A STRUCTURE FOR CO-ORDINATING CANADIAN PRIMARY HEALTHCARE RESEARCH

SUBMITTED TO THE CANADIAN WORKING GROUP ON PRIMARY HEALTHCARE IMPROVEMENT

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MAIN MESSAGES

- **Primary care is the foundation of a nation’s healthcare system.** People receive most of their healthcare services from family doctors, nurse practitioners, and other primary care professionals such as pharmacists and dieticians. Countries with strong primary care systems have healthier populations and reduced health costs.

- **Canada is no longer a leader in primary care.** Canada lags behind comparable countries in primary care performance. Better-performing nations have also done better than Canada in terms of investments in primary care research and in the translation of research knowledge to practice and policy.

- **Structured support for primary care research and knowledge exchange is crucial to re-establishing Canada’s primary care performance.** There are several common factors in successful overseas primary care KTE (knowledge transfer and exchange) programs. While no existing approach to supporting primary healthcare research from other countries is adequate to meet Canadian circumstances, international experience can be merged with that from existing Canadian organizations.

- **A networked organization should be formed to champion and support Canadian Primary Healthcare (PHC) research and knowledge exchange.** The co-ordinating body should lead a consultative process to establish priorities and mobilize action among network participants. This networked organization would have a small central administration and oversee a network encompassing programs and activities throughout Canada. A director and a small management group would provide leadership and administrative coordination. The director would report to a board representing the community, provinces, professional bodies and bodies such as the Canadian Institutes for Health Research (CIHR) and the Canadian Health Services Research Foundation (CHSRF).

- **Successful implementation of a networked organization should form part of a broader pan-Canadian primary healthcare strategy.** This strategy should bring co-ordination and support to a broad network of researchers, organizations, and government bodies (including federal ministries and departments, provinces/territories, and health authorities) involved in primary care. This strategy will encourage the generation of new, relevant knowledge, and will better integrate this evidence into practice and policy.

- **During its development phase, the network should develop through a co-ordination body that is housed within an existing organization such as CHSRF.** Early deliverables should include: a) establishing the relationships through which consultative processes and strategy development can occur, and; b) the documentation of a strategy that must be responsive to the provinces’ needs.

EXECUTIVE SUMMARY

Primary care is the core of Canada’s healthcare system. The vast majority of healthcare provided in this country involves patients working with family doctors, nurse practitioners, and other primary care professionals such as pharmacists and dieticians to maintain and improve their health. Countries with strong primary care systems have improved population health and reduced costs.

Unfortunately, Canada is no longer a leader in primary care, in part because our country lags behind several other countries when it comes to supporting primary care researchers and the translation of research into policy and practice. To move toward a stronger primary care system, it is imperative that Canada steps up to support and co-ordinate programs of research about what works in the Canadian context, and enhance the spread and implementation of desired evidence-informed changes.
Our exploration of national primary care research and knowledge transfer and exchange organizations in other countries makes apparent that if Canada wants a primary care health system that can integrate emerging evidence into practice and policy, then it needs to form a pan-Canadian body to support the range of researchers, organizations, and governmental bodies (including federal ministries and departments, provinces/territories, and health authorities) involved in primary care. At present, innovations developed are communicated inconsistently, if at all, across the range of actors that could promote change in our system.

National programs that had systematically promoted primary healthcare (PHC) research and knowledge exchange had much in common. They differed in four ways, each of which could be understood by examining broader national policies. Table 1, below, summarizes these characteristics.

The issues facing the Canadian Working Group on Primary Health Care Improvement are therefore of two types: first, how can the group ensure that the common features listed in Table 1 are appropriately addressed through a pan-Canadian strategy; and second, how should the Canadian strategy approach the four points of difference listed in Table 1.

### TABLE 1: COMMON FEATURES AND DIFFERENCES BETWEEN INTERNATIONAL PRIMARY CARE RESEARCH CAPACITY INITIATIVES

<table>
<thead>
<tr>
<th>Common features</th>
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<tr>
<td><strong>Orientation and structure</strong></td>
</tr>
<tr>
<td>The primary care research capacity initiatives were embedded within comprehensive strategies of primary care reform.</td>
</tr>
<tr>
<td>Strategies were oriented to primary care (as opposed to primary healthcare).</td>
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<tr>
<td>All included a focus on both clinician and non-clinician researchers.</td>
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<tr>
<td><strong>Activities</strong></td>
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<tr>
<td>Each country carried out a preliminary needs assessment.</td>
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<tr>
<td>Programs included sharing of evidence and information between researchers, policy makers and practitioners.</td>
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<tr>
<td>The research capacity initiatives funded (or facilitated the funding of) primary care personnel awards and primary care specific research projects.</td>
</tr>
<tr>
<td>The design of each program evolved over time.</td>
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<tr>
<td><strong>Points of difference</strong></td>
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<tr>
<td>The degree of centralization of administration and delivery.</td>
</tr>
<tr>
<td>The balance between policy-driven vs. investigator-driven research.</td>
</tr>
<tr>
<td>The extent to which the national strategy prioritizes capacity development in one, as opposed to multiple, primary care disciplines.</td>
</tr>
<tr>
<td>The degree to which the national strategy supports grassroots as opposed to expert oriented capacity building activities.</td>
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Our examination of pan-Canadian organizations with similar functions to those proposed by the Canadian Working Group on Primary Healthcare Improvement (CWGPHCI) led us to conclude a network model is the most appropriate fit. Networked pan-Canadian organizations, such as the National Aboriginal Health Organization, the Canadian Partnership Against Cancer, and the Canadian Population Health Initiative have developed governance processes representative of both geographic regions and population-specific features, which allows them to respond to the unique character of our healthcare environment.

