation (CHSRF), and drawing from documents by N. Roos and P. Baird. The authors assume all responsibility for content, while recognizing the contributions of many others.

Janet E. Halliwell and Jonathan Lomas  
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## Context

As outlined in the founding documents, the Canadian Institutes of Health Research (CIHR) will pursue a broad research strategy that brings together a number of major research perspectives. One of its key goals is to forge an integrated health research agenda across disciplines, sectors and regions. The purpose of this discussion document is to illustrate the health issues and areas of research that fall within the four cross-cutting perspectives of the original CIHR vision, with a particular focus on the contributions of the social sciences and humanities and health services research communities. It also examines the kinds of contributions that will be required from researchers and other actors across the landscape of health research to achieve this vision.

The diagram below proposes an intellectual framework for exploring the four research sectors central to the CIHR. It is important to note that this model does not represent any specific division of research activity or allocation of funding. Rather, it sketches some of the research areas falling within the CIHR landscape and suggests examples of the synergies that CIHR must foster to successfully transform the way research on health is conducted in Canada, improve Canada's health system and, ultimately, contribute to the health of Canadians.

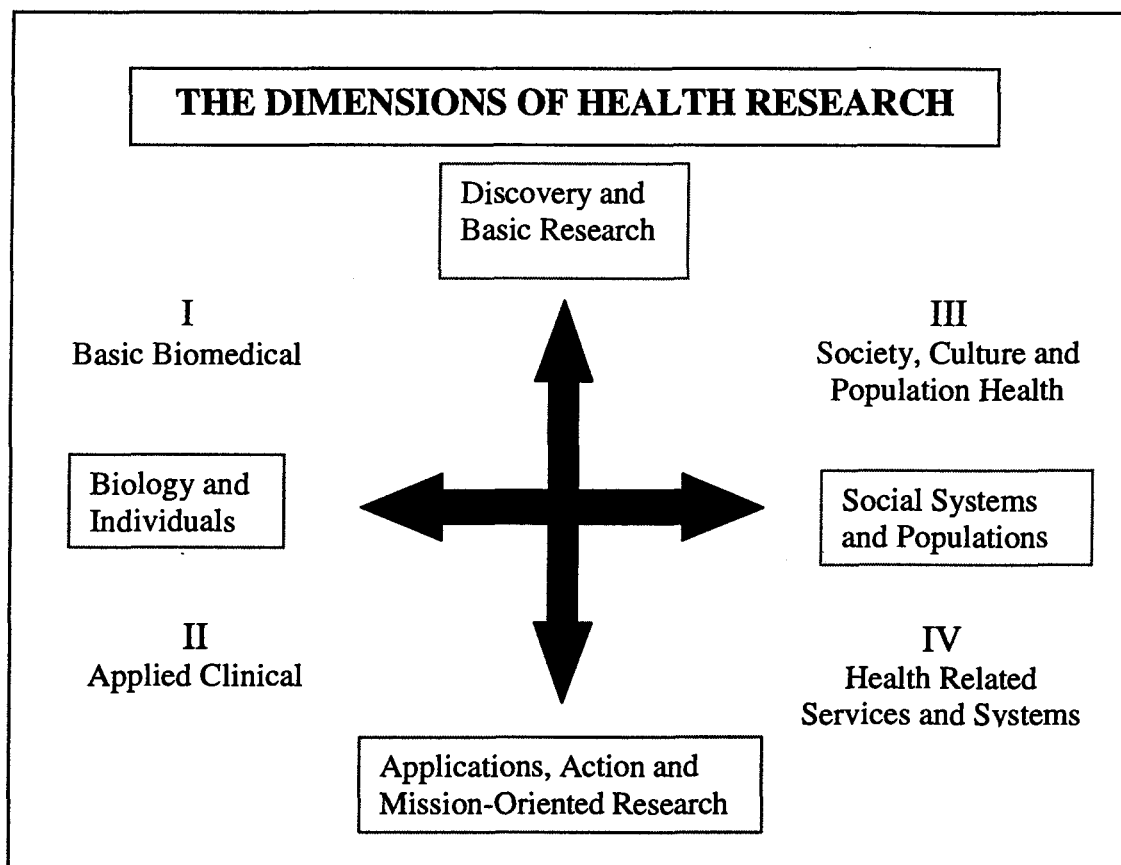


Figure: The Four CIHR Sectors

In this model, the horizontal axis identifies a continuum of research – from those areas of study that use individuals, cells or molecules as the unit of analysis to areas where the units of analysis are larger and the primary interest is in social systems, communities or populations. Some research approaches (e.g., behavioural) span the entire range – from individuals to populations. Similarly, historical, conceptual and discursive analyses are important because they inform and challenge the assumptions, practices and policies of all research.

