Institute On Governance | Institut sur la gouvernance


# Health Services and Policy Research Capacity Building in Canada

*Institute On Governance*

*July, 2010*

The Institute On Governance (IOG) is a Canadian, non-profit think tank that provides an independent source of knowledge, research and advice on governance issues, both in Canada and internationally.

Governance is concerned with how decisions important to a society or an organization are taken. It helps define who should have power and why, who should have voice in decision-making, and how account should be rendered.

Using core principles of sound governance – legitimacy and voice, direction, performance, accountability, and fairness – the IOG explores what good governance means in different contexts.

We analyze questions of public policy and organizational leadership, and publish articles and papers related to the principles and practices of governance. We form partnerships and knowledge networks to explore high priority issues.

Linking the conceptual and theoretical principles of governance to the world of everyday practice, we provide advice to governments, communities, business and public organizations on how to assess the quality of their governance, and how to develop programs for improvement.

You will find additional information on our activities on the IOG website at www.iog.ca


[IOG 2010-3051]

For further information, please contact:

Eddy Nason
Senior Researcher
Institute On Governance
215 Spadina Ave, Suite 134
Toronto, Ontario, Canada M5T 2C7
tel: 1 (647) 295-8506
fax: 1 (416) 979-3936
enason@iog.ca

## Key Findings

- Evaluations of capacity building approaches for Health Services and Policy Research (HSPR) are rare but slowly arriving. For example the Canadian Health Services Research Foundation (CHSRF) and Canadian Institutes of Health Research (CIHR) Capacity for Applied and Developmental Research and Evaluation in health services and nursing (CADRE) program evaluation is due in 2010/11.
- Capacity building in HSPR spans two populations – Academia and the health service/policy domain. The previous funding approaches to these have often been distinct and separate. This is partly due to the incentive structures for the two types of research, although efforts have been made to alter the incentive structure for applied researchers in clinical settings such as Relative Value Units[1] in the US, and the 25% buy out of clinical activity for researchers in Alberta teaching hospitals.
- Attempts to bridge the divide between academic and "user" HSPR capacity, such as the CHSRF/CIHR CADRE Regional Training Centre approach in Canada, are seen by interviewees as successful, and evaluation evidence suggests that they create a greater capacity for HSPR to have an impact on policy and practice (Healthcare Policy, 2008).
- Interviews suggest that conditions linked to funding can enhance the success of HSPR capacity building. These conditions include: linking researchers and decision makers more closely; requiring plans for sustainability; funding administrative support for researchers; and making the selection process for funding competitive and accessible to the HSPR community.
- Capacity building of human resources is most useful in association with capacity building for research infrastructure (such as networked provincial datasets) and aligned research activity funding[2] (which has been shown to improve students involvement in research over direct student support).
- Interdisciplinary and cross-disciplinary research are important for improved outcomes from research, but are not generally supported by either the academic environment (difficult to align with the academic career path) or applied environment (where support is generally for activity, not people).
- According to interviewees, funding academic research Chairs can have a capacity building impact, but should require Chairs to continue to teach HSPR in addition to employing researchers on grants. The CADRE and Institute of Health Services and Policy Research (IHSPR) Applied Chairs are examples of how this can be achieved.
- Student funding seems relatively strong in Health Services Research (HSR) in Canada - less so in Health Policy Research (HPR) – but there is a view that there are few research opportunities for young researchers once they finish as students (that the early-mid level researcher is a gap for research capacity).
- There is hidden capacity in HSPR. Since HSPR includes researchers from a variety of backgrounds, it is difficult to identify who is doing HSPR, and who could potentially be involved in HSPR.

[1] Relative Value Units are a way to assess and compare the 'value' of an activity in a clinical setting by including the level of skill required, personnel time and equipment needed to perform the activity.

[2] Research activity funding is money specifically to pay for research only. This would include grants, projects and programs, but would not include infrastructure or fellowships/studentships.

- Networks and team funding are seen by interviewees as good ways to develop capacity, particularly in response to strategic goals. These have the benefit of combining capacity building and research activity funding, and also can potentially decreases marginal costs and increase efficiency of the research enterprise.
- Internationally there is a similar range of issues for HSPR capacity building, particularly around the split between academic research and applied research.

## Executive Summary

Health Services and Policy Research (HSPR) is a fast growing research field in the health research area. However, despite unprecedented research funding for HSPR compared to previous years, there is still a need for continued investment to put HSPR at the same level as biomedical and clinical research in Canada, in order to create a sustainable research community that is producing effective, efficient research at the rate needed by Canada.

The Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR) has a mandate to champion and support "excellent health services and policy research and knowledge translation to identify, understand and address health system needs and challenges and to contribute to health system accessibility, responsiveness, effectiveness, efficiency and sustainability".

As per the CIHR Strategic Plan, IHSPR and CIHR both wish to build research capacity (CIHR, 2009a). To support and further grow a robust and sustainable HSPR community, CIHR has identified a need to understand the following three points:.

1. What capacity exists now? (An environmental scan)
2. What initiatives for capacity building exist in HSPR and have worked? (Assessment of possibilities)
3. What gaps exist in capacity building and how these might be filled? (Innovative capacity building approaches)

The present report focuses predominantly on points two and three of the above. CIHR-IHSPR's complementary report entitled "Health Services and Policy Research Capacity Building Data Analysis (2000-2009)" addresses point one.

### *Initiatives for HSPR Capacity Building*

There are myriad initiatives for HSPR capacity building. This is partly because HSPR is comprised of researchers with diverse disciplinary backgrounds. They can be academic researchers in universities, in departments ranging from medicine through to economics, law, philosophy or business. HSPR capacity also exists in applied research locations: hospitals, health care organization management, health administration and government departments. Supporting researchers across these locations requires a complex array of tools to provide for the full spectrum of researchers – from those beginning their research careers to those at the most senior levels of research and decision making.

In Canada, the most prominent examples of building HSPR research capacity, based on stakeholder interviews and document evidence, have been the CADRE[3] program, EXTRA[4] program, STIHR[5] program and IHSPR-IPPH[6] Summer Institutes. Outside Canada, the PHCRED[7] strategy in Australia has proved very successful in developing primary care research

[3] Capacity for Applied and Developmental Research and Evaluation in health services and nursing.
[4] Executive Training for Research Application.
[5] Strategic Training Initiative in Health Research.
[6] IPPH is the Institute of Population and Public Health
[7] Primary Health Care Research, Evaluation and Development strategy

as a discipline. Other international approaches are identified, but as yet are not evaluated so do not provide firm evidence on what might be transferable to Canada.

CADRE, run by CHSRF and CIHR, provides funding for the following: Chairs (to research and mentor teams of new researchers); Regional Training Centres (to link students in HSPR with decision makers and senior researchers); postdoctoral awards (to expand skills for new HSPR researchers); and career reorientation awards (to access researchers with skills beneficial to HSPR and bring them into the HSPR community). CADRE has been widely acknowledged as developing the current Canadian HSPR capacity from the small fragmented HSPR community that existed when CADRE began in 2000.

EXTRA, again run by CHSRF, provides two-year fellowships for decision makers to learn skills in using and evaluating HSPR generated knowledge. This creates valuable receptor capacity and is seen by decision makers as preferable to MBAs and health administration courses (Anderson and Tremblay, 2008; Interviews).

The STIHR program, which is funded by CIHR in partnership with other organizations, provides HSPR students (amongst other disciplines) with the opportunity to work in multidisciplinary research environments for their graduate (and in one case undergraduate) studies. STIHRs, although not designed to specifically address HSPR capacity building (since STIHRs are available in a variety of disciplines of health research), have already been identified as having a significant effect on the way HSPR graduates experience research training.

Summer Institutes provide opportunities for students of HSPR to come together and learn from one another, senior researchers and decision makers at thematic and method specific retreats. These are so popular with both students and research funders that numerous other funders have already copied the IHSPR-IPPH Summer Institute.

PHCRED in Australia aims to develop research links between universities and primary care service providers by incentivising universities to fund research by practitioners. PHCRED uses a number of tools such as fellowships, skill development grants, activity funding for short-term projects, networking approaches and administrative support. It is widely perceived as a success in instilling research into primary practice in urban areas of Australia (although has been less successful in rural locations).

Approaches to capacity building for HSPR in the UK, Ireland and the US are very similar to those seen in Canada. Most approaches have not been evaluated however, meaning it is difficult to determine whether they would be useful in Canada. Example approaches that were mentioned in international interviews as positive approaches include: the UK National Institute for Health Research Service Delivery and Organization program (SDO) focus on management receptor capacity; the US Agency for Healthcare Research and Quality (AHRQ) Building Research Infrastructure and Capacity program (BRIC), to provide institutional funding in US States that do not have sufficient infrastructure to perform HSR; and the Health Research Board of Ireland's development of health services and population health research through funding senior fellows and PhD students in HSR.

These are not the only initiatives that exist, merely those with the biggest impact on interviewees and HSPR literature. Other initiatives exist that include: addressing practitioner research capacity in rural locations (networking researchers); answering specific physician research questions (e.g. research help desk approach) and mentoring researchers in isolated disciplines (cross-discipline mentoring).

### *Gaps in Capacity and Innovative Solutions*

It is difficult to identify where there are gaps in the system without having first answered the question of "what capacity for HSPR exists now?" Up till now there has been no substantive environmental scan of HSPR research capacity for Canada – perhaps because it would require analyzing capacity supported by numerous funders in multiple academic and applied locations, as well as identifying researchers who can perform HSPR but would not consider themselves part of the HSPR community. The CIHR-IHSPR complementary environmental scan attempts to provide this.

While we may not be able to identify specific disciplines that are under-represented in the HSPR community, there are some collectively agreed upon perceived gaps in funding for different levels of HSPR. The main one of these is for postdoctoral researchers – where there are more graduates coming through than ever before in HSPR, but not enough post-doctoral research opportunities for them to progress past graduation. There seems to be no sign in the literature or through interviews of what the right balance is of senior, mid-career and junior researchers is for HSPR (or indeed other applied health research). A gap also acknowledged in Canada is around researchers in decision maker and management spheres. In recent years there has been a concerted effort to develop clinician scientists, but no such effort to create equivalents in health system or policy spheres.

One solution that could improve the opportunities and profile of HSPR in Canada is to modify the incentive structures for researchers. In academia, research incentives are predominantly based on publications and grant money; in applied settings such as hospitals and government, incentives are about timeliness, relevance and appropriateness. Modifying each incentive structure to accurately reflect a) the needs of the health system and b) improving research quality will make HSPR more attractive to universities, health care organizations and decision makers.

### *Relating Capacity Building to CIHR, IHSPR and Other Priorities*

Capacity building for HSPR is an important part of the role of CIHR, IHSPR and the other CIHR Institutes, since it is the way to build and maintain a high quality research system in Canada. It is important however, to ensure that capacity is built in such a way as to address the current priorities in Canadian health research. This is particularly pertinent in HSPR, which seeks to address the issues of a constantly evolving health system and policy framework. CIHR, IHSPR and other Institute strategic priority areas are addressed by various different approaches: some from within Canada, some from outside.

At the level of CIHR, there are five strategic priority areas, of which IHSPR identified three important strategic priority areas relevant to HSPR capacity building:

- **Support a high-quality, accessible and sustainable health-care system.**

This issue is something that requires good quality, timely, relevant and robust HSPR and is linked to the research capacity building exercise mainly through developing and retaining the best capacity to answer current and future health system questions. To build this capacity requires creating researchers that can answer a wide variety of questions with a variety of methods. Building methodological knowledge and skills in the HSPR community is one way to address this issue. Also, with federal, provincial and regional issues at play in a high quality, accessible and sustainable health-care system, there needs to be sufficient capacity to address questions in different locations (and at different jurisdictional levels). This is similar to the issue addressed by the AHRQ's BRIC program that provides funding to US States where there is little capacity for HSR.

- **Reduce health inequities of Aboriginal peoples and other vulnerable populations.**
  Research into Aboriginal health issues has a strong focus on health policy. Building the population of researchers in HPR who can answer questions around Aboriginal health is a particularly important part of the capacity building approach. There are many approaches to building research capacity within particular communities, and in the Aboriginal community, the Institute of Aboriginal People's Health has considerable experience in building Aboriginal research capacity. Capacity building approaches aimed at those outside academia can also be effective for Aboriginal and vulnerable population research, since they access groups that are under-represented in 'traditional' research. The approaches in rural BC at involving health professionals in HSPR, such as the research helpdesk, is one such approach.
- **Promote health and reduce the burden of chronic disease and mental illness.**
  Chronic conditions and mental health are key issues to the health system, and ones that require good HSPR. Building HSPR capacity that aligns with specific disease areas is something that CIHR is addressing through the interaction of IHSPR and other institutes. For example, the growth of the IHSPR-IPPH Summer Institute brings together HSPR and population health researchers to inform each other on issues such as chronic disease. However, it is important to avoid research silos, and as such there needs to be a multidisciplinary approach to models of care in chronic disease (since patients often exhibit co-morbidity).

At the level of IHSPR itself, there are three main strategic priority areas (one with two sub-sections) that need to relate to research capacity and necessitates a cadre of skilled HSPR researchers to tackle current challenges and anticipate future ones:

- **Access to Appropriate Care across the Continuum:**
  - *Primary Healthcare*
    PHCRED in Australia provides an excellent example on how to build research capacity for primary care, in both academic and applied healthcare settings.
  - *Community-Based Care*
    There are applied HSPR capacity building approaches that can bring in community based care practitioners, such as the Ontario College of Physicians' weekend training courses (which could be translated for community care, rather than physicians).

- **Drug Policy (including effectiveness and safety research as well as financing etc.)**
  Defining drug policies is an obvious aspect of the HPR remit, and building the capacity to provide both health economic analyses of drugs and ways to analyze their appropriateness for the health system (including safety, effectiveness and public perceptions of drugs) means developing specific methodological skills in Canada, for example health economics. The development of skills and methodology training as part of many HSPR capacity building approaches (such as Summer Institutes, RTCs, etc.) will allow the development of multi-skilled HSP researchers who can address the policy questions that arise from drug research.
- **Health Information.**
  Health information is important in both policy and health services – providing the tools that allow evaluation of the system, and increased continuity in health care for individuals. By developing health information infrastructure for care and research, it will be possible to modify, in a timely and efficient fashion, the approaches to gathering and using health information.