This network model would be implemented by creating a co-ordinating body whose mandate and programs create collaborative structures and processes that bring together existing organizations and groups that have a clear stake in PHC research and service delivery. This approach will allow the pan-Canadian strategy to focus on primary care research co-ordination and knowledge translation/transfer/exchange, and also provide support to grassroots capacity development (including the nurturing of future research capacity by developing new researchers). Policy driven pan-Canadian organizations set priorities and objectives, have federal financial support to meet them, and are accountable through evaluation activities. As is necessary in our ever-changing system, any new co-ordination body for primary care must evolve in response to changing research needs; financial resources are necessary to support this ability to respond and adjust to emerging directions.

We envisage a virtual structure with a small central administration and a network of links and programs throughout Canada. While centrally co-ordinated, the network would be responsive to regional/provincial needs. The organization would be dynamic, with the ability to change as needs evolve. A director and a small management group would administer the body. The director would report to a board or boards comprising representatives from the community, provinces, professional bodies and the CIHR.

The model would require secure federal funding for a two-phase implementation strategy that would be driven by a policy agenda, and should focus on high-impact research. The first transition phase of implementation would involve the establishment of a central secretariat, the overall governance processes, and the identification and mobilization of the key hubs in the network. A subsequent sustainable phase would focus on supporting strategic priorities and network hubs. Priorities would need to include funding for PHC research and knowledge exchange, facilitation or co-administration of a program to develop a cohort of future leaders in PHC research, and a co-ordinated program to prepare, collate and distribute resources and information to assist PHC research, practice and policy.

The full report that follows presents the results of an investigation of international and domestic organizations that could inform the development of a pan-Canadian strategy to promote primary healthcare (PHC) research and knowledge exchange. The project sought answers to four questions:

- What existing organizational models may be studied in order to inform the design of a future pan-Canadian PHC body dedicated to promote evidence-informed PHC policy and practice?

- What evidence exists to indicate that, following the implementation of such models, there have been improvements in health system performance and/or population health?

- How applicable is each model to support the proposed functions of the CWGPHCI?

- What model would be the most feasible to implement within the Canadian context?

To answer these questions, the research team developed a model to depict the interrelationships of a pan-Canadian strategy that addressed the functions proposed by the CWGPHCI, and a template to guide our data-gathering and analysis. We reviewed peer-reviewed journal and grey literature, and interviewed key informants.
1) INTRODUCTION/BACKGROUND

Canada is engaging in widespread reform of the organization and delivery of its primary healthcare (PHC) services.\(^1\) Following federal initiatives such as the $800 million Primary Health Care Transition Fund (PHCTF), provinces have begun to explore changes to the structure and process of PHC delivery. The activity follows international evidence of the substantive contributions of primary healthcare (PHC) services to the health of the population and the reduction of health inequality.\(^2\)

Despite a number of Canadian primary healthcare reforms, there is emerging evidence that the delivery of quality primary healthcare services in Canada lags behind advances made in comparable industrialized countries.\(^3\) The extent of change and the evidence of the gap in quality raise a need for high quality PHC research, evaluation and knowledge exchange to inform policy and clinical practice.

A recent report to the Canadian Health Services Research Foundation (CHSRF) highlighted widespread deficiencies in the sustainability and co-ordination of Canadian PHC research. The report, “Mapping the future of primary health care research in Canada” outlined how PHC research was substantially under-funded, that networks between researchers and policy makers are virtually non-existent, and that primary care clinicians and PhD scientists receive little support to orientate research careers to the issues of primary healthcare.\(^4\) The report also found that comparable nations, especially those with a strong primary care orientation, have been able to strengthen the capacity for the PHC sector to conduct high-quality, relevant health services and clinical research. Co-ordinated initiatives have involved establishing funding for policy relevant PHC research,\(^5\) supporting sustainable training for both clinician investigators and research scientists,\(^6\) and assuring, in the long term, support for networking activities.\(^7\)

In April 2008, CHSRF arranged a meeting of key Canadian stakeholders in PHC research and policy to discuss the need for concerted action at a pan-Canadian level to promote high-quality PHC research and knowledge exchange. The meeting resulted in the formation of the Canadian Working Group on Primary Healthcare Improvement (CWGPHCI). The Working Group’s long-term aim is to implement a pan-Canadian initiative on primary healthcare research and policy. As part of this process, the CHSRF and the CWGPHCI commissioned three separate projects, one of which is the focus of this report.

RESEARCH QUESTIONS

The project’s overall aim was to investigate potential organizational models for future pan-Canadian primary healthcare research initiatives. It was designed to address four questions:

- What existing organizational models may be studied in order to inform the design of a future pan-Canadian PHC body dedicated to promote evidence-informed PHC policy and practice?
- What evidence exists to indicate that, following the implementation of such models, there have been improvements in health system performance and/or population health?
- How applicable is each model to support the proposed functions of the CWGPHCI?
- What model would be the most feasible to implement within the Canadian context?