The vertical axis identifies the range of activities from basic research – where the focus is on making fundamental discoveries and insights – to applied research, where the focus is on translating basic advances into applications targeted to specific circumstances.

Together, these axes can be used to define four sectors in the health research landscape. While each sector is characterized by specific features within that landscape, it is the interaction of research perspectives **across** sectors which brings deeper richness to the larger health research agenda.

### ***Sector I – Basic Biomedical***

The basic biomedical sector (upper left of the diagram) groups curiosity-driven research activities that focus primarily on making fundamental discoveries in biomedicine and the life sciences. It includes research aimed at understanding biological, physiological, anatomical, biochemical, behavioural, biobehavioural, genetic and other phenomena that operate at the level of the molecule, cell, organ or individual. This sector also includes fundamental work on health ethics, law, discourse and history that provides methods of analysis and insights into individual attitudes and understanding. While a central feature of this type of endeavour is the inability to predict what and when it will ‘produce’, it represents a major source of innovation. Innovations in this sector have led to important discoveries, the applications of which have resulted in new medical treatments. This sector of activity also provides a critical environment for research training and for building international networks that enable early access to important discoveries made elsewhere.

Although researchers in this sector often focus on basic gaps in biomedical knowledge, they do not work in isolation. Increasingly, there are significant collaborations with researchers in other sectors. One example is the research conducted on how systematic differences in the social and physical circumstances of early childhood are embedded in human biology and the consequences this has for health, coping skills and competence in later life. As the interdependence of experiences and responses at different stages of the lifecycle is better understood, there is growing appreciation of the need to explore and expand the links between biological and psychosocial research.

To date, this sector has received the majority of funds distributed by the Medical Research Council (MRC). In addition, the Natural Sciences and Engineering Research Council (NSERC), the voluntary health agencies, and the pharmaceutical, medical

device, and venture capital industries have been major contributors to promoting research in this sector. The Social Sciences and Humanities Research Council (SSHRC) has been a minor contributor.

### ***Sector II – Applied Clinical***

The applied clinical sector (bottom left of the diagram) groups activities concerned with developing particular applications of knowledge to provide effective clinical interventions. It includes the development of approaches to treating and preventing disease and disabilities, and testing them on humans – first under controlled clinical conditions and ultimately in everyday situations. Research of this type builds on and is informed by sector I (basic biomedical) activities, as well as insights from sectors III (society, culture and the health of populations) and IV (health services and health systems). Recent ‘evidence-based’ medicine and ‘outcomes research’ has been able to describe a whole range of activities recognized as critical to understanding how and/or whether new or existing clinical interventions actually affect the health of individuals. Studies of how health professionals speak to patients/clients, the questions they ask, and the frameworks that are used to explain health and illness in sector III also represent important areas for further research in this sector. Other examples of the broad range of research and related activities in sector II would include evaluation of biomedical devices, research underpinning clinical practice guidelines, health promotion focussed on individuals, randomized clinical trials, late-stage pharmaceutical research, as well as meta-analysis and clinical research dissemination.

The list of those actively promoting research in this sector include MRC, the National Health Research and Development Program (NHRDP), the voluntary health sector, SSHRC, as well as the pharmaceutical, medical devices, venture capital and information technology industries.

### ***Sector III – Society, Culture and Population Health***

The society, culture and population health sector (upper right of the diagram) groups the range of curiosity-driven research activities that focus on advancing understanding of both the determinants of health and attitudes to health in individuals and populations, and how administrative, legal and social systems relate to health. It represents an area of inquiry that is, to date, less developed than sector I and draws primarily – but not uniquely – on social science, public health, and epidemiological research traditions. It attempts to answer such questions as "Why are some people and populations healthy and others not?" or "Why do some social systems work and not others?" Within the health continuum, bio-medical and applied clinical research can offer further possible answers to the question: "What is to be done when someone is ill or injured?" But they can only partially address the questions: "Why do people become ill or injured? Why are some groups much more likely to develop specific diseases or injuries?"

Research in this sector would seek to explain the association between the health of a population and the size of the social distance that separates its members. Specific

contributions from sector III would include systematic analyses of communities, populations and systems, including research into such questions as how investment in culture or adjustment to the judicial system affect individual and collective relationships to health. The humanities, while not traditionally recognized as part of the landscape of health research, are playing an increasingly important role in this sector. They provide historical insights and comparisons of how health issues have been framed, and shed light on individual and group attitudes to health and treatment options. They supply modes of analyzing the language of health, enabling us to contextualize its value-laden character and uncover its embedded assumptions.