IHSPR have also identified two other priorities that specifically relate to HSPR capacity building, based on their assessment of current capacity and on the partnership with the Institute of Human Development and Child and Youth Health (IHDCYH) in funding this project:

- **Health Economics.**
  There is an acknowledgement from interviewees that there are numerous trained health economists in Canada, but that they are currently involved mainly in drug policy questions (where private sector money is) and that there is a need to realign some of the existing health economics capacity to general HSPR questions
- **Child and Youth Health Services and Policy Research.**
  Creating partnerships between IHSPR and other institutes has proved fruitful in a number of capacity building approaches (e.g. STIHRs, Summer Institutes) and the opportunity to develop approaches for HSPR capacity building with IHDCYH is already underway through joint participation at capacity building workshops. Capacity building for HSPR has not tended to be particularly topic-specific, and this suggests that many of the approaches identified in this report can be applied to child and youth health, just as they can to other populations or subject areas. For those wishing to build topic specific HSPR capacity, such as in child and youth health, there are therefore numerous tools that could be of interest. Examples of successful capacity building approaches that may be most useful are likely to be those that build specific levels of capacity (such as research Chairs) or that address specific under-developed research areas (such as mentors from similar related disciplines, where none exist to build capacity in the current discipline).

## Recommendations

The major findings from the literature and key informant interviews suggest particular actions that will help to build a sustainable and vibrant HSPR research community. Recommendations are provided below that suggest ways in which CIHR, IHSPR and the HSPR community at large can facilitate building a robust HSPR capacity in Canada.

### *For CIHR and IHSPR*

- CIHR and IHSPR should identify and leverage the current capacity for HSPR in Canada (already begun with the CIHR-IHSPR environmental scan of HSPR that is aligned with this research paper). This could include finding approaches to identifying hidden research capacity in HSPR, identifying research infrastructure capacity (such as databases), and identifying training capacity (such as CIHI's role in training people to use large HSPR datasets that is currently largely directed at policy makers). CAHSPR have some data on existing research capacity to support this activity.
- CIHR should work with universities in order to develop feeder streams to provide a way into HSPR for undergraduates and even high school students – currently the profile of HSPR at these levels is very low (especially compared to clinical health research).
- CIHR and IHSPR could investigate the possibility of broadening the "Clinician Scientist Award" approach to funding to develop "Management Scientist" and "Decision Maker Scientist" award approaches to build high quality research capacity in the service management and decision maker communities. The AHRQ recommended the new "Medicaid Medical Directors" position in the US as a potential approach to building research into the job description of medical directors.
- IHSPR could look to build mentorship approaches for new/mid-career researchers. Mentoring for HSPR researchers has been successful in Regional Training Centres (RTCs) and in other research fields (e.g. Population and Public Health). New mentoring approaches could use networking and distance learning to allow centres of excellence such as RTCs to link research capacity across Canada.
- IHSPR could link its KT approach to its capacity building approach – since the ability to engage users in research findings will build receptor capacity and an interest in user involvement in HSPR. This could be through building new approaches to getting users to the research table and would leverage learning from existing programs such as the EXTRA program.
- IHSPR has many perceived strengths in its current suite of funding programs, particularly the STIHR, Partnerships for Health System Improvement and Summer Institute programs. These need to be evaluated to determine what their impact is on both the HSPR community, on the health system and on service delivery. There are numerous approaches available to evaluate capacity, but the "research spider" tool used in PHCRED evaluation could be most useful to add to the current STIHR evaluation approach since it provides an easily understandable, easily comparable, graphical representation of the changing levels of research.
- With primary and community-based health care as one of IHSPR's priority research areas (and one that aligns with many of the other institutes), IHSPR could consider using primary and community based health care as the testing ground for new approaches to HSPR capacity building, since this could allow leveraging of support from other institutes and the CIHR National Strategy on Patient Oriented Research (NSPOR), and will link to the expressed priorities of

provincial and federal health programs around creating a more patient-focused approach to care (CMA, 2007).

- IHSPR should take an active leadership role in bringing together funders of HSPR research activity to identify the best way forward in building sustainable research capacity for HSPR – one that aligns with the quality and outcomes of HSPR at both system and service delivery levels.

### *For HSPR Capacity Building Generally*

- The public sector can learn from the private sector's role in capacity building and sustainability in applied biomedical and clinical research. In the biomedical and clinical research sector, major investments from pharmaceutical firms support capacity in universities for high level researchers (e.g. Wyeth Chairs) and post-grad/post-docs (jointly funded PhDs and post-docs with work in the private sector). The public sector (including provincial and regional decision makers) could co-fund capacity building using a similar approach that would allow research to address public sector funders' priorities and build research capacity for HSPR more generally through skill development.
- Regional Health Authorities have considerable opportunities to develop specific research capacity to address service delivery issues in their region. There are several examples of how this can be used, particularly in British Columbia, and this capacity could be encouraged and developed. There is also a need to link this capacity to transfer findings and potentially link to researchers and methodologists that can improve the quality of research.
- Capacity in HSPR needs to be valued at the highest level. Provincial and federal health bodies need to show that HSPR can help to address the many issues that they face in managing the health system. This is particularly relevant at a time when health system costs are such a large issue. If Ministries of Health (provincially and federally) issued examples of useful, high quality HSPR, it would raise the profile of HSPR and make it a more attractive career path for young researchers.

## Acronyms

| | |
|---|---|
| **AHRQ** | (US) Agency for Healthcare Research and Quality |
| **BRIC** | Building Research Infrastructure and Capacity program |
| **CADRE** | Capacity for Applied and Developmental Research and Evaluation in health services and nursing |
| **CAHSPR** | Canadian Association for Health Services and Policy Researchers |
| **CGS** | Canadian Graduate Scholarships |
| **CHSRF** | Canadian Health Services Research Foundation |
| **CIHR** | Canadian Institutes of Health Research |
| **DRT** | Designated Research Team |
| **EXTRA** | Executive Training for Research Application program |
| **HSPR** | Health Services and Policy Research |
| **IHSPR** | Institute of Health Service and Policy Research |
| **IHDCYH** | Institute of Human Development, Child and Youth Health |
| **IPPH** | Institute of Population and Public Health |
| **KII** | Key Informant Interview |
| **NHS** | (UK) National Health Service |
| **NSPOR** | National Strategy for Patient Oriented Research |
| **PHCRED** | Primary Health Care Research, Evaluation and Development program |
| **RTC** | Regional Training Centre |
| **SDO** | Service Delivery and Organization program |
| **STIHR** | Strategic Training in Health Research program |
| **SWOT** | Strengths, Weaknesses, Opportunities and Threats analysis |

## Table of Contents

# Health Services and Policy Research Capacity Building in Canada

This report reflects the findings of a commissioned study into research capacity building in the Health Services and Policy Research (HSPR) field. The study was commissioned by the Canadian Institutes of Health Research (CIHR) Institute of Health Services and Policy Research (IHSPR), in partnership with the Institute for Human Development, Child and Youth Health (IHDCYH). It consisted of a document review and key informant interviews with key stakeholders in the production and use of HSPR, and was designed to identify the key elements required to build a responsible and sustainable health services and policy research community. This work also complements a concurrent environmental scan of the existing HSPR capacity (being undertaken by CIHR-IHSPR themselves). The scope outlined in the request for proposals by IHSPR was to:

- **Define Capacity Building for HSPR:** developing a context specific definition that enables CIHR and its 13 Institutes to strategically focus its work in this capacity building area.
- **Identify the requirements to build a robust HSPR community in Canada:** conducting a thorough literature review and key informant interviews to identify the key elements required to build a responsible and sustainable HSPR community.
- **Provide recommendations as to how these findings can be applied to the current Canadian HSPR context, and CIHR more specifically**: identifying, where possible, how these findings relate to CIHR, IHSPR and other institutes' strategic priority research areas.

## Introduction

Improving Canada's research capacity is one of the stated goals of the new CIHR strategic plan (CIHR, 2009a). By improving the capacity in HSPR, CIHR will be continuing in its approach to increase funding to pillars III and IV. There is also the possibility that by increasing capacity in HSPR, there will be benefits to an improved health system and therefore an opportunity for CIHR to continue to deliver on its mandate to "excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health-care system" (Canada, 2000). This can be achieved through increased attention to building a thriving and skilled HSPR community capable of tackling health system challenges.

Although the new CIHR plan includes the most recent attempt at building research capacity for the HSPR community, this is far from a new issue. Back in 1977, the US National Academy of Sciences held a meeting to assess Health Services Research (HSR) in the USA. In their work they identified a number of issues that make it difficult to assess HSR capacity – including the location of capacity in universities, the role of academics in answering applied research questions, and the interdisciplinary nature of HSR (DeFriese and Seipp, 1978). While not in Canada, the fact that the same questions have been asked around capacity building for health services (and to some extent, health policy) research for over 30 years suggests that this is not a simple problem to address.

Part of the complication in addressing capacity building for HSPR is the complexity of HSPR as a discipline. Even when split into health services research and health policy research, it is clear that neither requires a unidisciplinary approach to research. Instead, both benefit greatly from multidisciplinary and interdisciplinary approaches, creating research products that relate to the real world complexity inherent in the health service and health policy arenas. Trying to develop a research capacity building system is therefore inherently difficult, and made more so by any adherence to the research capacity building approaches that have been so successful in the biomedical and clinical research worlds. For example, where the biomedical and clinical research communities have been able to build on strong private sector funding, clearly arguable economic benefits (through drug and device sales) and a research incentive system that favours them over applied research, HSPR has little connection to private sector funding and produces less obviously quantifiable (although potentially more substantial) economic benefits.

In recognition of the complexity of HSPR capacity building, this report attempts to blend findings from published documentation and interviews representing the variety of stakeholders involved in HSPR. This has meant covering a large amount of ground in a short time span and with limited resources; therefore this report should not be considered a systematic review of HSPR capacity building, rather as a guide to the issues and potential solutions to building a sustainable HSPR capacity for Canada.

## Methods

This project used a two-part approach. The two parts ran concurrently and interacted to inform each other. The first part of this project was a document review. The second part involved interviewing 29 stakeholders in the HSPR capacity building endeavour. Stakeholders interviewed covered:

1. Those with a knowledge of HSPR specific capacity building (national, provincial and international).
2. Those with a knowledge of health research capacity building (national and international).
3. The CIHR Institute Scientific Directors (and relevant former Scientific Directors).

Parts one and two of this work interacted and complemented one another; with interviewees identifying new literature and approaches to investigate in the document review, and documents providing new subjects for interviews. The two streams were brought together through a thematic analysis of the main points from the literature and interviews.

### *Document Review*

The document review used a variety of sources from which to draw evidence on HSPR capacity building. Sources included academic publications, presentations, funding documents, annual reports, evaluations of funding approaches, policy documents from organizations, special reports and stakeholder website material. This breadth of documentation is important in considering HSPR capacity building, since the variety of stakeholders in the process – from the multiple funding bodies through to the variety of service and policy delivery organizations that HSPR impacts – implies that relevant documentation can be found in a wide variety of environments.

Documents were identified using a combination of initial keyword searches in academic databases (PubMed and the National Information Center on Health Services Research and Health

Care Technology); grey literature databases (Health Management Information Consortium Database and the National Technical Information Service database); and using Internet search engines (Google). Key words used in this initial search were:

- "Research capacity building";
- "Health services research";
- "Health policy research";
- "Health services and policy research";
- "Research training";
- "Support for individuals/teams/networks".

From the documents identified in these searches, it was possible to identify other relevant documents through three approaches:

1. through snowballing literature (investigating the referenced publications in identified literature);
2. through identifying particular capacity building approaches identified in the initial literature; and,
3. through locating relevant documents about capacity building schemes and approaches identified by key informant interviewees.

Abstracts and summaries of identified documents were assessed to determine their relevance to the HSPR capacity building. Full reports of 99 documents were analyzed and appropriate findings were fed into the report.

### *Key Informant Interviews*

With the aid of IHSPR and the IHSPR evaluation sub-committee (who acted as steering committee for this project), 36 potential key informants were identified to interview in two different categories:

- **CIHR Institutes' Scientific Directors**
  The current Scientific Director of each CIHR Institute (with the exception of IHSPR) was contacted for an interview as well as two former Scientific Directors. Of the 14 interviewees contacted, 11 responded and participated as a key informant.

- **Other stakeholders in HSPR from outside CIHR**
  Stakeholders from outside CIHR came from a variety of provincial, national and international organizations (See Appendix A for a full list of interviewees). Twenty-two potential interviewees were identified representing the following stakeholder groups:
    - Health research funding bodies (national and provincial)
    - Policy and decision makers
    - Health service representatives
    - Academics in HSPR
    - Data holders
    - International representatives (those funding HSPR in other countries)

  Of the 22 identified organizations and individuals in the "other stakeholders" category, 18 were available to be interviewed within the timeline of the project.

Interviews were conducted using a semi-structured interview protocol (see Appendix B - pA4) and were recorded using a digital voice recorder.

### *Thematic Analysis*

Consistent themes were captured through analyzing key messages from the interviews and document review. Messages were clustered to provide themes that aligned with the needs of CIHR and IHSPR as expressed in the request for proposals and discussions with IHSPR representatives.

## Findings from the Key Informant Interviews

The full report draws on the findings of both the document review and the interviews, however – there is some rich information available from the interviews that may not fit with the substantiated document analysis, but does provide learning for CIHR and IHSPR. As interviews were conducted with different stakeholder groups (research world, decision makers, international experts and health service representatives),[8] responses will be aligned with which group they came from. The full protocol for the interviews is in "Appendix B: Key Informant interview – full protocol" (pA4).

### *Building a Robust HSPR Community*

Interviewees were asked what would constitute a "robust HSPR community" in their opinion. Answers to this were relatively consistent across groups, with almost all respondents suggesting that "robust" would mean a community of interdisciplinary researchers who are able to respond to health system and policy needs, provide novel information to the system and policy makers, and be able to act as a sustainable resource for the Canadian health system. Balance in the community was mentioned by a number of interviewees, with one research funder suggesting that a robust community needs to have a balanced distribution across: the lifecycle of researchers; work settings (academic and applied); and across teaching, research and consultancy roles.

Decision makers and those in the health service considered the responsiveness of the research community to the needs of decision makers to be particularly important in supporting their work. They also identified that a robust community would be inclusive of the health system and decision makers from conceptual stages of research all the way through to implementation of findings – providing a partnership approach to HSPR.

Aligned with building community, interviewees from research funders, data holders, decision making and the health system all identified a need for monitoring and networking the HSPR community. By creating a systematic approach to identifying and linking researchers in HSPR (such as the Academy Health database of HSPR in the USA), the community can build in networking and become more robust and responsive.

[8] "Research world" implies researchers, research funders, research representative groups etc.; "decision makers" implies policy makers; "international experts" are international research funders; "health service representatives" are those providing health services – either as health professionals, representatives of health professionals or those running parts of the health service – such as regional health authorities.