The questions were addressed by a team from the C.T. Lamont Primary Health Care Research Centre in Ottawa between October 2008 and January 2009. The research team began to focus on models and structures in other nations that support national-level initiatives for PHC research and policy reform. Then, known examples from other sectors in Canada were considered for their applicability within the Canadian PHC context.
KEY CONCEPTS

Several core concepts underpin this report:

- **Primary care** is “that level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions, and co-ordinates or integrates care provided elsewhere by others”.[8]

- This report will use the Canadian Health Services Research Foundation’s definition of **primary healthcare (PHC)** as “a set of universally accessible first-level services that promote health, prevent disease, and provide diagnostic, curative, rehabilitative, supportive and palliative services”. [9]
  
  This definition includes a focus on health policy and service delivered to both individuals and population as a whole, but is exclusive of the social and economic breadth of the broader definition of primary healthcare used by the World Health Organization since the conference at Alma Ata in 1978. [10]

The terms family medicine and general practice are used interchangeably in the report. They vary in context – the academic discipline of family medicine in North America correlates with the discipline of general practice in Europe and Oceania.

We have defined an **organizational model** as a description of the main features and characteristics of an organization (either an existing organization, a type of organization, or a proposed organization). No widely accepted typology of organizational models exists, and scholars of organizational studies tend to develop typologies in relation to specific research questions and interests. [11] [12] [13]
2) METHODS

We used an iterative multi-method process involving the development of a logic model, a narrative review of the literature, a re-examination of primary data gathered from the Mapping the future of primary health care research in Canada study, and the conducting of key informant interviews with individuals in Canada and abroad.

LOGIC MODEL

A logic model was developed to illustrate the priorities, activities and outcomes of a future pan-Canadian strategy for primary care research within the context of the contemporary Canadian health policy and administrative environment. The model needed to be flexible so as to allow us to organize data and to conduct comparisons across jurisdictional and disciplinary boundaries.

The model was developed through an iterative process. An initial draft was developed by one member of the team and was informed by the aims of the Working Group, published approaches to primary care research capacity building\((14;15)\), and literature concerning the evaluation of research outputs, outcomes and impacts. It was reviewed by the team and then further revised at a series of team meetings.

The logic model facilitated meaningful comparisons between comparator organizations both within Canada and overseas. It provided a way of considering a pan-Canadian strategy, without having to prejudge the precise form that a co-ordinating body might take, and allowed us to systematically consider the interrelationships that the co-ordinating body could create and influence.

We used the logic model as the basis for developing a data template that provided a structure for organizing organizational data. The template also underwent several modifications over the course of the project. We added a section that allowed a representation of the history of the model, and incorporated sections reflecting organizational activities that went beyond those of the framework of the CWGPHCI. In an attempt to align with modern concepts of assessing research capacity-building in healthcare, we organized the outcome and impact portion of the template around the Payback model for health outcomes\((16)\). Table 2, below, is a simple rendition of the template’s structure.

**TABLE 2: A DATA ORGANIZATION TEMPLATE TO GUIDE THE ANALYSIS**

<table>
<thead>
<tr>
<th>Core Area of Template</th>
<th>Subcomponents within the Core Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background Information</td>
<td>Historical context</td>
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<tr>
<td></td>
<td>Funding and financing</td>
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<td></td>
<td>Objectives</td>
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<td></td>
<td>Membership (who does the organization represent?)</td>
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<td></td>
<td>Community participation (stakeholder involvement)</td>
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<td></td>
<td>Governance</td>
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<td></td>
<td>Internal organization (programs and activities)</td>
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<tr>
<td>Core Area of Template</td>
<td>Subcomponents within the Core Area</td>
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<tr>
<td>Activities</td>
<td>Coordinating function</td>
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<td></td>
<td>Priority setting</td>
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<td></td>
<td>Repository of tools/resources for research</td>
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<td></td>
<td>Advocacy for system-level improvement</td>
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<td></td>
<td>Targeted KTE activities</td>
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<td></td>
<td>Research funding activities</td>
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<tr>
<td></td>
<td>Personnel and networks</td>
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<tr>
<td></td>
<td>Other activities</td>
</tr>
<tr>
<td>Outputs and Outcomes</td>
<td>Knowledge production</td>
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<td></td>
<td>Research capacity</td>
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<td></td>
<td>Informing policy and practice</td>
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<td>Quality of care or health status outcomes</td>
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<td></td>
<td>Economic analysis</td>
</tr>
<tr>
<td></td>
<td>Other outputs / outcomes</td>
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**SELECTION OF ORGANIZATIONAL MODELS**

The next step was to identify organizational models that could inform the project objectives. The criteria for international and Canadian organizations differed.

a) **International cases** were selected from developed countries with well-developed primary care infrastructure, and performance at least as good as Canada’s as identified by recent comparative studies. Nations needed to have information available in English or French and have either recognized strength in evidence-informed practice and policy, or have made clear steps towards co-ordinated primary care research systems. Baseline data was collected on 10 countries. Five of these countries met our inclusion criteria and were chosen as our international comparison group.

b) **Canadian cases** were selected from pan-Canadian initiatives whose scope and objectives resonated with those articulated by the CWGPHCI. Provincial research support bodies were excluded. We looked for organizations with comparable objectives and at least two activities similar to those envisioned by the CWGPHCI. Organizations under consideration had either a focus on a disease or a group of diseases or on population health improvements via health services delivery reform. We scanned 13 pan-Canadian organizations initially, chosen through recommendations made by the CWGPHCI and through the prior knowledge of the research team. Seven were chosen for further analysis. Individual activities of several other organizations were also examined.
LITERATURE REVIEW

Once cases had been identified, a health sciences librarian conducted an updating search\(^a\) for peer-reviewed and grey literature specific to those countries and topics of interest specified by the research team. In addition, research team members hand-searched organizational and national websites of interest. The search strategy is attached in Appendix A.