As in sector I, basic research in sector III cannot be judged in terms of predictable 'products' or outcomes and it plays a similarly crucial role in providing fundamental insights and knowledge breakthroughs. The advances in understanding generated by sector III are eventually converted into "applications" in the form of innovations and improvements in the development of health programs and policies. They sharpen and expand research methodologies and tools (including linked databases), and produce a rich environment for research training and strong international linkages. Viewed within an integrative perspective on health, strengthening linkages between sectors I and III offers a critical opportunity to expand our awareness of how different social and cultural experiences are embedded in biological pathways. Examples of other contributions from sector III research activities include deepening our understanding of how people experience disease, disability and trauma as individuals and within different systems, how coping skills develop in childhood and how they relate to health in later years – and ultimately, to the reduction of disease morbidity and premature mortality. Research in this sector offers to significantly advance our understanding of how best to structure current and potential systems for producing and maintaining health.

Here again, Canadian funding comes from a variety of sources. SSHRC supports fundamental and multidisciplinary research through basic and targeted programs; NHRDP is also a major player in this sector. MRC has expanded the funding opportunities with its evolution to support research on population health and psychosocial and behavioral issues. Canada's small but energetic family of philanthropic foundations and its emerging research networks (e.g., the Canadian Institute for Advanced Research, the Canadian Policy Research Networks, or the NCE in Health Evidence and Application — HealNet) have contributed significant support. The National Population Health Institute will also contribute to this sector.

#### ***Sector IV – Health Related Services and Systems***

The health related services and systems sector (lower right of the diagram) includes research on what to include under social/health policy umbrellas and how to deliver services that may have an impact, directly or indirectly, on health. It also includes the development of approaches to improve the health of populations through activities that may lie outside the health care system. While there is a tradition of research into some of the impacts of social policies and programs, social interventions have typically not been evaluated from the perspective of their potential impacts on population health. The significant level of research activity in sector III – a relatively recent phenomenon – thus

promises a wealth of new information that can also help to push the boundaries of understanding within the health services and health systems sectors as well as health-related services and policies outside the formal health system.

Although relatively underdeveloped at this point, sector IV represents an area of major importance for a broadened health research agenda. With the new emphasis on providing community-based health services, there is an urgent need to assess health strategies developed by and for community level participants in the system and to explore how best to facilitate the interactions of practitioners and community stakeholders. Research input is needed to aid the increasingly complex decisions on budget allocations and program design facing policy makers and health system managers.

Promoting research on applied systems issues, such as the organization, funding and delivery arrangements for broadly conceived health services, is the remit of the National Health Research and Development Program (NHRDP), the recently created Canadian Health Services Research Foundation (CHSRF), and many of the provincial health research agencies. Additionally, MRC has supported some health services research in recent years, and the mandates of SSHRC and the emerging National Population Health Institute relate directly to research in this sector.

### ***Boundary-Crossing Research***

While significant insights into health can be gained from activities within each of the sectors, the development of strategies that bridge sectors offers new possibilities to increase the production of research that will contribute to improved health.

By way of further example: research conducted in sector III has revealed large differences in health status across different socio-economic groups. Research in sector I has shown associations between psychoneuroendocrinological and psychoneuroimmunological phenomena and differing social experiences and exposures to stress. Research strategies that enable us to link insights from sectors I and III could expand our understanding of the biological pathways by which social circumstances lead to profound social gradients in health. Such insights may, in turn, lead to innovations in clinical applications (sector II) and in design of our health services and health systems and related policies (sector IV).

Research in sector IV will provide useful population-level insights into the potential benefits and risks of individual applications developed in sector II. It can be argued that a priority need is to develop the capability for comparing, at a general level, the relative health payoff from broader population-targeted interventions (sector IV) with the payoff from biomedical interventions focussed on treating individuals (sector II).

Another key cross-boundary issue is that of language and how language mediates values and perception with regard to health and health research. This would embrace both the range of specialized language used to approach research issues (sectors I and III) and that used with patients and clients in a health care system (sectors II and IV). Cross-boundary

and interdisciplinary work is also needed on such things as the history of health service provision, clinical and biomedical research agendas, and the development of social attitudes toward health – all of which can be crucial in shaping health research and, ultimately, health policy.

Nutrition and life style are only two of the many more examples of other cross-boundary health issues that could be more effectively explored by drawing on the strengths of many disciplines and perspectives.

### ***Conclusion***

In sum, the creation of CIHR represents an unprecedented opportunity to transform and advance the way we understand and conduct health research, with the ultimate goal of ensuring better health for all Canadians. The vision articulated for CIHR is ambitious and exciting. Among the many challenges involved in achieving this vision, the greatest will likely be that of devising effective strategies to promote a truly comprehensive and integrated health research agenda, while enhancing the strength of the disciplines and research communities on which it draws.