### *How to Build Capacity – What Works?*

There were a number of challenges identified in building HSPR capacity. From the researcher point of view (including scientific directors), the lack of committed funding to HSPR people (in terms of funding salaries) was a challenge in the quest to build and maintain capacity. By not providing salary funding, HSPR is seen as a discipline without an obvious career track where the ability to perform research is determined by fluctuating grant funds. There is a worry that this could lead to short-termism in the way HSPR is conducted in Canada. International interviewees identified very similar challenges, but also added that there is a challenge in building research capacity in and for underserved populations (for example Aboriginal peoples). One interviewee identified the lack of feeder-streams into HSPR, noting that even those with training in disciplines that link very closely to HSPR, such as health economics, often end up working outside the discipline and in biomedical/clinical research.

There were two main challenges to HSPR capacity building identified by decision makers and those in the health system. The first of these is the complexity created by academic and applied research cultures. These can clash over numerous factors, such as the scope of research undertaken; the need for specific focused questions vs. conceptual research; and the level of involvement of decision makers and those in the health system. The second of these challenges is the need to link research capacity to research impacts: i.e. building HSPR capacity that is clearly linked to an improved health system and better health outcomes.

With such a diverse group of stakeholders interviewed, there were naturally many different examples of what approaches have been successful in building capacity in Canada (and abroad). For CIHR Scientific Directors there was a general acknowledgement that the IHSPR-IPPH Summer Institute was an excellent approach to providing skills, methodological knowledge and networks for new researchers. Several Scientific Directors also highlighted the role of STIHRs in providing new researchers with interdisciplinary training, and the Partnerships for Health System Improvement grants as good ways to build networks between researchers and decision makers. Others in the research endeavour (including research funders and researchers themselves) identified the current data holdings at organizations such as the Manitoba Centre for Health Policy and the Ontario Institute for Clinical Evaluative Sciences as successful approaches to data capacity building that could be replicated and networked.

For decision makers, there was a consensus that the focused "consultancy style" approaches to building receptor capacity have been successful. This includes the CHSRF Mythbusters series, and the IHSPR Best Brains approach. The fact that these are short time-frame, question-specific approaches has made them useful in informing decision making at multiple levels. In the health sector, interviewees identified some approaches to bringing health professionals into the HSPR fold such as the "Research Helpdesk" approach in BC, that provides research support to practicing clinicians wanting to answer specific questions relating to their practice.

Internationally, the AHRQ's mentoring approach - looking to buy out senior researchers time to act as mentors for younger researchers - was identified as a positive approach. Also, the set up of peer review panels in the US, Australia and Ireland were all cited as strengths in helping to maintain a significant HSPR capacity through dedicated review panels and instructions to

reviewers on what impacts can arise from HSPR (as they differ from biomedical and clinical research).

When asked about whether capacity building for HSPR is very different to capacity building in other areas of health research, there was a general agreement that HSPR was starting from a very different position to biomedical and clinical research. For the first two of CIHR's pillars, there is considerable strength, depth and associated research funding. This has not been the case for HSPR, which has had to develop from a very small community of researchers. The idea of feeder-streams was also noted as something that is lacking from HSPR capacity building that exists for the more established biomedical and clinical research subjects.

In terms of what HSPR capacity building can learn from other health research areas, there were two main issues identified. First, a number of people identified that, while the private sector (pharmaceuticals etc.) provides both capacity building funding and career paths for those in biomedical and clinical research, the public sector does not have a strategic approach to capacity building in the same way for HSPR. Second, it was noted that HSPR is not the only health research discipline that has had to build capacity from very low levels at the inception of CIHR. Aboriginal health and population health have both been heavily involved in building research capacity in their subject areas. There are potential approaches that could be applied from those two research areas, such as the Institute of Aboriginal People's Health's Network Environments for Aboriginal Health Research (NEAHR) program – which created networked regional centres of excellence to help support a critical mass of researchers.

### *Recruitment, Retention and Gaps*

There is universal agreement that any strategy for capacity building in HSPR must include both recruitment and retention, but it is very difficult to say what proportion of each should be taken on. In fact, even those involved in funding HSPR were unwilling to speculate on what the balance should be between recruitment and retention. In terms of approaches to recruitment and retention, the over-riding assumption from those in the research world was that if research funding becomes available, then both recruitment and retention would be impacted positively.

In terms of gaps in the current HSPR capacity, the overwhelming response was that there is currently a larger research capacity at the early career end of the researcher spectrum (graduate students and new researchers). Recent attempts at creating senior researchers have also been relatively fruitful, with the CHSRF/CIHR CADRE Chairs cited as an example of how to maintain the top talent in HSPR. This leaves Canada with something of a bi-modal distribution of researchers.

Addressing the gap in what can be termed "mid-career" researchers (those looking to become individual researchers) is something that can be best achieved through multiple approaches. These include: mentoring for new investigators; strategic funding for HSPR researchers to help establish research credentials; centres of excellence for new investigators to work in; networking researchers to provide critical mass for research; and team grants to provide new investigators with opportunities to build their own research groups.

There were also gaps noted by decision makers, those in the health system and data holders, in the way that HSPR capacity outside traditional academic research institutions is supported. They noted that supporting researchers in the health system (either in hospitals, primary care or community care) and decision making is currently not substantial enough. The reason to build this capacity is to improve the impacts of research, since it: a) provides research questions that relate to specific problems in the system; b) increases the likelihood that research findings are taken on (since research is performed in situ); and c) improves receptor capacity for other research findings.

International experts commenting on where the gaps are in their own systems identified very similar issues – particularly with the transition from trainees to independent researchers. In Ireland there is now a move to consolidate recent increased numbers of trainees in HSPR, while in Australia there has been a conscious effort to bring in (and bring back) the very top HSPR researchers to lead HSPR in the country.

One interviewee commented that they see HSPR capacity as "like an iceberg" – with lots of potential capacity to perform HSPR that is hidden. For example, data analysis groups who can investigate HSPR questions are often placed outside of HSPR – in areas such as population health or epidemiology. Another interviewee (from the research funding viewpoint) suggested that up to 20% of the current research capacity might be represented by this hidden group of researchers.

### *The $50m Question…*

Interviewees were asked the hypothetical question that "If you had $50m to spend on building capacity for HSPR in Canada how would you spend it?" This question proved to be very popular with interviewees, since it provided an opportunity to prioritise their thoughts and identify actions that they would wish to implement given the funding. Perhaps unexpectedly, suggestions for how to spend the hypothetical $50m did not cluster around particular categories of interviewee. Common themes that ranged from research funders, those outside HSPR and decision makers included:

- Skills and methodological training – particularly in relation to quantitative methods, health economics and handling large datasets.
- Creating national (and international) networks with a) researchers, b) decision makers, and c) health system workers - including health professionals and system managers (this is both as researchers and as research users).
- Leveraging funding from other areas – this includes provinces, other research funders and universities.
- Building a database of Canadian HSPR research and researchers to aid networking.
- Developing an approach that allows universities to think strategically about how they fund HSPR – preferably in partnership with one another to relate HSPR capacity to Canadian needs rather than simply academic research strengths.

For researchers and research funders, there was a desire to use the money to fill the perceived new investigator (post-doctoral) funding gap. Suggestions for how to do this ranged from internships and fellowships, through to protecting activity funding to be specifically spent on HSPR. Some in the research community also suggested funding Chairs for senior researchers,

although this was only mentioned in 4 interviews. One interviewee from the research fold also identified the need for providing infrastructure in the form of support staff and building capacity in specific underserved populations (such as the Aboriginal population). The idea of reaching underserved communities was echoed by two of the international interviewees.

Decision makers and those in the research field with strong links to decision makers and the health system all identified the need for any use of the $50m to relate to impacts from HSPR – particularly around communication, use and evaluating impact.

## Defining Capacity Building

Providing a single definition for capacity building is challenging for a variety of reasons. Although all the stakeholders in HSPR would suggest they understand what capacity building is, if asked to define capacity building there would be a wide range of responses. In fact, in the process of interviews for this project, there were a number of differences of opinion over what capacity building can be defined as. While all would agree that capacity building must include investing in developing skills, knowledge and resources of individuals and organizations involved in HSPR, there is debate over the extent to which capacity building covers funding for people ("hard" funding through salary support), funding for research activity ("soft" funding through supporting individuals on team grants etc.) and funding for research infrastructure (such as HSPR databases).

Some catch-all definitions do exist, such as that offered by Bates et al. (2006) which describes capacity building as an approach to improve the ability to conduct research, to use results effectively, and to promote demand for research. In the UK, the National Institute for Health Research Service Delivery and Organization (SDO) programme has recently expanded its funding to include a capacity building element. They have specifically defined capacity building to emphasize "the importance of greater research involvement, literacy and uptake on the part of those who manage and organise service delivery" (NHS National Institute for Health Research, 2008). In the USA, the Agency for Healthcare Research and Quality (AHRQ) includes infrastructure in their health services research calls (see http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-03-004.html for an example), implying that the AHRQ definition is also wider than simply funding researchers. IHSPR itself has defined capacity building as "the education, training and mentoring of the brightest minds in all areas of HSPR. This includes the development and implementation of programs that offer support at each stage of a researcher's career." (IHSPR, 2010: 3)

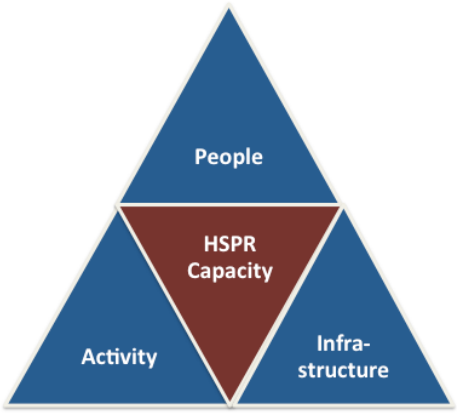
General definitions, such as that used by IHSPR, provide a large scope for capacity building, but also blur the lines with research activity and infrastructure funding. During key informant interviews there was often confusion over the exact nature of capacity building, with different individuals claiming the roles of infrastructure and activity funding as crucial parts of the capacity building process. Indeed, this is reflected in the literature surrounding capacity building, particularly in HSPR and applied health research. For example, an evaluation of the Designated Research Team (DRT) approach to building research capacity in primary care very explicitly used an evaluation tool that took into account research infrastructure developed and maintained through the DRT approach, and the ability to protect time of practising health professionals to perform research (Cooke et al., 2008).

It was clear from the interviews that activity funding for HSPR researchers is a vital part of any capacity building approach. In almost all the approaches identified in the literature, activity funding was either noted as important, or provided in alignment with the salary support that researchers received. In Canada, the CHSRF/CIHR CADRE program created Research Chairs and Regional Training Centres. Both of these initiatives included incentives to undertake investigator-initiated research and concurrent funding for people. In Australia, as part of the Primary Health Care Research, Evaluation and Development program (PHCRED), primary healthcare fellowships were aligned with project funding to allow ongoing research work for new clinician researchers (Reid et al., 2007).

Activity funding and funding researchers are both important parts of the capacity building approach, but both are likely to be unsuccessful in progressing a discipline (particularly HSPR) without aligned infrastructure capacity building (CORDIS, 2010). For HSPR, the concept of infrastructure capacity building does not relate to buildings, lab space or expensive equipment. Rather it relates to the building and linking of large datasets, methodology tools, databases of HSPR researchers and data and information dissemination tools (Cooke, 2005). In the UK evaluation of Designated Research Teams (DRTs) identified research infrastructure as a necessary part of capacity building within DRTs (Cooke et al., 2008), and an analysis of the impact on practice nurses in Australia of capacity building funding provided through PHCRED identified that although capacity building funding allowing practice nurses to be involved in research activity was useful, without appropriate research infrastructure this capacity was difficult to sustain (Young et al., 2008).

Dataset development and linkage is perhaps the most common theme running through discussions about infrastructure capacity. It was identified by the literature, with Academy Health (2006) suggesting it as a key factor in strengthening the field of HSR. It was also a common theme across interviewees where the linking of existing datasets and training of people to analyse large datasets were seen as key parts of the capacity building process for HSPR in Canada.

**Figure 1. The three parts of building research capacity for HSPR**




The above suggests that for HSPR capacity building to be successful, we need to ensure that our definition of capacity building takes into account three sectors (Figure 1):

- People – making sure there is human capacity to perform HSPR;
- Infrastructure – such as networked datasets; and,
- Activity – funding aligned with the strategic goals of HSPR.

CIHR data reveal that the size of the HSPR community has increased over the years – based on the number of researchers funded. However, simply identifying who has received research funding from CIHR will not capture training going on outside academic funding in Canada. The Forum of Health Research Funders did investigate this subject in 2009 (Forum of Health Research Funders, 2009). They looked at trainees involved in health research that were funded through "hard" funding – i.e. they were supported through salary awards rather than on project grants or team awards. Funding in this case comes from organizations that form part of the forum, which includes major national funders such as CIHR and CHSRF, national charities like Heart and Stroke Foundation of Canada and Canadian Cystic Fibrosis Foundation, and provincial funders including Fonds de la Recherche en Santé de Quebec, Alberta Heritage Foundation for Medical Research and Michael Smith Foundation for Health Research. The Forum also split the results by CIHR research pillar.

In an internal CIHR comparison between trainees in HSR and the total in health research it is clear that the proportion of trainees receiving "hard" funding for HSR or Pillar III training is very small compared to the overall numbers of trainees at different levels of a research career (around 5% of the total trainees identified). This proportion is relatively stable across different training stages (undergraduate; masters; doctoral; and fellows). This relates to the funding available for these trainees too, since the share of funding for HSR training schemes is similar to the numbers (at around 4% of the total funding for trainees).

The Forum of Health Research Funders' analysis of the trainees involved in HSR is important in identifying how many people are "hard" funded by the major research funders (those that receive salary funding). However, there are a number of factors that are not taken into account in this analysis. First, there are funders outside those who form the Forum of Health Research Funders, such as regional health authorities, who fund HSPR. While these funders may be small in comparison with those within the forum, because of the nature of HSPR as a small enterprise in the health research system, and one that naturally falls on the more applied and strategic funding end of health research, their contribution should not be ignored when assessing HSPR capacity for Canada.

The second issue with this trainee analysis is that it only provides information on the early career capacity building that is "hard" funded, therefore missing a variety of ways in which capacity is built for HSPR through other funding approaches. For example, in Australia and New Zealand many researchers are employed on projects, therefore moving from short-term funding to short-term funding (Pirkis *et al.*, 2005). The accompanying environmental scan of HSPR training performed by CIHR-IHSPR does begin to address the issue of soft funded trainees and will create a platform for further work on identifying research capacity.

In Canada, the idea of short-term strategic funding for projects that employ researchers for specific tasks was one that arose frequently in the key informant interviews. While the importance of strategic funding was highlighted both in the documents and in interviews with those funding research outside the HSPR field (research funders with a knowledge of successful approaches to capacity building), interviewees from within HSPR expressed concern over the use of strategic funding calls for HSPR research. This is based on the concept that by only

funding through strategic calls the research community becomes highly responsive. This could potentially lead to research that does not address the big issues affecting HSPR since they may not form part of the strategic call (Abelson et al., 2005). There was also a fear expressed that by funding strategically, researchers will not be competitive in open funding calls, and that there will be a loss of support personnel for HSPR as they retrain in areas where there is "hard" funding.