INTERVIEWS

The project team identified a number of **key informants** to provide insights into the history, structure and activities of the target organizations. These informants were interviewed by telephone. Interviews followed an interview guide and were audio recorded and summarized for inclusion in data analysis. In addition, we reviewed relevant transcripts and summaries of the 35 interviews with international and Canadian informants prepared during the previous CHSRF-funded project *Mapping the future of PHC research in Canada*.

We conducted five semi-structured interviews with key informants deemed knowledgeable about the history, structure and evaluation of the identified international (n = 4) and relevant Canadian models (n = 1). Several of the pan-Canadian organizations contacted for interviews declined. The interview guide is attached in Appendix B.

DATA ORGANIZATION AND ANALYSIS

**Analysis** involved a constant comparative approach, with regular meetings of the research team to discuss organizational models of interest, emergent typologies and applicability in the Canadian context. The research team presented its initial draft to the CWGPHCI, and refined this final report based upon feedback.

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\(^a\) Updating the searches completed in 2006 for the Mapping the future of primary health care research in Canada report.
3) FINDINGS

3.1 LOGIC MODEL

Our final logic model was designed to balance functions best served by a co-ordinating body, and those which may be handled through existing institutions or processes. The logic model indicates that a pan-Canadian strategy for PHC could focus on as many as seven strategic areas: bringing leadership to the overall research and knowledge translation agenda; providing a central hub for critical information resources; developing enhanced research and KTE capacity; increasing opportunities for networking, collaboration and co-ordination (and thus promoting the development of relationships, collaborative projects, and knowledge exchange); advocating on behalf of the pan-Canadian PHC community; influencing, participating in, and perhaps even administering the funding of research; and overseeing the efficient and effective administration of the strategy’s implementation.

The logic model is illustrated in Figure 1, below.

**FIGURE 1: LOGIC MODEL FOR PAN-CANADIAN STRATEGY FOR PRIMARY HEALTHCARE RESEARCH**

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**Programs**
- Leadership for Pan-CDN PHC Research & KTE
- Information Development & Management
- Capacity Development
- Networking, Collaboration, Coordination
- Advocacy
- Administrations & Operations
- Research Funding

**Activities**
- Pan-CDN consultation
- Information Management
- Develop research capacity
- Annual CDN PHC research conference
- Advocate for new ways of evaluating academic performance
- Fundraising to support research
- Develop CDN Strategy for PHC Research
- Strengthen PHC data sources
- Support KTE capacity and activity in PHC researchers and teams
- Coordinate / support PBRNs
- Liaise with other organizations
- Advise on PHC research to funders
- Financial management
- Develop CDN vision for PHC
- Advocate for better PHC data
- Advocate for system-level improvement
- Liaise with funders on priority topics
- Provide / oversee research funding

**Outputs**
- Canadian vision & strategy for PHC research
- Inventory of PHC researchers and projects
- New researchers pursuing PHC careers
- Clinical degree / PhD programs oriented toward PHC
- Committees and relationships with funders academic institutions, & Ministries of Health
- Balanced budget
- Vision & strategy for PHC KTE in Canada
- Strong data sources for PHC research
- KTE through websites, guidelines, articles, meetings...
- Annual conference
- Academics rewarded for KTE as well as knowledge generation
- Funded projects
- Consensus list of priority topics
- Repository of resources & tools for research, training, decisions re PHC
- Mid-career scientists & clinician investigators receiving awards
- Pan-Canadian PBRN Network
- Formal relationships with PHC Stakeholder Organizations
- Priority topics receiving support

**Outcomes**
- Generation of new relevant PHC knowledge
- Healthier Canadians
- Efficient and effective use of PHC research dollars
- Enhanced PHC knowledge exchange
- Highly regarded pan-CDN PHC system
- Continuously improving PHC system
We studied five national primary care research organizations: Australia, England, Finland, the Netherlands, and Scotland. The research organizations in these countries had commonalities of orientation and activities, but differed in four key characteristics.

Each nation’s primary care research organization was oriented to the support of primary care services. All formed part of a broader primary care strategy, and were implemented following a comprehensive needs assessment. Ongoing implementation was graded, with increasingly complex initiatives being implemented over time, each one shaped to the changing needs of the research community and the nation’s primary care system. All were oriented towards co-ordinating diverse research activities, supported both clinician and research scientists, and championed targeted primary care funding information-sharing.

The programs varied in four dimensions: the degree of centralization of program support; the extent to which they prioritize policy-driven research; the degree to which they include multiple primary care disciplines; and whether their activities are directed to the development of a cadre of research leaders. While most had tried, few had managed a comprehensive evaluation of outcomes and impact of their activities.

The 13 pan-Canadian organizations ranged from self-funded associations of researchers seeking to establish a network for those with common interests to much larger, federally funded organizations. Those driven by self-funded research communities had a small secretariat, depended on the volunteer contributions of members, and, by consequence, had a limited scope of activities. The larger organizations used sophisticated networks to balance pan-Canadian and regional needs. Governed by widely representative boards, all were driven by clear priorities and objectives, often took a number of years to become effective, and seemed able to evolve in response to changing research needs. Several formed part of a focussed federal healthcare strategy, while others were non-government organizations underwritten by multiple funding sources.

### 3.2 INTERNATIONAL PRIMARY HEALTHCARE MODELS

Two of the research questions required an assessment of existing organizational models and their applicability to CWGPHCI objectives. As highlighted in the Mapping the Future report, a number of comparable Western nations have heavily invested in research capacity development in PC or PHC. Each of the five selected models (Table 3) has invested in research capacity in different ways. The differences, where they exist, are generally explained by context and by varying objectives.

Our analysis revealed that the five retained national models had seven common features that may be instructive for development of a pan-Canadian PHC strategy. Moreover, our analysis also revealed four key variations across the five national models. We suggest that these four variations represent “critical decision points” that must be considered when formulating a new program to support research capacity and knowledge exchange. Three of the common features related to orientation and structure and four to processes of implementation.

Three features related to orientation of the organization:

1) The primary care research capacity initiatives were, generally, embedded within comprehensive strategies of primary care reform, the decision to invest in primary care research being part of a broad recognition of the need to promote evidence-based primary care delivery.

2) While most research capacity initiatives fell under the banner of primary healthcare research capacity-building, nearly all had a focus on primary care.
3) Support was designed to assist with capacity development for both clinician and non-clinician researchers.

The common activities:

4) Each country carried out a needs assessment exercise to establish the need for the expansion or co-ordination of primary care research, and to tailor modifications of existing strategies.

5) Initiatives included specific programs to link and share information with researchers, policy makers, professional organizations and practitioners. This aspect of sustainable, long-term research infrastructure provided the research community with additional capacity to respond in a meaningful way to identified system needs.

6) The research capacity initiatives funded primary care personnel awards and primary care-specific research projects.

7) In all cases, the design of the program evolved over time. Each made explicit steps to avoid what Campbell and colleagues (1999) call “dashes for growth”[19]. Moreover, in several cases there is clear evidence that objectives and organizational structures were modified following evaluation processes to better align with evolving needs and capacity. The process to establish needs, build an organization responsive to needs and existing structures, and respond to evaluation results through the re-alignment of objectives and organizational structure/activities suggests that the implementation process was driven through consultation with key stakeholders, and was sufficiently flexible to allow for changes as the implementation moved forward.

Variations across international primary care research organizations

In addition to the seven common features described above, our analysis revealed important differences among the national models. These differences concerned the following four polarities:

1) Degree of centralization of governance and activities (centralized versus a distributed model)

2) Research focus (policy-driven versus investigator-driven research)

3) Discipline orientation (capacity support directed at a single primary care discipline versus approaches embracing multiple primary care disciplines)

4) Level of support (grassroots capacity-building versus initiatives devoted to support of experts).

These four polarities represent critical decision points that must be negotiated and resolved by each national strategy for PC/PHC research capacity. The way in which a country resolves these tensions will depend on the preferences embedded in the national culture, as well as on the constraints of existing infrastructure. The paragraphs below explain each of these critical decision points. Figure 2 provides a visual depiction of these polarities and table 3 summarizes the four key differences between the national organizations, and highlights where the different countries place their emphasis.

Degree of centralization

Nations adopted varied approaches as to how they delivered primary care research capacity strategies. Most relied on a network model in which capacity-building activities were co-ordinated by a national entity of varying size. For example, the Scottish School of Primary Care (SSPC) comprises a consortium of 10 university departments. A small administrative hub is responsible for offering research training, for providing funding and for co-ordinating the Scottish Primary Care Research Network, which connects to over 1,500 frontline primary care clinicians. Australia’s four-pronged Primary Health Care Research Evaluation and Development strategy supports capacity within individual Departments of General
Practice and Rural Health, and has also implemented an individualized Researcher Development Program. The Australian Primary Health Care Research Institute acts as the hub connecting the spokes, in that it co-ordinates some activities across the various supported research sites, conducting and supporting high-quality primary care research (and thus indicating that these critical decision points are not necessarily an “either/or” decision, but rather require a careful delineation of priorities).

The degree of centralization of research capacity-building was, by and large, unrelated to the extent of devolution of primary care delivery. For example, in Finland, municipalities hold most responsibility for providing healthcare services (20), but the leading PHC research organization is centralized. The municipalities collectively fund the major research and development (R&D) institute in the country, STAKES, thereby creating a centralized research infrastructure to address questions of national interest.

Primary care research schools in England and the Netherlands lie somewhere between the centralized Finnish model and decentralized networks of Australia and Scotland. England has recently established the high-profile National Institute for Health Research’s School for Primary Care Research, a partnership among five leading English academic centres in primary care. Compared with other countries, NHS England has invested heavily in core funding for this multi-institution school. The Netherlands School for Primary Care (CaRe) is another example of a small network of four centres of primary care research excellence. While recognized formally by the government, the University of Maastricht covers the core budget of CaRe, with heavy reliance on competitive research funding for the rest of their activities.

**FIGURE 2: DIFFERENTIAL DIMENSIONS OF INTERNATIONAL PRIMARY CARE RESEARCH ORGANIZATIONS**

Research agenda

The second point of variation in the national approaches is the extent to which research activities are driven by policy considerations or by investigators’ interests. Not surprisingly, those countries with a more centralized approach and/or whose national primary care research organization receives significant government core funding tend to exhibit a strong focus on policy-driven research.
In addition, there seems to be a trend that investigator-driven research is promoted in the earlier phases of research capacity development – suggesting that the individual and organizational capacity needs to be in place before focus can turn to substantial health policy questions.