Using trainees funded by the major health research funders to determine capacity is an approach that works well for most health research, but with HSPR there is a portion of the research capacity that is not accessible through this sort of analysis. This hidden capacity exists in HSPR due to the multidisciplinary nature of the discipline – bringing in research skills from outside health such as economics, political science and management studies (Abelson et al., 2005). Hidden capacity is a common problem across countries when it comes to HSPR. For example, in Australia and New Zealand, an assessment of the undergraduate backgrounds of those working in HSPR identified the largest single block came from an arts background (35%), rather than a science (27%) or medicine (17%) background (Pirkis et al., 2005). This is indicative of the sorts of hidden capacity that exists in HSPR (those researchers who are not within a health related faculty but work in HSPR), and of the potential capacity for HSPR (a large talent pool from which to draw skills and methodologies).

Overall, we are left with multiple definitions, each of which is slightly different. In this case, we have followed the IHSPR definition most closely, since the work relates to IHSPR's capacity building. However, if individual interviewees felt strongly about their definition of capacity building, then their thoughts were incorporated in the project.

## Skill Development

Much of the literature on building capacity in HSPR focuses on the skill development required for someone to successfully work within the HSPR community (e.g. Brownlee et al., 1992: 29-56; Foy and Eccles, 2008). The wide array of skills required by HSPR researchers is potentially daunting, since for HSPR to have an impact there must not only be high quality research skills displayed, but also appropriate knowledge translation, an understanding of the service delivery and policy environment, and how to apply the knowledge developed in the health system. The concept of core competencies for HSPR researchers is now gaining strength, and is currently under investigation in Canada (S. Morgan, Personal Communication). Developing a framework for core competencies is a useful tool for identifying what skills can be taught at undergraduate and graduate level, as well as identifying what more senior researchers feel they need in order to be able to function more effectively. Core competencies for HSPR researchers would include research methodologies, networking and collaboration.

The importance of skill development is one identified across the world, with HSPR capacity building initiatives in countries as diverse as the USA, Sweden and Australia (Academy Health, 2006a; Del Mar and Askew, 2004). In Sweden, there has been an initiative to train family physicians in research methods (aligned with a supervised research project) that has reached 700 family physicians in the first ten years of the project. However, the success of this approach is debatable since only 20% completed the training and only 26 peer reviewed publications have been produced in ten years (Del Mar and Askew, 2004: S38). Although not producing traditional

research outputs, it is possible that this approach in Sweden has had an effect on participants in how they use research in their practice and also what questions they may ask of their own approaches to family medicine. In Australia, PHCRED also had a stream devoted to skill development, using the researcher development program to build the skill set of researchers in primary care research and evaluation (Oceania Health Consulting, 2005). This has been marginally successful, providing up-skilling for those in urban areas, but not for those in rural locations (Healthcare Planning and Evaluation Pty Ltd, 2009).

Skills in research planning and translation are important to create successful HSPR impacts, but to build a successful HSPR community there is also a need to instil capacity building skills in the HSPR community. This means developing skills in training and education approaches, mentoring for early career researchers, leadership and motivational skills. Of these skills, mentoring is one that is commonly associated with research capacity building (Gagliardi *et al.* 2009). Mentoring is an approach that can benefit both the mentor and the mentee. Mentors gain collaborators and potential research networks, while mentees can grow research and evaluations skills (Ploeg et al., 2008), increase confidence, develop grant and report writing skills, and learn that failure to get grant funding is part of a researcher's life (Zea and Belgrave, 2009).

### Mentoring

Mentoring for family practice research in the USA has identified a potentially powerful approach to capacity building in the discipline. Family medicine in the US has identified that there are not enough family medicine mentors available to be able to build capacity quickly. To address this, mentors have been identified from outside the discipline who are able to provide mentoring on research skills, working to achieve funding and how to succeed in research. This allows a larger number of potential mentors to be tapped, since the mentoring process is focused on being a good researcher, rather than on family medicine specific knowledge. There is an added benefit to this approach in that it trains mentees to interact with other disciplines and allows for cross-discipline learning around methods and skills (Jaen, Borken and Newton, 2006).

Also in the USA, mentoring has been built into the funding approaches for capacity building in women's health, specifically in the "Building Interdisciplinary Research Careers in Women's Health" (NIH, 2009). These funding opportunities are available to institutions to provide mentored research training for post-doctoral and clinical researchers. As these are new funding opportunities, there is as yet no evaluation of their effectiveness, but they do highlight the desire to include mentoring in the research funding approach of major HSPR funders.

In the UK, the Academy of Medical Sciences has a Mentoring and Outreach Scheme that provides clinical researchers with access to senior mentors and networks through the Academy's membership (Academy of Medical Sciences, No Date). However, this is restricted to clinical research and does not extend to HSPR.

There are drawbacks seen with mentoring, however, particularly mentoring for those outside the academic environment. In community care research, it was noted that while mentees learned new skills during the time of mentorship, these skills proved difficult to maintain once community care workers were immersed back in the job and away from mentor support (Ploeg et al., 2008).

## Interdisciplinary Research

Interdisciplinary research in HSPR is often touted as the way forward in developing the discipline. This view came across in the interviews from those working in HSPR, users of HSPR (who want to see applicable findings) and researchers outside HSPR who can see the need to bring HSPR to their own work (and vice-versa). There is good reason to support interdisciplinary research, since it is linked to improved ability to address societal questions, improving the quality of solutions and even linked to improving the quality of academic life itself (Frost and Jean, 2003; 120). Interdisciplinary research is also seen as particularly useful in engaging young researchers, particularly at the undergraduate and graduate level (Committee on Facilitating Interdisciplinary Research and Committee on Science, Engineering, and Public Policy, 2004). Although the current academic climate does not encourage interdisciplinary and applied research through its promotion and tenure, there is a need to recognize the role that interdisciplinary and applied work has in the academic sector, including how to develop scholarship frameworks for evaluation that take into account applied research outcomes (CHSRF, 2006).

Increasing interdisciplinarity as an approach to building capacity for HSPR would seem to be a straightforward choice based on the above evidence. Not only will it improve outcomes, but it will also increase the pool of potential researchers involved in HSPR without specific training requirements (assuming interdisciplinary teams can be created). However, interdisciplinary research as a capacity building approach faces some problems in reality. Not least amongst these is that the academic environment is built along disciplinary silos – making it difficult for those involved in interdisciplinary work to get support. Outside of the academic environment, even those working in a more applied research environment (such as decision making bodies) do not receive support to become interdisciplinary, because funding for researchers in these applied environments generally aligns with specific research activities, rather than building the capacity of individual researchers (Gold and Gallagher, 1999).

Another factor affecting interdisciplinary research is the use of discipline specific language – *jargon.* Since disciplines create terminology that allows them to describe complex concepts in short terms, a language begins to appear within disciplines that is not easy to translate across to other research areas (Frost and Jean, 2003; 122). As an example even within HSPR, the use of acronyms in HSR is not always the same as that within HPR. This concept can be expanded further to also include the different cultures in HSPR around research activity (teams versus individual researchers), publication (books versus research papers) and even providing research to the public domain (working papers available to anyone versus academic only research papers). Building the skills to translate across the jargon of disciplines will aid interdisciplinary work, and by extension will aid HSPR.

There has been progress in developing interdisciplinary approaches to research in HSPR, and these will be discussed in more detail on page 18 when covering the examples of successful HSPR capacity building. It is important to note here that while difficult, there are approaches within HSPR that seem able to bridge the disciplinary divides and there is an opportunity for professional organizations (such as the Canadian Medical Association or Canadian Nurses Association) to promote an interdisciplinary approach for member training – encouraging universities to alter practice (Committee on Facilitating Interdisciplinary Research and Committee on Science, Engineering, and Public Policy, 2004). The Canadian Academy of Health

Sciences performed exactly such a role in promoting interdisciplinary health research when it made numerous recommendations on how to build effective interdisciplinary research for health in Canada (CAHS, 2005).

## Expertise Level of Researchers

One question posed whenever discussing research capacity is, "where should we look to fund capacity?" Should we be supporting senior researchers who will produce the best quality research, or should we be looking to grow the discipline by investing in new talent? With a limited funding supply for research capacity building, funders need to make strategic decisions equipped with the best available information and evidence. In HSPR, such decisions are made more complex by trying to determine not only the career stage that a researcher might be in, but also the location in which they research – are they academic researchers in the university system, applied researchers in the health service, health professionals performing research or even health administrators and decision makers?

Addressing expertise levels in academia is a relatively straightforward proposition, since it is a situation that capacity building approaches in research come up against regularly. Despite this, there seems to be no sign in the literature of what the right balance is of senior, mid-career and junior researchers for HSPR (or indeed other applied health research). Although one interviewee suggested that they wanted their organization's funding for research capacity to settle at around 15% of their research budget (having previously been as high as 30% in order to grow their field), in general interviewees also could not identify the appropriate balance within academic research funding.

What did come from interviewees was a wide range of opinions over which levels of the HSPR system requires support, specifically which career stage researchers are at. While most were comfortable that the top level of researchers – those most senior of academics – were a relatively well funded group and that post-doctoral and mid-career researchers could benefit from increased support, there were diverse opinions over whether students at the undergraduate and postgraduate level could be further supported. This was seen as an issue because some interviewees were of the opinion that student researchers had been a priority group in the past – with a focus on graduate studentships through a number of programs in Canada such as the STIHRs and Canada Graduate Scholarships (to be discussed further – p19). Therefore, it was the next step for these graduates where funding was lacking.

Funding for applied HSPR researchers was seen as a more complex issue. For researchers within the health service, there seems to have been a focus in the past on bringing clinically located researchers into the HSPR research community – hospital based researchers and clinicians who can perform HSPR. For example, the CIHR clinician scientist role[9] allows practising health professionals to play a role in research, although this is not aimed at HSPR, but at clinical research. Encouraging clinician researchers has been tried in a number of ways. In Calgary and in Ontario, alternative funding approaches for clinicians in academic hospitals have succeeded in buying out time for research (Interviews; Cruess et al., 2004). In Ontario, Academic Health Sciences Centres (AHSCs) through their alternative funding plan have been successful in

[9] http://www.cihr.ca/e/22371.html

improving recruitment, cooperation with government and increasing the recognition of the importance of research (Cruess et al., 2004).

AHSCs have also had a considerable effect on capacity building, with Ontario's academic hospitals and associated research institutes accounting for 80% of the innovative health research and graduate training in the province (CAHO, 2009). Interestingly, of the salary component for researchers in academic hospitals, around 2/3 comes from "fundraising", although this figure includes large foundation donations (CAHO, 2009). Elsewhere in Canada, salary support for health researchers in the health system comes largely from provincial funders – with Alberta Heritage Foundation for Medical Research providing 70% of its budget for salaries, and Michael Smith Foundation for Health Research spending 67% of its budget on salaries in 2006 (CAHO, 2009). Although there has been a debate about physician funding plans, and to some extent how this fits with research funding, this issue is outside the scope of this document since it is such a large and complex issue with only small links to HSPR capacity.

Research capacity in the health services is potentially larger than that simply in major academic hospitals however, and accessing those researchers, or potential researchers, has proved a more difficult task. In Australia, PHCRED was a response to the need for additional primary care researchers placed within the health system (Healthcare Planning and Evaluation Pty Ltd, 2009) and developed a number of strategies to encourage primary care workers into research. These are discussed in more detail in the examples of successful approaches later in the document (p21). In the Netherlands there has been some success in raising family medicine's research status with the promotion of academic family medicine careers, family medicine doctorates and measuring the societal benefits from research when evaluating researchers. This has had the effect of raising profile of family medicine as a discipline and even increasing the number of peer-reviewed publications in the discipline ten-fold between 1983-87 and again between 1988-1992 (Del Mar and Askew, 2004).

In Canada, CHSRF has been successful in changing the research field in nursing, creating what was described in the 2007 international evaluation of CHSRF as a nursing research enterprise that is "now strong and thriving in Canada" (Dussault et al., 2007: 3) and with a particular success in developing the capacity to perform nursing research and bridging the gap between researchers and users (Coyte et al. 2008). Elsewhere in Canada there have been numerous individual efforts to build pockets of HSPR research capacity in the health sector. These include the work in many of the British Columbia Regional Health Authorities, such as the Vancouver Island Health Authority's Research Help Desk (Research Impact, 2008). This approach brings together students in HSPR and health professionals with a research question with small scope that they want answered in a short time. This has grown into graduate courses following the same model, firstly in HSPR, but then picked up on by the BC Ministries of Environment and Children and Family Development (Research Impact, 2008). In rural health, the Canadian Rural Health Research Society has played a role in developing rural health through networking researchers and providing training opportunities in multiple provinces (Macleod et al., 2007).

Many of the above examples focus on the applied capacity in HSR, but there have also been examples of approaches to building capacity in the applied HPR field too. The best example of

this is the EXTRA program run by CHSRF. This will be discussed in more detail in the examples of successful approaches (p20).

Although there are examples of successful capacity building at various levels of the research enterprise, from established academic researchers gaining Chairs (Dussault et al., 2007; Canada Research Chairs, 2007; Malatest and Associates, 2004), students receiving research opportunities (Abelson et al., 2008), to health professionals with an interest in research (Research Impact, 2008), these tend to focus on either one or other population in isolation. It has been rare to find approaches to building research capacity that are able to bridge the divide between applied and academic research.

Supporting academic and applied researchers through the same funding system is difficult because there are different incentives and pressures around being involved in research for the two groups, but it has not been completely overlooked. Research networks and collaborative centres have taken on a role in bringing together the applied and academic streams of HSPR to develop capacity on both sides of the divide.

Perhaps the most obvious examples of successful research centres are the Regional Training Centres (RTCs) that form part of the CHSRF/CIHR CADRE program (discussed in more detail on page 18). Needless to say, that by linking researchers at various stages of their careers with each other and with policy makers, the RTCs are seen to have been very successful in developing HSPR capacity for both academic and applied research – and indeed receptor capacity in decision making circles (Interviews; Health Care Policy, 2008).