Some countries have developed sophisticated models of knowledge transfer and exchange that have facilitated important policy outputs. For example, in the Netherlands, CaRe influences the government agenda in both unstructured and structured ways. In unstructured dialogues, they explore what the government wants and what CaRe would advise. More structured interaction is evident through the presence of senior CaRe researchers on government advisory boards.

Disciplinary orientation

All countries that we examined have helped epidemiologists and other social scientists orient their research careers to primary care. However, there was clear variation in the extent to which different professional disciplines are supported in primary care research capacity initiatives.

Most nations’ primary care research capacity programmes were originally directed towards supporting the discipline of family medicine/general practice as opposed to other primary care clinical disciplines (such as community pharmacy or primary care nursing). This matched prevailing family physician orientation in their primary care delivery systems, particularly in countries such as the Netherlands and Australia. However, programs within the United Kingdom, especially those of Scotland, had an early orientation towards supporting clinician researchers from capacity from a wider variety of disciplines. Again, policies evolved over time; recent iterations of the Australian program have incorporated support for other primary care disciplines.\(^{21}\)

Level of support

It was clear that several countries began their efforts to promote research capacity by prioritizing grassroots capacity development. These strategies often involved the provision of bursaries or protected time to clinicians to encourage the development of research skills. Other grass roots strategies provided locally accessible critical appraisal and research skills training or provided links between practitioners with an interest in research. Other nations, particularly those with mature research enterprises, concentrated almost exclusively on promoting high quality research expertise combined with the development of co-ordinated research infrastructure (e.g. both the English and Scottish models include a co-ordination function for national primary care research network). Over time, most nations gradually shifted their focus from “grassroots” support to more intensive programs. The evolution of several of these programs, particularly the Australian versions, is detailed in Table 3 and in the recent Mapping the Future Report.\(^{14}\)

Other factors influencing national organizational models

It was clear that the shape of research capacity initiatives were congruent with broader national values and policies. England’s School for Primary Care Research reflects a broader Science and Innovation Investment Framework predicated on the key role that health research can play in improving the nation’s health and wealth.\(^{6,22}\) The Framework aims to establish the country’s National Health Service as an internationally recognized centre of research excellence.\(^{21}\) This vision has fostered significant reorganization and investment in workforce development and research infrastructure,\(^{24}\) emphasizing competitive and industry-friendly research mechanisms.\(^{23}\) Within primary care, substantial funding is now supplied to five leading academic general practice departments whose achievements were determined through a research assessment exercise. Some ongoing grassroots support for primary care clinicians continues through the regional NHS Research and Development Support Units. England’s strategy is not without its critics.
The English approach has been criticized for its promotion of competition\textsuperscript{(23)} and for the potential of isolating academics working in non-supported primary care organizations. Its new focus has raised concerns that the new model could end up generating research on primary care rather than in or by primary care.\textsuperscript{(22)}

In comparison, Scottish primary care research support has emerged from a policy environment reflecting an ongoing commitment to maintaining a publicly funded healthcare system. Its smaller, dispersed network helps ensure sustainability and is devoted to strengthening and integrating collaborative care approaches in primary care.\textsuperscript{(25)} The need to develop PHC research capacity across primary care disciplines shaped their eventual strategy. Our Scottish key informant noted that some disciplines that believed they had more advanced research capacity were not pleased with this commitment, seeing it as holding back their research potential.

Grassroots capacity-building was emphasised early in evolving national programs. It seems well suited to a networked model, and seems to be a useful facilitator of investigator-driven research. By contrast, the more centralized models seemed to place priorities on the development of experts, and made it easier to link research products to the needs of policy makers.

### TABLE 3: VARIATIONS BY COUNTRY MODELS

<table>
<thead>
<tr>
<th>Country</th>
<th>Level of Centralization</th>
<th>Research Driver</th>
<th>Clinician Disciplines</th>
<th>Emphasis</th>
<th>Annual Budget (budget cycle years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td>Central</td>
<td>Network</td>
<td>Policy</td>
<td>Investigator</td>
<td>£750,000</td>
</tr>
<tr>
<td>Australia (1990s)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>$1.3 million</td>
</tr>
<tr>
<td>Australia (2002)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>$10 million</td>
</tr>
<tr>
<td>Australia (2005)</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>$15 million</td>
</tr>
<tr>
<td>England (1999)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>£3 million</td>
</tr>
<tr>
<td>England (2007)</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>£3 million</td>
</tr>
<tr>
<td>Netherlands</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Complex see table 5</td>
</tr>
<tr>
<td>Finland</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

### 3.3 INFLUENCES ON HEALTH SYSTEM PERFORMANCE AND/OR POPULATION HEALTH

The third question posed by the CWGPHCI sought to assess whether there was any rigorous evidence as to whether any of the primary care research capacity initiatives have been associated with improvements in health system performance and/or population health. No such evidence exists. While all models have been evaluated, usually at the end of a funding period, no evaluations have sought to measure health system or population health performance (or at minimum, such evaluations were not available in English or French).

The lack of evidence is not surprising, particularly in light of the major methodological challenges to investigating health research outcomes.