Networks have been a successful part of many capacity building initiatives, from connecting often isolated rural researchers (Miller et al., 2009; Macleod et al., 2007) to province-wide networks for capacity building and support (Michael Smith Foundation for Health Research, 2007). The Health Services and Policy Research Support Network founded by the Michael Smith Foundation for Health Research is a particularly interesting example, since it has an explicit role in feeding back information on the best ways to support HSPR in British Columbia (Michael Smith Foundation for Health Research, 2007). It also plays an active role in supporting research through matching funding for HSPR in BC, and linking Health Authorities with funding for research, to universities with capacity to undertake HSPR (Michael Smith Foundation for Health Research, 2007). Linking research and user communities is a common theme in HSPR networks and one that was mentioned in the key informant interviews. This link between researcher and users is made more powerful in creating a sustainable HSPR community when networks combine capacity funding with funding for research activity in line with a funder's strategic goals, and when smaller groups are linked to larger networks.

## Health Services and Health Policy Research: Two Sides of the Same Coin?

It would not be unfair to suggest that HSR is a more established discipline than HPR, based on its longevity and profile within the research community. Bringing the two disciplines together in this work is intellectually sound, since many of the issues identified affect both HSR and HPR. However, there are some differences that require attention.

Communities of practice for health policy and health services are quite different in the sorts of information they can use and the formats in which they can use it. Health services communities, particularly those in clinical practice, need research that reaches the highest quality of evidence such as systematic reviews and guidelines for practice. For those working in health policy, the need for evidence that is better than that currently available is often the driving force for evidence informed decision making. This means that evidence needs to be easily digestible and fit for purpose in a short space of time. By acknowledging the differences between the needs of the two communities, it is possible to create HSPR that will have a greater impact, and also to start to develop approaches to building receptor capacity and research capacity in HSR and HPR that best represents the needs of the communities.

As mentioned previously, HPR can be located in a wide variety of settings. For example, the current Scientific Director of IHSPR is located within the Faculty of Law. However, recent evidence in Canada suggests that there is progress in providing a space for HPR researchers in HSPR-specialized departments and centres. There are now over 30 health policy research centres across Canada, and these take advantage of the range of locations that HPR occurs by being placed in health, social science, law and even business schools (Abelson et al. 2008). Examples of these include the University of Montreal's Groupe de Recherche Interdisciplinaire en Santé, McMaster's Centre for Health Economics and Policy Analysis, the Manitoba Centre for Health Policy, and the University of BC Centre for Health Services and Policy Research. There are also interdisciplinary health policy PhD and Masters courses in Canada, with over 40 across the country (Abelson et al., 2008) and health infomatics courses now available in BC, Nova Scotia and Ontario (Canadian Universities.net, 2009).

Highlighting differences between HSR and HPR is important in understanding the best approaches to supporting each field. But to support both with a limited budget it is worth noting the similarities between HSR and HPR, since being able to build capacity in both without having to reproduce effort, re-invent tools or create unnecessary competition between HSR and HPR would be of benefit to Canadian HSPR funders and Canada more generally.

The three major issues identified above – Capacity building definitions; skill development and the expertise levels of researchers – all reflect on both HSR and HPR. With respect to capacity building definitions, it is clear that for HSR and HPR there is a need to develop new researchers, since both are young disciplines. Both show a lack of "hard' funded salary positions compared with the biomedical and clinical research communities; and hidden research capacity is a major issue for both HSR and HPR.

## Incentive Structures and Building Capacity: If You Build It, Will They Come?

One factor that is consistent in HSR and HPR, and across all our types of academic and applied research, is that incentive structures for those working in HSPR tend not to align well with building capacity. For the academic world, this concept came across clearly in the interviews and is well documented in the literature (Academy Health, 2006a). Academic researchers are assessed on their success in publishing in high profile journals and their ability to bring in research funds. By focusing academic incentives on such a narrow idea of research impacts, HSPR suffers disproportionately in comparisons of research quality and impact when compared

with basic biomedical and clinical research. This is particularly true in bibliometric analyses of research quality where HSPR journals and citation patterns are different to those of clinical and biomedical researchers (CAHS, 2009). This disparity in impact measurements is unhelpful, since HSPR is inherently interdisciplinary in nature, which we have already noted has a greater impact on society (Frost and Jean, 2003; 120). By limiting our impact analysis structure to only narrow definitions of academic quality, we ignore the sorts of knowledge translation that facilitates the movement of HSPR to an improved health system – e.g. the production of grey literature to influence decision makers (Academy Health, 2006b) and research transfer systems (Birdsell and Omelchuk, 2007).

In applied HSPR there are also incentive structure problems, although this time they reflect an incentive structure in health care that is purely based on clinical activity, and in policy around swift, politically appropriate action. In the clinical setting, the AHSCs of Ontario have outlined how incentives and evaluation structures need to be realigned (Academic Health Sciences Centres, 1999), and there has also been a use of relative value units to credit research on a par with healthcare activities (Deloitte Centre for Health Solutions, 2009: 9). Relative value units have been used successfully at Duke University Medical Centre in the US to incentivise research at the same level as providing care, which dollar values could not achieve. In Canada, there was a similar approach taken in Alberta teaching hospitals, where 25% of time was bought out for research activities – something that significantly improved recruitment and retention of researchers in the hospitals (Interviews). IHSPR (and other CIHR Institutes) are attempting to alter the incentives around applied research for HSPR through their Applied Chair program. These Chairs aim to provide recognition for applied work in the university setting.

Re-aligning incentive structures is not an easy process, particularly since so many incentive structures have perverse incentives and unintended consequences. However, careful approaches to modifying the incentives and evaluation approaches for HSPR researchers in both the academic and applied fields may have a huge impact on the ability to recruit and retain staff – as shown with Alberta teaching hospitals. CIHR's recent move to update the common CV (used in applications for research funding) to include applied knowledge translation, also shows a willingness to address the incentive structures around academic funding (M. McMahon, Assistant Scientific Director IHSPR, Personal Communication).

## Where Do We Need to Build Capacity?

Currently it is incredibly difficult to identify where we should build capacity for HSPR in Canada – either in terms of location, career stage or even disciplines. Interviews with multiple stakeholders identified how many potential areas there are to fund around HSPR capacity, but there is a dearth of good evidence on what the current capacity for HSPR actually is in Canada. Without a really effective environmental scan, one that can get through the issues of applied and academic HSPR, hidden capacity for HSPR and the need for infrastructure and activity capacity building, it will continue to be very difficult to ascertain where valuable capacity building dollars are most needed. In the complementary report to this one, however, CIHR-IHSPR has just completed an environmental scan of the current HSPR capacity in Canada. It is hoped that this will allow a greater understanding of where to focus resources in the future.

To compound the current lack of a baseline on existing capacity, evaluations of HSPR capacity building approaches are not common, and those that do exist are often performed in very different ways making it difficult to establish common themes.

Evaluations are beginning to become more commonplace now that major HSPR capacity building initiatives are maturing. For example, the CHSRF/CIHR CADRE program evaluation is under way and could provide the most comprehensive answers on what has been Canada's largest HSPR capacity building effort – one which partial evaluations of CHSRF and interviewees in this project pour praise upon for changing the landscape of HSPR in the country (Dussault et al., 2007). There are also environmental scans that provide some of the evidence on what capacity looks like in Canada at this time. For example, there is a use for data collected by the Forum of Health Research
Funders (2009), Statistics Canada and potentially even data held by the Canadian Association of Health Services and Policy Researchers (who have access to membership information on those outside traditional funding streams for HSPR such as think-tank researchers).

Even if we do not know exactly what the right approach is for funding HSPR capacity building in Canada for 2010, there are some examples of how we might go about building capacity where we think it might be needed. Based on the interviews, the ways to build capacity are to develop mid-career researchers in academic settings, link researchers and research users in research practice (not simply translation); and build sustainable approaches to strategic funding of HSPR.

## What Works for HSPR Capacity Building?

HSPR is not a barren dessert of capacity building approaches, and there are a significant number of different funding schemes aimed at HSP researchers in Canada and beyond. Below we outline some of the success stories that provide the most pertinent learning for IHSPR and Canadian HSPR capacity building.

### *Canadian Approaches*

#### CADRE Program

The CADRE program, initiated in 2000, was the major approach taken by CHSRF and CIHR in developing research capacity for HSPR in Canada. As mentioned earlier, there is a ten-year evaluation of CADRE that will be coming in the near future that will add to this description. The CADRE program is comprised of four main components:[10]

1. **CADRE Chairs** – The Chairs are leaders in health services and nursing research who mentor and educate junior researchers, train graduate students, build national applied research networks, and create research.
2. **Regional Training Centres (RTCs)** – The RTCs are designed to produce applied health services and nursing researchers at the graduate level. They bring together experienced researchers and students in a multidisciplinary environment and align with provincial decision makers.

[10] Definitions modified from the CHSRF website - www.chsrf.ca/cadre/index_e.php

3. **Postdoctoral awards** – This is a two-year award designed to develop new researchers, with an emphasis on expanding skills in knowledge exchange and engaging with health system managers in mutually beneficial research projects.
4. **Career reorientation awards** – Active from 2006 to 2008, these awards supported established researchers to work with a mentor for one year to reorient their research toward applied health services or policy research. This was an attempt to access some of the hidden capacity for HSPR.

CADRE has been seen as particularly innovative in its approach to building research capacity, since it spanned multiple parts of the career trajectory of HSPR researchers through its four different strands. It also attempts to foster formal and informal linkages between researchers and decision makers, particularly through the RTCs. Unlike previous approaches to capacity building in HSPR (which were few and far between, particularly in Canada), CADRE has attempted to build capacity in multiple areas at the same time. This is an attempt to link HSPR to decision making and also to impacts.

The Chairs have been seen as a particular success in allowing the best of HSPR to not only produce high quality research in Canada, but also to train and mentor students (a stipulation of the Chairs approach) and to network with other Chairs to create a pan-Canadian network of excellence in HSPR (Interviews). In the international review of CHSRF, it was identified that CADRE Chairs also have become financially sustainable since they are able to bring in substantial research activity funding to support themselves and their research team (Dussault et al., 2007). Interestingly, in the opinion of one current CADRE Chair holder, this sustainability is now in question. Chairs were considered to be the best Chair in health research in Canada at their inception since they not only provided generous funding, but also included support tools and links to decision makers and RTCs. 2007's analysis of CHSRF does suggest however, that at that moment, there was sufficient capacity at the most senior level not to warrant extension of the Chair program, and since Chairs seem self-sustainable, there was not a need to continue funding (Dussault et al., 2007).

Based on the literature and interviews, RTCs have been the other major success story of the CADRE program. RTCs have provided an opportunity for HSPR researchers to come together and form a critical mass to address both applied and academic research questions. The links to decision makers that form part of the training approach of RTCs have been important to both trainees and decision makers (Healthcare Policy, 2008). Decision makers value the RTCs for creating potential employees with a knowledge of research and applying evidence in policy, as a way to educate their own staff and increasing the desire and ability of people in government to use evidence in decision making (Healthcare Policy, 2008). Stipends available to students in RTCs mean that nurses and others in health practice can study without an appreciable drop in income (something that was believed to be discouraging practitioners from becoming involved in research – Healthcare Policy, 2008). Numerous contributing factors to the success of the RTCs have been identified and include: long-term funding; leveraging support from provincial governments and other funders; providing administrative support to researchers; and having a rigorous approach to recruiting researchers and students to work in the RTC. However there is one major problem identified with the RTCs: they are highly dependent on the CADRE funding, and with the removal of that funding in the next 12 months, will likely be forced to stop working

in the way they have been. Sustainability plans were not built into the original request for applications and as such, as funding winds down, RTCs are experiencing challenges (Healthcare Policy, 2008; Interviews).

### The STIHR Program and the Canadian Graduate Scholarships

Both the Strategic Training in Health Research (STIHR) program and the Canadian Graduate Scholarships (CGS) are aimed at providing students with the best possible approach to fruitful health research careers. The STIHR program differs from CGS in its focus on interdisciplinary research careers, something that is not part of the CGS objective (which is to build excellence). While neither is directly aimed at HSPR, they both have been very successful in training numbers of graduate students (Bisby and Campbell, 2009; Evaluation and Analysis Branch, 2008; Circum Network and Malatest and Associates, 2008). The STIHR program has increased the opportunities for those training in HSR and become an approach that is seen as important by all stakeholders in health research for training the new generation of researchers. STIHRs are also thought to have increased the interdisciplinary nature of research in Canada (Evaluation and Analysis Branch, 2008; Bisby and Campbell, 2009). However, STIHR partners seem to rarely be involved past funding of research opportunities (Evaluation and Analysis Branch, 2008).

The CGS has been a success in slightly increasing enrolment in graduate studies (award recipients were four percentage points more likely than those without CGS awards to apply for graduate studies) although it has had limited impact on improving the quality of research produced or recruitment and retention of researchers (Circum Network and Malatest and Associates, 2008) – this includes the brain drain it was designed to address by creating a steady stream of graduates for Canada's knowledge economy. In fact, when compared with indirect support, the CGS was worse at increasing the involvement of people in research, increasing the diversity of environments that students work in, increasing interactions with other researchers and reducing the reliance on paid work to support students (Circum Network and Malatest and Associates, 2008). It is not clear whether the CGS has increased the number of places available in university graduate programs or whether it has simply favoured recipients of CGS funding in accessing those spaces.

### EXTRA Program

The EXTRA program is another CHSRF flagship program to support capacity development, although this time it is targeted at decision makers and trains them in the use and application of evidence in improving the Canadian health care system (CHSRF, No Date). EXTRA has been a success based on the views of interviewees, who were on the whole impressed with the approach of training up to 24 fellows annually in the two-year EXTRA training program spread over four away-from-home residency sessions. EXTRA gives decision makers the chance to gain knowledge of research evidence, how to draw on "system thinking;" develop collaborative professional relationships, and to introduce and manage evidence-informed change (CHSRF, No Date). Evaluations of EXTRA suggest that it has been successful in improving decision makers' ability to use research, and collaboration between decision makers and researchers over evidence collection (Anderson and Lavoie-Tremblay, 2008). Decision makers also identified EXTRA as being better aligned with their needs than MBAs and Health Administration Programs (EXTRA, No Date). However, without an evaluation of the EXTRA program that takes into account the

cost-effectiveness of EXTRA against programs such as MBAs and Health Administration Programs, it is difficult to suggest the true value for money of EXTRA.

### Summer Institutes

Summer Institutes offer the opportunity for short bursts of learning and networking around specific research topics. These may be method specific, such as Summer Institutes addressing methods for data mining, or they may be theme specific, such as primary care in HSPR. During the interviews for this project, individuals often identified Summer Institutes as opportunities for new researchers to come together. In fact, interviewees from other research institutes and research centres were so impressed with the Summer Institutes they had encountered through the IHSPR-IPPH institute (see www.cihr.ca/e/29626.html) that they had either instigated their own version or were in the process of starting or co-funding such an institute. Currently there is an evaluation underway of the IHSPR-IPPH Summer Institute that will yield additional information on the strengths of this capacity building approach.