- The time frame between research and impact remains long.
- Research teams have grown in size, and now make use of international collaborations and multiple funding agencies to examine complex questions.
It can be difficult to establish clear links in the web of factors influencing even the most simple of outcomes. Many of the international primary care research organizations were established as part of a larger healthcare reform strategy. The confounding impact of the strategy makes attribution for outcomes methodologically complex.

Our reviews of research-building strategies in primary care point to two additional challenges. Firstly, primary care has a fragile academic base that has been developed inconsistently across primary care disciplines. Early evaluations of primary care research capacity have focused on the best developed of the primary care disciplines in most of the countries examined: general practice/family medicine. Secondly, the coexistence of primary care capacity-building initiatives and primary care reform strategies means that the benefits of each strategy are almost impossible to assess on their own.

Notwithstanding, in an era of increasing fiscal restraint and in concert with the move to evidence-based practice and policy, there has been some refinement of how the knowledge, economic, and health impact of research can best be evaluated.

Some of the difficulties in assessing causality can be avoided by new approaches to evaluation. Outcome mapping, for example, is a technique that focuses on changes in behaviour, relationships and activities in people, groups and organizations.\(^{26}\) Outcome mapping builds a “performance story” about an intervention or initiative. It puts people and learning at the focal point of attention and accepts unanticipated changes as potential for innovation. An outcome mapping approach to evaluation would consider a whole new range of “outcomes,” such as changes in organizational culture, involvement of the public, and the quality (and not merely the presence) of interactions between researchers and decision makers.\(^{26}\)

Following a review of international experience in the evaluation of healthcare research, the Canadian Institutes for Health Research adopted a research evaluation model proposed by Buxton and advocated by the World Health Organization.\(^{16}\) Their Payback methodology uses a case study approach. It incorporates a logic model, allows for an understanding of context, and permits multiple outcomes and perspectives to be taken into consideration.\(^{27}\)

In keeping with the case study approach of research impact analysis, we present three narratives of how early and consistent research capacity-building support can promote substantial benefits to the wider healthcare system from primary care research.
Individual Narrative

Professor Jane Gunn is a leading Australian PHC researcher. Graduating from medical school in the mid 1980s, she was studying for a diploma in primary care obstetrics when, heavily influenced by her senior Registrar, she became interested in the use of evidence to inform care of women in childbirth. Her first research activity was a case note audit of obstetrician caesarian and assisted delivery rates. Her PhD investigated the role of general practice in the provision of care to mothers and babies in the year after birth and included the analysis of routinely collected Health Insurance Commission data, a State-wide survey of GPs and a randomized controlled trial of an early postnatal visit. This was funded from a professional college’s resident research fund and from Australia’s new general practice evaluation program. She was the first general practitioner studying primary care to be awarded a PhD from the University of Melbourne. Her evolving research program has been supported by significant grants from the National Health and Medical Research Council (the Australian equivalent of the CIHR), several charitable foundations and from the Australian PHC research capacity building initiative. The initiative supports the work of her team through clinician and researcher scholarships, funding for systematic reviews and for a practice-based research network.

Professor Gunn has led the development of the multi-disciplinary diamond consortium (Diagnosis, Management & Outcomes of Depression in Primary Care) which aims to build capacity in primary care mental health research and evaluation (www.diamond.unimelb.edu.au) and was established via funding from the blue Victorian Centre of Excellence Fund.

Professor Gunn’s research interests include depression and related disorders and the complex interplay between emotional well-being, physical health and illness. Her career shows the importance of multiple funding sources and the benefits of an organized national research capacity initiative. The same program that helped her in her early years now supports the work of those working with her.

Group Narrative – England’s Designated Research Teams

From 1995-2005, several U.K. policy initiatives were introduced to build research capacity in health services research. One such initiative was the formation of regional research and development support units. Some units supported the development of “designated research teams” (DRTs), teams of aspiring researchers from primary care clinics. Teams were provided £32,000 per year for two years to enable protected research time for at least three clinicians. In addition to the protected time, team members were offered training, mentorship, supervision and partnership development support.

A published review of the impact of the designated research approach found variable success. Most of the six teams studied completed at least one research study over the two years. Members of four teams worked toward or completed Master or PhD level training during the course of the initiative. More successful teams had significant organizational support and were able to articulate a clear project “close to practice.” One team used the DRT support to link with quality improvement initiatives in their practice – clinical audits led to research questions that in turn became projects. This link between research skill development and quality improvement ensured that research results were integrated in clinical activities. Findings were disseminated through eight conference papers and 16 peer-reviewed publications. This organic approach to project development and existing links with a Primary Care Trust facilitated partnerships, which also influenced the research culture of the team. At the time of evaluation, the team had at least one clinician continue with funded research activities, and had received competitive funding.

Critical success factors included protected research time, mentorship for novice researchers from those with previous research experience, and a supportive host organization. [247]
Organizational Narrative – The Scottish School of Primary Care

In 1999, the Scottish Primary Care Research and Development Strategy “Shaping the Future” identified the creation of a Scottish School of Primary Care (SSPC) to stimulate and co-ordinate a cohesive programme of research and training in primary care. It had the support of professional organizations and the Scottish Government Health Directorate. A two-year Foundation Phase (started in January 2000) evaluated needs and refined a research capacity building strategy and it was established as an organization under the direction of a strategy group as part of NHS Education for Scotland (NES). In early 2007 a consortium of nine Higher Education Institutions (HEIs, now 10) responded to a call from the Scottish Funding Council to move the management of SSPC from NES to the University sector. The school is currently managed from offices in the Division of Community Health Sciences in the University of Dundee and the Director is Professor Frank Sullivan.