## *International*

### Primary Health Care Research, Evaluation and Development (PHCRED)

Outside of Canada, the example of the Australian PHCRED program is one that has many factors to recommend it. Numerous analyses of its funding have been identified through this report and it has transformed the face of primary care research in Australia through its flexible funding approach of mentoring, bursaries, fellowships, network funding, administrative support and skill development funding. It has been successful through encouraging Universities to interact with primary care workers in developing bridges between the traditional research and care communities. PHCRED has developed networks, mentorship programs and increased the value of primary care research in university departments (Oceania Health Consulting, 2005). It has increased collegiality in the primary care research community that has aided capacity building in a way competitive funding would not, and helped to develop research teams through networks of PHCRED funding (Oceania Health Consulting, 2005; Healthcare Planning and Evaluation Pty Ltd, 2009). The areas that PHCRED could have improved were in developing a national network of PHCRED researchers and fellows, and finding a way to link researchers with existing rather than only new PHCRED and primary care projects (Oceania Health Consulting, 2005; Healthcare Planning and Evaluation Pty Ltd, 2009).

### National Institute of Health Research Service Delivery and Organization Program (SDO)

In the UK, the SDO have in the last two years changed their focus from being solely aimed at funding research activity, to building in a capacity building component. For the SDO this has meant that they are looking to develop receptor capacity, through training those managing and organizing health services in how to have more involvement in research, improved research literacy and a greater and more appropriate uptake of research findings (NHS, 2008). This has been predominantly addressed through the introduction of "Management Fellows". Management fellowships enable a practising manager from a healthcare organisation involved in research to become directly involved in projects, for example, by assisting with the research and acting as a

'knowledge broker' between the research team and the local NHS.[11] This approach is to be evaluated in 2010, but has only been running for just over one year and only six management fellows are funded per year. When the evaluation for this approach is available, it will provide valuable learning on creating research capacity in health services management.

### Agency for Healthcare Research and Quality (AHRQ) Capacity Building

AHRQ have capacity building funding for both individuals and organizations (AHRQ, No date). At the individual level, AHRQ have both doctoral grants (although only for dissertations) and postdoctoral grants. At the post-doctoral level there are standard post-doctoral fellowships (lasting 3-5 years) and mentorship grants. The AHRQ Mentored Scientist grants are available to both research doctorate holders (Mentored Research Scientists) and clinical doctorate holders (Mentored Clinical Scientists). For each of these funding approaches, researchers must find their own mentor and commit at least 75% of their time to research. At the organizational level, AHRQ have the Building Research Infrastructure and Capacity (BRIC) program, which provides funding to institutions in US States that do not have sufficient capacity or infrastructure to support HSR. It provides up to $250,000 over two years to institutions (AHRQ, 2004). Funding can cover a variety of capacity building functions including:

- Central shared equipment and other research resources;
- Recruitment of faculty and other research personnel;
- Development of research data to be included in research grant applications submitted to AHRQ for support through established support mechanisms;
- Development of research skills by investigators;
- Consultants;
- Establishment of research laboratories/centers;
- Grant related support personnel;
- Travel to establish partnerships, attend scientific meetings, or facilitate faculty development;
- Other direct costs associated with the development of institutional research capability; and
- Training.

As yet, there are no evaluations available of these approaches to capacity building by AHRQ, so their effectiveness is open to question. However, the BRIC approach is certainly one that provides an interesting way to develop capacity in places where none exists, particularly because of its breadth of potential funding use.

## *Relating Capacity Building to CIHR, IHSPR and Other Priorities*

Capacity building cannot just be for the sake of having more research capacity; it must be clear how the capacity for HSPR being built in Canada relates to the needs of the Canadian health service and the population. The easiest way to link the capacity built to needs is to relate HSPR capacity building to the strategic aims of CIHR, IHSPR and the other Institutes. We can make the assumption that strategic directions are those that are most likely to benefit the country and then link the capacity to delivering upon those strategies.

[11] This approach is similar to the CIHR Partnerships for Health Systems Improvement (PHSI) grants, although is aimed solely at managers in the health service who are subjects in research, so that they can become research team members. PHSI provides funding for collaborations between decision makers and researchers for projects.

## CIHR Strategic Priorities

In its most recent strategic plan (CIHR, 2009), CIHR have outlined five strategic priority areas, of which three areas relate to delivering research to improve practices and policies and are relevant to building HSPR capacity. These are:

1. Support a high-quality, accessible and sustainable health-care system
2. Reduce health inequities of Aboriginal peoples and other vulnerable populations
3. Promote health and reduce the burden of chronic disease and mental illness.

Below we address each of these strategic issues in turn and relate them to the current capacity building approaches that will help to achieve the strategic goal. The capacity building approaches may be ones that are already in place, or they may be ideas from outside CIHR or Canada that could be aligned with a specific strategic goal. This is not an exhaustive list of recommendations around strategic priorities, but it is a method of clearly linking priorities to HSPR capacity building.

*1. Support a high-quality, accessible and sustainable health-care system*

The main aim of HSPR is to help build a health-care system that is high quality, accessible to all, appropriate, efficient and effective in its activities and sustainable for Canada. Specific HSPR capacity building initiatives that speak to this need for timely, relevant research are those around creating a research capacity able to answer a wide variety of questions using multiple methods. Approaches that are particularly useful here are the methodology and skills development capacity building approaches such as the Summer Institutes and networking researchers and methodologists. Also an issue is the need to have federal, provincial or regional knowledge to address issues in a specific location. This implies that there needs to be sufficient capacity in place in each location to be able to address local questions. The RTCs in Canada and the AHRQ BRIC program both provide local capacity building – with the AHRQ approach focusing specifically on areas with little infrastructure or HSR capacity. The RTC approach in Canada has much to commend it when linking to local priorities and responsive research, since they have become so well networked with provincial decision makers.

*2. Reduce health inequities of Aboriginal peoples and other vulnerable populations*

One way to build HSPR capacity for Aboriginal questions is to bring Aboriginal researchers into the HSPR community. The Institute for Aboriginal People's Health has extensive experience in building research capacity in the Aboriginal community, having developed a growing research capacity from next to nothing at the inception of CIHR in 2000. This knowledge can be leveraged to apply to HSPR, along with other capacity building approaches that are understood to work well for underrepresented populations, such as those aimed at rural health practitioners in BC (through the Research Helpdesk approach) and in Australia (through the PHCRED program).

*3. Promote health and reduce the burden of chronic disease and mental illness*

Building HSPR capacity that has specific knowledge of mental health and/or chronic disease is one approach that will help to provide the research needed to address this strategic issue. One way in which this is being addressed is the interaction of IHSPR with other CIHR Institutes. A good example of this is the joint IHSPR/IPPH Summer Institute, which brings together young researchers from HSPR and population health, to learn from each other and thus inform research

in each area. Another example is the networking of researchers from different disciplines who can add expertise to research projects on chronic disease and mental illness.

### IHSPR Strategic Priorities

IHSPR also has strategic priorities that it wishes to address as part of its role in HSPR. Currently there are three relevant priorities, although the first of these has two sub-sections:

1. Access to Appropriate Care across the Continuum:
    a. Primary Healthcare
    b. Community-Based Care
2. Drug Policy (including effectiveness and safety research as well as financing etc.)
3. Health Information

Each of these priorities is addressed below in terms of how they relate to HSPR capacity building approaches.

*1. Access to Appropriate Care across the Continuum*

Accessing appropriate care brings together two of Statistics Canada's measures for a working health care system: access to care, and appropriateness of care (Statistics Canada and Canadian Institute for Health Information, 2008). Within this context, IHSPR has decided to focus on two parts of the health care continuum: primary care and community-based care.

*1a. Primary Healthcare*

Primary care is seen as the way in which health care can be most efficiently and effectively provided to most people in Canada. The example of PHCRED in Australia is possibly the most comprehensive approach to building research capacity for, and in, primary care. In PHCRED, there is an acknowledgement of the importance of both the academic study of primary care (with universities given funds to address primary care questions) and the development of research skills in primary care practice (with training and research support for practicing primary care physicians).

*1b. Community-Based Care*

Community-based care is an area that, like primary care, has suffered from a lack of research in the past. To build HSPR research capacity to better serve the community-care "system", there is a need to bring both methodological expertise to community-care questions, and to include community-care practitioners in research. Methodologically, capacity building approaches that encourage methodologists to investigate particular areas of research can yield new strengths. As an example, strategic research calls, while not necessarily building sustainable capacity can build a discipline that would aid community-based care research. In terms of incorporating community-care practitioners, examples of successful approaches to bringing health practitioners into the research community could be explored for community-care workers, particularly approaches that work on the timescales of practicing community-care workers. One such approach would be the Ontario College of Physicians' weekend training, which although originally designed for physicians could easily be adapted to provide research training opportunities at appropriate times for community-care workers.

*2. Drug Policy (including access, effectiveness and safety research as well as financing etc.)*

Drug policy is clearly linked to HPR, and has been the subject of much research. However, there are still a number of areas of HSPR research where an increased capacity could provide support

to drug policy. These include building expertise in drug HSPR around equity of access to drugs, financing systems, drug coverage policies, and how to allocate health system resources to effectively provide drugs. By improving the quantitative methodological skills (through approaches such as Summer Institutes and the RTCs) there will be an increased pool of researchers in Canada able to address questions around safety and effectiveness as well as finance. Quantitative skills, such as handling large data sets for drug safety trail data, would add to the existing strengths in HSPR that can be applied to drug policy. There is also a need to apply the qualitative skills that exist in HSPR around policy analysis, social policy and health equity to drug policy questions.

*3. Health Information*

A current public priority (based on recent spending scandals), health information is an area in health policy and the health system that can benefit significantly from solid research evidence. HSPR capacity building can help in this regard, particularly through its ability to develop, support and link health databases. By providing the infrastructure for researchers to work on health information, HSPR can help to: a) streamline approaches to managing health information, and b) provide researchers who are able to mine large datasets of health information to address specific health and health system issues. Building networks with researchers on health information in other countries that have implemented health information systems will also boost Canadian HSPR capacity for this issue.

## Other Related Priorities

Two other priorities were identified for this research:

1. Health economics – because this is seen as a priority for capacity building by IHSPR.
2. Child and youth health services and policy research – because IHSPR has partnered with the Institute for Human Development and Child and Youth Health (IHDCYH) on this project.

*1. Health Economics*

In interviews with experts in HSPR, it was acknowledged that there is already a cohort of trained health economists in Canada. However, these health economists are most commonly associated with issues around pharmaceuticals and the private sector. This means that the capacity for health economics associated with other HSPR questions is currently low. One approach to build the capacity for health economics in HSPR is to provide incentives to re-align existing capacity (along the lines of the CHSRF/CIHR CADRE career reorientation awards). Alternatively, there are opportunities to network HSPR researchers with existing health economists to make use of the current expertise in Canada.

*2. Child and Youth Health Services and Policy Research*

Recently, IHDCYH held a two-day workshop investigating the role that HSPR capacity building can take in their institute's work. This workshop included IHSPR input and is a prime example of how partnerships between institutes can help to provide capacity for HSPR in specific subject areas. IHSPR already partners with other institutes on STIHRs (including supporting a STIHR in 'Pain in Child Health') and on Summer Institutes (jointly running the highly praised IHSPR-IPPH Summer Institute). These approaches to developing research capacity across disciplines can be easily applied to child and youth health. Interestingly, in interviewing the Scientific

Director of IHDCYH, there was a clear intent to investigate creating Chairs in Child and Youth HSPR as a way to create top-down research capacity. If this is to occur, it would be wise to follow the suggested approach to Chair funding, where capacity building is built into the mandate of the Chair, as well as research (as it is for CADRE and IHSPR Applied Chairs).

## Developing a Toolkit

There are numerous approaches that can be taken to supporting research capacity in such a diverse grouping as those working in HSPR. As we have seen, there are a number of examples of successful (if not yet fully evaluated) approaches already in existence. These can be divided into different tools that achieve different aims for research capacity funders. Below we outline what such a toolkit might look like.

### *Salary Funding*

**Chairs:** These have the potential to help build capacity across the full spectrum of research in HSPR. By providing funding for senior researchers to focus on research (such as the CRCs) or research and teaching (such as the CHSRF/CIHR CADRE Chairs), senior researchers can build a research team around themselves, as well as networking with other researchers outside their location. The CRCs program shows how successful a Chair can be in developing capacity with 94% of universities with a Chair saying that they were better able to recruit and retain the top students, 76% saying CRCs helped develop new research teams and 94% suggesting the CRCs had strengthened existing research teams (Canada Research Chairs, 2007).[12] CADRE Chairs show how effective it can be to require Chairs to mentor as well as research (Interviews).

**Fellowships**: These provide an opportunity for researchers to pursue researcher-initiated programs of work. They often provide support for early to mid-career researchers. For HSPR, there is a need to ensure that fellowships are linked into training programs and mentorships for studentships and post-doctoral fellowships; or to develop joint decision-maker and researcher projects.

**Post-doctoral fellowships**: The time after graduating from a doctorate is seen as one of the most difficult times for a new HSPR researcher. It is also the time at which researchers begin to establish an independent research career. Training at the post-doctoral level needs to include mentoring in how to be an independent researcher (including knowledge transfer, grant writing and laboratory management). If the focus is on applied HSPR, fellowships should include joint decision maker/researcher projects or internship in decision making organizations or institutions.

**Non-academic fellowships**: Buying out time for non-academic stakeholders in HSPR (who would normally only form part of the user community) to get involved in research projects. This could be through developing their own research questions, becoming part of a research team or learning new research skills. There are significant stresses associated with this sort of fellowship, since research is often not covered in professional development and employee assessment. Non-academic fellows also often lack research infrastructure, as they are outside academia, so may need more administrative support than academic fellows.

[12] It should be noted that the CRCs are across all research areas, not just HSPR – although that does not invalidate the obvious success they have in bringing in research capacity to Universities.

**Studentships:** The evidence from interviews and the literature suggests that studentships can be aimed at both undergraduates and postgraduates, with a focus on providing: interdisciplinary training; strong mentoring; links to decision makers and policy impacts; and an understanding of the potential career paths open to postgraduates in HSPR.

**Health services and policy professional salary support**: Buying out time for professionals in the health service (from clinicians to administrators and managers) and health policy (decision makers and advisors) provides an opportunity to have a focus on evidence informed decision making that may otherwise be lacking. For hospital leaders, support needs to include a balance in applied and abstract problem solving; a link between management education and policy reform; an understanding of how policy changes might affect any research project they are involved in (Kebede *et al.,* 2010).

### *Team Funding*

**Research centres**: The RTCs in Canada have been successful in developing new interdisciplinary researchers, and research centres can create a critical mass of HSPR talent that can address decision maker and academic problems in timely fashions. Centres need to have certain rules for researchers, however, to ensure: that they work a portion of their time with decision makers or practitioners on applied problems; that there is a rigorous academic entrance requirement; and that sustainability of action after priming funds have been exhausted is built into Centre planning.

**Networks and virtual teams**: Where centres are not an option, networks and virtual teams can provide a similar critical mass of HSPR capacity. Networks and virtual teams can stop individual researchers feeling isolated and create new mentorship opportunities. However, networks and virtual teams need to have sufficient administrative support for them to be able to run sustainably.

**Teams and Emerging Teams grants:** Team and Emerging Team grants have been used by all CIHR Institutes and provide funding for either existing or potential teams of researchers who are addressing a particular research problem. Team and Emerging Team grants both aim to bring together researchers, often across disciplines, and provide funds to develop new investigators on the project being funded. They are a useful approach to developing teams of researchers to answer strategically identified questions. Their role in capacity building is generally seen as positive (Interviews) but it is difficult to determine how transferable an individual's research capacity is at the end of team grants.

### *Skill Development*

**Summer Institutes**: As an approach to developing student or new practitioner researcher skills, knowledge and networks, summer schools provide an excellent and highly valued service. By bringing together new researchers and training them together, summer schools also facilitate cross-disciplinary discussions and provides a value for money approach to training many students at once.

**Weekend training courses**: For health professionals and those working in service management or decision making it is often difficult to find time to be involved in consistent weekday research opportunities. One option is to provide a series of weekend skill development courses that tie into participants' current real-life research questions. Using training approaches such as "train the trainer", participants can be facilitated to go back to their practice environment and develop research careers and additional research capacity where they work. The Ontario College of Physicians' weekend training course is an example of this approach that has shown physicians how to answer questions emerging from their practice. In evaluations, participants were generally positive about the weekend course and some identified that it had improved their clinical practice (Rosser *et al.,* 2010). The identified link to improving clinical practice is something that makes this approach a particularly desirable one in HSR.

**Receptor capacity development**: Producing research is no use if it is not adopted by the health service and decision makers. Developing skills in analysing and utilizing research for practitioners and managers, along the lines of the EXTRA program or links into centres and networks for HSPR, is an opportunity that should not be ignored in HSPR capacity building.

## SWOT Analysis: Building the Foundations for Future Capacity

SWOT analyses allow us to partition the evidence identified through this document review and interviews into a framework that can be modified, re-populated and worked with as new information on the state of HSPR capacity building comes online in Canada. This is particularly important at this moment in time, since there are a number of research projects and evaluations emerging that will add significantly to the body of knowledge on Canadian HSPR capacity building. These include the upcoming CADRE evaluation, ten-year review of IHSPR and CIHR, work on the core competencies needed for HSPR researchers, and assessments of HSPR around the world (for example, an assessment of Irish HSPR is due for release later this year).

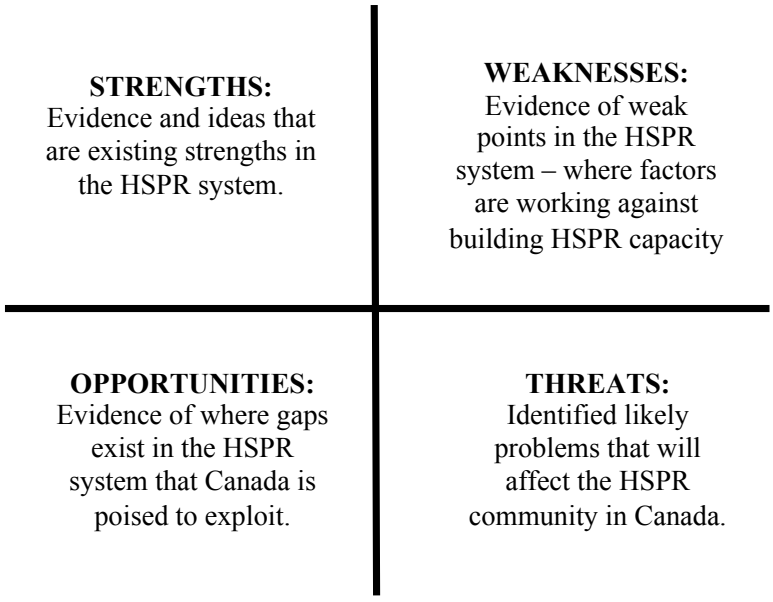



**Figure 2. A SWOT analysis framework for HSPR capacity building**

The SWOT analysis breaks findings down into four categories (Figure 2). In each of these categories we identified some major themes that arise from the above research. We have deliberately limited the number of findings covered under each part of the SWOT analysis to hone in on the major thematic strengths, weaknesses, opportunities and threats to HSPR capacity building in Canada.

### *Strengths:*

- The CADRE program has helped develop a generally acknowledged good approach to building high quality and applicable HSPR in Canada (through a combination of Chairs, RTCs; career realignment awards and post-doc awards). This approach can be built upon and sustained for specific areas (e.g. leveraging funding for the RTCs).
- There are pockets of applied HSPR research in Canada providing small studies relevant to delivery of health services and policy. These can be utilized and leveraged to increase the capacity for (and quality of) applied research.
- Many provinces have some form of data infrastructure, and national data is also becoming more prevalent (although this data could be linked and made comparable across provinces).
- Summer Institutes for graduate students are seen as highly valuable in creating linked research capacity.

### *Weaknesses:*

- As with almost all health research, there seems to be no current example of evaluated sustainable funding within HSPR that can be linked to improving outcomes in the health system (either through HSR or HPR). This is partly due to the youth of the HSPR discipline and its inherent interdisciplinary nature, and partly due to the current difficulty of linking research funding to health system outcomes.
- Certain skills are not represented adequately in Canadian HSPR. This includes methods such as health economics, where there are numerous researchers, but they are involved in other types of study (such as private sector drug development and analysis).
- There is a lack of strategic thinking identified in how universities are using Chairs - and in HSPR capacity building in general. Interviewees identified a need to create a strategic planning approach to building capacity along the lines of "Listening for Direction".[13]

### *Opportunities:*

- There are numerous approaches from outside HSPR that attempt to identify the strength of research capacity. These can be applied to: a) evaluating capacity building approaches in a more systematic and comparative fashion; b) assessing the HSPR capacity in academic and applied environments to determine where capacity needs to be built.
- Multiple funders are involved in research activity in HSPR and all share in the responsibility to support researchers. This variety of funders can be brought together in a systematic fashion to

[13] See www.cihr.ca/e/20461.html for details of the Listening for Direction approach.

provide joint support for researchers in HSPR (for example, the joint funding approaches between CIHR/CHSRF/provincial governments/universities (*in-kind* support) for RTCs).

- Trained HSPR graduates seem to move freely out of academia into other posts where their skills can benefit services and policy. This provides an opportunity to link the academic and applied sectors more closely, and is something that has been used successfully in a number of settings (including the RTCs in Canada and PHCRED in Australia).

### *Threats:*

- The main threat to building HSPR capacity in Canada (and indeed around the world) is the incentive structure that underlies the research world. Currently researchers in academia are rewarded based on producing publications and obtaining peer-reviewed research funds, which biases against both applied and interdisciplinary work (both mainstays of a healthy and robust HSPR community). Incentives in the applied sector are around problem solving and do not relate well to concepts of research quality and knowledge translation.
- Baseline data on HSPR capacity is very poor in Canada; this implies it is not clear where capacity should be built. There needs to be a reproducible approach to analysing existing capacity in Canada.
- Brain-drain to the USA and elsewhere for HSR graduates is considered a threat, although the only solution offered thus far has been to increase funding.

# Appendices

## Appendix A: Key Informant interview – List of Key Informants

The list below represents those individuals and organizations interviewed in the process of this research. The diversity of the stakeholders involved in HSPR capacity building is wide, necessitating a wide breadth of interviewees. This means that some players may not represented within the interviewees. This is particularly obvious in the lack of an interviewee from the provincial research funding bodies. However, since the Chair of the steering committee for this research represents one of the provincial funding organizations, this viewpoint has not been lost to the research. Interviewees are split into two categories: CIHR Institute senior staff, and stakeholders in HSPR outside CIHR.

### *CIHR Institutes*[14]

| **Institute** | **Interviewee** | **Role** |
|---|---|---|
| Aboriginal Peoples' Health | Dr. Malcolm King | Scientific Director |
| Aging | Dr. Anne Martin-Matthews | Scientific Director |
| Cancer Research | Dr. Morag Park | Scientific Director |
| Circulatory and Respiratory Health | Kimberly Walker | Assistant Director |
| Gender and Health | Dr. Joy Johnson | Scientific Director |
| Genetics | Stephanie Robertson | Assistant Director |
| Human Development, Child and Youth Health | Dr. Michael Kramer | Scientific Director |
| Infection and Immunity | Dr. Marc Ouellette | Scientific Director |
| Neurosciences, Mental Health and Addiction | Dr. Anthony Phillips | Scientific Director |
| Population and Public Health | Dr. Nancy Edwards | Scientific Director |
| UBC Centre for Health Services and Policy Research | Dr. Morris Barer | Former Scientific Director, IHSPR |

### *HSPR Stakeholders Outside CIHR*

| **Organization** | **Interviewee** | **Position in Organization** |
|---|---|---|
| CHSRF | Jonathan Lomas | Former President and CEO |
| CHSRF | Maureen O'Neil | Current President and CEO |
| CAHSPR | Lillian Bayne | President |
| Canadian Institute for Health Information | Dr. John Wright | President |
| Health Canada | Glenda Yeates | Associate Deputy Minister Health (Canada) |
| Association of Canadian Academic Healthcare Organizations | Dr. Tina Saryeddine | Head of research |
| Council of Deans of Medical and | Dr. Tom Marrie | Dean at Dalhousie |

[14] It was not possible to schedule interviews with two Institutes, the Institute of Musculoskeletal Health and Arthritis, and the Institute of Nutrition, Metabolism and Diabetes.

| | | |
|---|---|---|
| Health Sciences schools | | |
| Ontario Training Centre (CHSRF/CIHR CADRE Regional Training Centre) | Dr. Alba DiCenso | Director |
| Canadian Research Chairs program | Dr. Michèle Boutin | Executive Director |
| Heart and Stroke Foundation | Linda Piazza | Head of research |
| Vancouver Island Health Authority | Kenna Miskelly | Program Manager Capacity Building |
| Australian National Health and Medical Research Council | Dr. Angela McPhillips | Director, Building Capacity |
| Health Research Board Ireland | Dr. Teresa Maguire | Head of Population Health and Health Services Research |
| Agency for Healthcare Research and Quality | Dr. Carolyn Clancy | Director |
| UK Service Delivery and Organization Program | Prof. James Raftery | Director |
| Social Sciences and Humanities Research Council | Dr. Brent Herbert- Copley | VP Grants and Fellowships |
| Ontario Ministry of Health and Long-Term Care | Dr. Adalsteinn Brown | Assistant Deputy Minister, Health System Strategy Division |
| Manitoba Centre for Health Policy | Dr. Patricia Martens | Director |
| Mount Sinai Hospital and University of Toronto | Dr. Shoo Lee | Paediatrician-in-Chief, Head, Division of Neonatology, Professor, Clinical Epidemiology |

## Appendix B: Key Informant Interviews – Full Protocol

This guide is for semi-structured interviews that will cover the three different groups to be covered in the Key Informant Interviews (KIIs):

1. Those with a knowledge of HSPR specific capacity building (national, provincial and international)
2. Those with a knowledge of health research capacity building (national and international)
3. The CIHR Institute Scientific Directors (and relevant former Scientific Directors)

There is some redundancy in this interview protocol and that will be addressed in specific interviews where points have been covered before asking a specific question.

### Introduction

About the project:

- Who is calling them (Eddy Nason/IOG)
- Nature of the project (defining HSPR; discussing capacity building in loose sense (i.e. people); identifying desired outcomes – recommendations on approaches to improve capacity building for HSPR.

About the funder(s):

- CIHR mandate
- CIHR IHSPR and IHDCYH mandates
- Why CIHR and its Institutes are interested in exploring HSPR capacity building

#### *All KIIs*

How does your organization/personal role fit into capacity building for HSPR?

(*This is a personal question to ascertain why they think they have been asked to be involved – it is a way to get people talking on something that they are comfortable with while getting an idea of where they think they fit in the work*)

### Theory of capacity building – setting the context of the interviewees' views/knowledge

CIHR defines capacity building as an approach to improving the recruitment and retention of a skilled HSPR research workforce in Canada. What are your thoughts on:

- What does a robust HSPR community look like?
- How does Canada fare in relation to this vision? Where is Canada successful? Where can it improve?
- If there is a gap what do we need to do to close the gap (i.e. training programs, junior, midcareer, etc)?
    - Who is missing out? Why? What challenges have you experienced or witnessed in building capacity in HSPR (in Canada)?

## Interviewees experience in the HSPR system

What facilitators, activities, tools, programs/initiatives has your organization used to build HSPR capacity?

- How successful or effective was each one and what factors contributed to or impeded success? What is your most successful capacity building tool/initiative/program in HSPR and why?
- What % of total funding have you dedicated to capacity building (i.e. how important is it in the context of their other initiatives/goals)?

What are the key examples of good capacity building in HSPR outside of your institution/ organization?

- What do you know of in Canada/Internationally? What provinces/ organizations/ countries?
- How did you find out about it?
- What makes it successful/different?

Who has responsibility(ies) for capacity building in Canadian (or international if appropriate) HSPR? (e.g. research funders, universities, health organizations, etc.)[15]

- Who should be responsible for – what are the roles of different stakeholders – and who is living up to expectations of these roles?
- What should CIHR be doing with respect to investing in HSPR capacity building to support a robust HSPR community?

## Relating the interviewees' Experience to How It Should Be

What specific capacity do you think needs to be built/maintained?

- Levels of capacity (new investigator, middle career, senior investigators; other levels dependent on the location of capacity – junior, mid level, senior researchers)
  - Are different capacity building approaches needed at different career stages? What is the optimal mix of individual vs. team-based approaches to capacity building (e.g., Doctoral Research Award vs. STIHR; what about the RTCs, etc. programmes from CHSRF that are no longer being funded)
  - How can we ensure capacity along the career trajectory?
- Location of capacity (health care provider, academic, policy/decision maker, other?)
  - Should we be training research capacity to work within governments (at the provincial, federal and municipal level) and/or to work within academic institutions?
- Type of capacity (receptor vs. researcher – in HSR and HPR)
  - *Incl. whose role is it to build receptor capacity? Receptors/funders?*
- Should we invest in both recruitment and retention? If so, what is the appropriate proportion in each? What is the optimal combination of tools to recruit and retain the best researchers in HSPR?

[15] This addresses the issue of whether universities or others should "hard fund" capacity for HSPR. Need to understand why this isn't happening and who it is considered should hold the pen on this issue.

- Are there specific research areas in which we should be building capacity or is it generally needed across HSPR? How to prioritise this? What's the best approach? What works?
- How can we build a capacity for HSPR research in Canada that is responsive to needs (needs may be those of the health system and/or the need for improved quality HSPR)?
    - What is needed to get to this point?
- What should the capacity for HSPR in Canada look like? (Provincial/federal; pyramid; etc.)
- How long does/should it take to build this capacity?

### Ideal world scenario – what would you do if you were in charge?

If you had $50m to spend on *building capacity for HSPR* in Canada how would you spend it?

- 5 different envelopes of $10-million. What five things would the respondent do, or would they spend multiple envelopes on one or two activities?
    - *Ideally top three recommendations for where to put this imaginary funding*.

### Additional interviewees

Who would you recommend as other interesting people to talk to (max three)

#### *National/International HSPR Experts/Stakeholders*

What in your opinion is unique to HSPR and therefore HSPR capacity building relative to other areas (e.g., biomedical, clinical, pop health)?

What information do we need to be able to capacity build better?

- How can we access this? Who houses it if it exists?

#### *Health Research Capacity Building Stakeholders/Experts*

What can HSPR learn from other research areas capacity building approaches?

We know that fellowships and scholarships are ways to fund capacity, but what other innovations exist to build capacity in health research? (*e.g. Prizes for excellence versus funding – see the approach to increasing multidisciplinary teams in BC/Vancouver Health Authority; innovation funding based on risk levels; people versus research capacity*)

- How can this be harnessed for HSPR?

#### *Institute Scientific Directors*

What is your institute focusing on for capacity building (and specifically capacity building in HSPR) and what have you focused on in the past?

- Does this relate to increasing excellence (i.*e*. *improving the highest quality research capacity*) and/or covering gaps in capacity (*i.e*. *improving areas of low quality research through increased capacity*)?

What have been your successes and set-backs in terms of capacity building?

How does your capacity building relate to the work of other institutes/funders? (*Particularly to IHSPR)*

How does your capacity building fit with the strategic priorities of:

a) Your institute
b) CIHR as a whole (*prompts below*):
    - Support a high-quality, accessible and sustainable health-care system
    - Reduce health inequities of Aboriginal peoples and other vulnerable populations
    - Promote health and reduce the burden of chronic disease and mental illness
c) The following identified priorities from IHSPR and IHDCYH (*prompts below*):
    - Access to Appropriate Care across the Continuum
    - Primary Healthcare
    - Community-Based Care
    - Drug Policy (including effectiveness and safety research as well as financing etc.)
    - Health Information
    - Health Economics
    - Child and Youth Health Services and Policy Research

What is the HSPR focus in your institute? And how has HSPR capacity building featured in your strategy? How much have you committed to this (proportionately to other priorities)?

How can you take on capacity building innovations/approaches that could benefit your institute? I.e. What are the sorts of approaches your institute can/can't take and how would you implement any recommendations that arose – incl. timescales?

## References


Abelson, J., Giacomini, M., Lavis, J. and Eyles, J. 2008. *Field of Dreams: Strengthening Health Policy Scholarship in Canada*. CHEPA Working Paper Series; Paper 08-06.

Academic Health Sciences Centres. 1999. *Background Paper: Academic Health Sciences Centres*. Toronto, ON: Academic Health Sciences Centres

Academy Health. 2006a. *Strengthening the Field of Health Services Research: A Needs Assessment of Key Producers and Users*. Washington DC, USA: Academy Health.

Academy Health. 2006b. *Health Services Research and Health Policy Grey Literature Project: Summary Report*. Washington DC, USA: Academy Health.

Academy of Medical Sciences. No date. *National mentoring and outreach scheme*. London, UK: The Academy of Medical Sciences.

AHRQ. No date. *Funding Opportunities: Training and Education*. Available at: www.ahrq.gov/fund/training/trainix.htm

AHRQ. 2004. *Building Research Infrastructure and Capacity (BRIC) Program*. Available at: http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-05-010.html#SectionII (Accessed April 20th 2010).

Akoto AYO, Ansong D, et al. 2006. Evaluating Health Research Capacity Building: An Evidence Based Tool. *Public Library of Science Medicine*. **3**(8): e299.

Anderson, M. and Lavoie-Tremblay, M. 2008. Evaluation of the Executive Training for Research Application (EXTRA) Program: Design and Early Findings. *Healthcare Policy*. **4**(2): e136-e148.

Birdsell, J. and Omelchuk, K. 2007. *Building capacity for health research transfer in Western Canada: An environmental scan*. Edmonton, AB: Alberta Heritage Foundation for Medical Research

Bisby, M. and Cambell, M. 2009. *Impacts of the CIHR Institute of Infection and Immunity 2000-2008*. Ottawa, ON: Institute of Infection and Immunity

Brownlee, A., Duran Gonzales, L. and Pathmanahtan, I. 1992. *Health Systems Research Training Series, Volume 3: Strategies for involving Universities and Research Institutes in Health Services Research*. Ottawa, ON: International Development Research Centre.

CAHO. 2009. *Supporting Health Researchers To Come To Ontario, To Stay, and To Succeed*. Toronto, ON: Council of Academic Hospitals of Ontario.

CAHS. 2005. *The Benefits and Barriers to Interdisciplinary Research in the Health Sciences in Canada.* Ottawa, ON: Canadian Academy of Health Sciences.

CAHS. 2009. *Making an Impact: A Preferred Framework and Indicators to Measure Returns on Investment in Health Research - Report of the Panel on Return on Investment in Health Research*. Ottawa, ON: Canadian Academy of Health Sciences.

Canada. 2000. Canadian Institutes of Health Research Act. c.6, s.4.

Canada Research Chairs. 2007. *Canada Research Chairs: Progress Report April 2006- March 2007*. Ottawa, ON: Canada Research Chairs.

Canadian-Universities.net. 2009. *Canadian Health Informatics University Programs*. Available at: www.canadian-universities.net/Universities/Programs/Health_Informatics.html (Accessed April 20th 2010).

CHSRF. No Date. *About Extra: Overview*. Available at www.chsrf.ca/extra/overview_e.php (Accessed April 20th 2010).

CHSRF. 2006. *Recognition: Finding ways to make applied scholarship in health services count*. Ottawa, ON: Canadian Health Services Research Foundation

CIHR. 2009a. *Health Research Roadmap: Creating innovative research for better health and health care*. Ottawa, ON: Canadian Institutes of Health Research.

CIHR. 2009b. *CIHR investments in health services research: 2000/01-2008/09. Prepared for: November 2009 Scientific Council Meeting*. Ottawa, ON: Canadian Institutes of Health Research.

Circum Network and Malatest R.A. and Associates. 2008. *Canada Graduate Scholarships (CGS) Program and Related Programs Review: Final report.* Ottawa, ON: The Interagency Evaluation Steering Committee.

CMA. 2007. *Patient-Focused Funding and Pay-for-Performance: A Discussion of the Concepts and Experience*. Ottawa, ON: Canadian Medical Association.

Committee on Facilitating Interdisciplinary Research and Committee on Science, Engineering, and Public Policy. 2004. *Facilitating Interdisciplinary Research*. Washington DC, USA: The National Academies Press.

Cooke, J. 2005. A framework to evaluate research capacity building in health care. BMC Family Practice. **6**: 44. doi:10.1186/1471-2296-6-44

Cooke, J., Nancarrow, S., Dyas, J. and Williams, M. 2008. An evaluation of the 'Designated Research Team' approach to building research capacity in primary care. *BMC Family Practice*. **9**:37 doi:10.1186/1471-2296-9-37

CORDIS. 2010. *Seventh Framework Programme: Research Infrastructures*. Brussels, Belgium: European Commission. Available at http://cordis.europa.eu/fp7/capacities/research-infrastructures_en.html (Accessed April 20th, 2010).

Coyte, P., Wise, L. and Motiwala, S. 2008. *An Evaluation of the Nursing Research Fund: Lessons to Date and Recommended Next Steps*. Ottawa, ON: Canadian Health Services Research Foundation

Cruess, R., Smith, D. and Wright, C. 2004. *Evaluation of the Ontario Academic Health Science Centres Alternative Funding Program (Phase 1): A Major Step Forward*. Toronto, ON: Academic Health Sciences Centres.

DeFriese, G. and Seipp, C. 1978. Building a National Capacity for Health Services Research. *Health Services Research*. **13**(3): 238–242.

Del Mar, C. and Askew, D. 2004. Building Family/General Practice Research Capacity. *Annals of Family Medicine*. **2**(Suppl. 2): S35-S40.

Deloitte Centre for Healthcare Solutions. 2009. *Academic Health Sciences Centres: The tipping point. Building sustainable strategies for the future*. Toronto, ON: Deloitte Canada.

Dussault, G., Davis, J., Gruman, J. Thorton, W. 2007. *CHSRF at the Crossroads: Capitalizing on Success – Report of the International Review Panel to the Board of Trustees of the Canadian Health Services Research Foundation*. Ottawa, ON: Canadian Health Services Research Foundation.

Evaluation and Analysis Branch. 2008. *Strategic Training Initiative in Health Research (STIHR) 2001- 2006: Final Evaluation Report*. Ottawa, ON: Canadian Institutes of Health Research.

EXTRA. No Date. *The EXTRA program: A case report from the Ottawa Hospital*. Ottawa, ON: Canadian Health Services Research Foundation Forum of Health Research Funders. 2009. *Report on the Results of the Survey of Health Trainee Funding*. Ottawa, ON: Forum of Health Research Funders.

Foy, R. and Eccles, M. 2008. Structured career pathways in academic primary care. *Family Practice*. **25**: 63–67.

Frost, S. and Jean, P. 2003. Bridging the Disciplines: Interdisciplinary Discourse and Faculty Scholarship. *The Journal of Higher Education.* **74**(2): 119-149.

Gagliardi, A.R., Perrier, L., Webster, F., Leslie, K., Bell, M., Levinson, W., Rotstein, O., Tourangeau, A., Morrison, L., Silver, I.L. and Straus, S.E. 2009. Exploring mentorship as a strategy to build capacity for knowledge translation research and practice: protocol for a qualitative study. *Implement Science*. **19**(4): 55.

Gold, C. and Gallagher, H. 1999. The Challenges of Conducting Interdisciplinary Research in Traditional Doctoral Programs. *Ecosystems*. **2:** 281-285

Healthcare Planning and Evaluation Pty Ltd. 2009. *Evaluation of the Primary Health Care Research, Evaluation and Development Strategy Findings Summary Report.* Highgate. South Australia: Healthcare Planning and Evaluation.

Healthcare Policy. 2008. Building Capacity in Applied Health and Nursing Services Research in Canada: A Seven Year Journey. *Healthcare Policy* **Vol. 3**. Special Edition

IHSPR. 2010. *Request for Proposals: Building a Robust Health Services and Policy Research Community in Canada*. Toronto, ON: Institute of Health Services and Policy Research.

Jaen, C., Borkan, J. and Newton, R. 2006. The Next Step in Building Family Medicine Research Capacity: Finding the Way From Fellowship. *Annals of Family Medicine*. **4**: 373-374. DOI: 10.1370/afm.606.

Kebede, S., Abebe, Y., Wolde, M., Bekele, B., Mantopolous, J. and Bradley, E. 2010. Educating leaders in hospital management: a new model in Sub-Saharan Africa. *International Journal for Quality in Health Care*. **22**(1): 39–43.

MacLeod, M., Dosman J., Kulig, J. and Medves, J. 2007. The development of the Canadian Rural Health Research Society: creating capacity through connection. *Rural and Remote Health*. **7** (online): 622.

Malatest, R. and Associates. 2004. *Fifth-Year Evaluation of the Canada Research Chairs Program: Final Evaluation Report*. Ottawa, ON: R.A. Malatest and Associates

Michael Smith Foundation for Health Research. 2007. Health *Services & Policy Research Support Network Task Force on Future Directions for Research & Capacity Building: Status Update*. Vancouver, BC: Michael Smith Foundation for Health Research.

Miller, J., Bryant MacLean, L., Coward, P. and Broemeling, A-M. 2009. Developing strategies to enhance health services research capacity in a predominantly rural Canadian health authority. *Rural and Remote Health*. **9**: 1266.

Nair, K., Dolovich, L. Brazil, K. and Raina, P. 2008. It's all about relationships: A qualitative study of health researchers' perspectives of conducting interdisciplinary health research. *BMC Health Services Research*. **8**: 110. doi:10.1186/1472-6963-8-110

NHS National Institute for Health Research. 2008. *NIHR Service Delivery and Organization Programme: Annual Report 2008*. London, UK: National Coordinating Centre for the Service Delivery and Organisation research programme.

NIH. 2009. *Building Interdisciplinary Research Careers in Women's Health (K12): Funding Announcement*. Available at: http://grants.nih.gov/grants/guide/rfa-files/RFA-OD-09-006.html (Accessed April 20th 2010).

Oceania Health Consulting. 2005. *Summary Report of the Evaluation of the Primary Health Care Research, Evaluation and Development Strategy*. Perth, Australia: Oceania Health Consulting.

Pirkis, J., Goldfield, S., Peacock, S., Dodson, S., Haas, M., Cumming, J., Hall, J. and Boulton, A. 2005. Assessing the capacity of the health services research community in Australia and New Zealand. *Australia and New Zealand Health*. **2**:4 doi:10.1186/1743-8462-2-4.

Ploeg, J., de Witt, L., Hutchison, B., Hayward, L. and Grayson K. 2008. Evaluation of a research mentorship program in community care. *Evaluation and Program Planning*. **31**(1): 22-33.

Reid, K., Farmer, E. and Weston, K. 2007. Bursaries, writing grants and fellowships: a strategy to develop research capacity in primary health care. *BMC Family Practice*. **8**(19) doi:10.1186/1471-2296-8-19

Research Impact. 2008. *The Research Help Desk and Graduate Courses*. Mobilize This! A Research Impact Blog from Canada's Knowledge Mobilization Network. Available at: http://researchimpact.wordpress.com/2008/06/05/the-research-help-desk-and-graduatecourses (Accessed April 20th 2010).

Rosser, W., Godwin, M. and Seguin, R. 2010. Family medicine research capacity building: Five weekend programs in Ontario. *Canadian Family Physician*. **56**: e94-100.

Statistics Canada and Canadian Institute for Health Information. 2008. *Health Indicators*. Ottawa, ON: Canadian Institute for Health Information.

Young, J., Manea-Walley, W., Mora, N., Arnold-Reed, D. and Brett, T. 2008. Practice nurses and research: The Fremantle Primary Prevention study. *Australian Family Physician*. **37**(6): 464-466.

Zea, M. and Belgrave, F. 2009. Mentoring and Research Capacity-Building Experiences: Acculturating to Research From the Perspective of the Trainee. *American Journal of Public Health*. **99** (Suppl. 1): S16–S19.