The aims of SSPC are: to develop programs of internationally recognized, methodologically rigorous research that address important issues in Scotland and beyond; to increase recruitment to trials and other methodologically rigorous research; and to ensure higher level career development opportunities. Since its formation, the SSPC has co-ordinated a large number of rigorous primary care relevant clinical trials, more than double outlined in the objectives. The results are sufficiently-powered trials of direct relevance to current primary care practice.

The Scottish Primary Care Research Network (SPCRN) is centrally managed by SSPC and operationalized at a regional level by the four nodes based in the north, east, south east and west of Scotland. SPCRN facilitates high-quality research of relevance to primary care by improving access to patients for trials as well as reduce research burden on primary care practices. SPCRN has also embraced the opportunities presented by the U.K. Clinical Research Network (UKCRN) by working together with PCRN-e, as well as the Topic Specific Research Networks. The SSPC has made important contributions to knowledge. A recent RCT (published in the New England Journal of Medicine) supported by the School demonstrated the value of early treatment with prednisolone in patients with Bell’s palsy. Other studies have explored topics ranging from barriers to equitable cancer treatments to issues influencing changes in nursing roles and services in the community.

The SSPC is gaining international visibility through its partnership with other national primary care research organizations, such as the CaRe (The Netherlands School of Primary Care), and international programs such as the Brisbane Initiative.


3.4 CANADIAN ORGANIZATIONAL MODELS

Our analysis of the international primary care models allowed us to identify the common factors that underlie successful PHC research capacity organizations. Our analysis of Canadian organizations was intended to shed light on the feasibility and success of different organizational forms within the Canadian context. Table 3 highlights the salient background information and activities of the retained organizations in our analysis.

The Canadian organizations comprised several organizational forms. The structure of the organizations seemed heavily influenced by the availability of significant financial support from federal government agencies and/or non-government organizations (NGO).

Federal support was provided in different ways. Some organizations arose from a discrete federal government strategy. These strategies were often housed within other federal organizations. Other, somewhat smaller, organizations arose when coalitions of researchers were successful in obtaining competitive funding from national competitions. Prominent NGOs also supported research capacity and knowledge exchange as part of a broader mandate to address their areas of interest. Finally, a number
of organizations arose from the mutual interests of groups of researchers, professional organizations and, often, policy makers.

Whatever the source of support, almost all models were based upon a network approach with a small central administration that acted to co-ordinate activities in provinces and across a range of thematic areas.

COALITIONS OF RESEARCHERS AND POLICY-MAKERS

Several organizations representing loose coalitions of researchers have emerged in Canada. Some of these have been formed in collaboration with interested policymakers. We examined the structure and activities of the Canadian Association for Health Services and Policy Research (CAHSPR), the Canadian Association for Research on Work and Health (CARWH) and the Canadian Hospice Palliative Care Association (CHPCA).

Each organization aims to link researchers in different provinces and acts to advocate for research and knowledge exchange in their chosen area. Each has limited funding, a fairly narrow scope of activity and minimal formal infrastructure. Being removed from government, they have less stringent accountability, governance or evaluation requirements than larger organizations.

A key informant from one of the organizations suggested that their size was helpful for fostering collegiality between disciplines, but meant that it was difficult to build relationships with important stakeholders. The organization has recognized that a reorganization of its current activities will be required for it to reach its long-term objectives. Similar concerns were expressed in a published review of the CHPCA: organizational sustainability seemed challenged by limited resources and the lack of a cohesive hospice palliative care strategy. (28)

Notwithstanding, the CHPCA has managed to secure funding from pharmaceutical companies, the Association of Faculties of Medicine of Canada and a number of charities. The revenue allows an operating budget of between $550,000 and $750,000 – far larger than CAHSPR (between $130,000 and $200,000) and the CARWH ($1,000).

Of interest to the CWGPHCI, our scan revealed several of these networks actively advocating for the implementation of a pan-Canadian strategy to address identified areas of need. For example, the National Coalition for Vision Health comprises a coalition of associations with an interest in visual health for Canadians. The Coalition has prepared an action plan making the case for a national vision health strategy. The case for a strategy was outlined online and in an editorial in the Canadian Journal of Ophthalmology. (29,30)

NATIONAL NETWORKS/CENTRES OF EXCELLENCE

A number of important health-related research networks have benefitted from competitive federal funding programs. The National Centres of Excellence (NCE) competition arose in 1999 from collaboration between Industry Canada and the Natural Sciences and Engineering Research Council, the Canadian Institutes of Health Research, and the Social Sciences and Humanities Research Council. The program’s overall goal is to “mobilize Canada’s research talent in the academic, private and public sectors and apply it to the task of developing the economy and improving the quality of life of Canadians.” The program prioritizes support for multi-disciplinary networks, high-level research training and knowledge transfer. (31) A number of the grants have supported health-related networks; most notably, the Canadian Obesity Network and the Canadian Stroke Network (see Table 5).
Slightly smaller networks have been supported by various team grant programs of the CIHR. Unlike the coalitions of researchers described above, these centres have time-limited funding, specific, measurable objectives, and stringent accountability requirements.

**PAN-CANADIAN ORGANIZATIONS IMPLEMENTING POLICIES AND STRATEGIES**

Numerous large pan-Canadian organizations actively support health-related research capacity and KTE. These bodies include federal agencies, policy or strategy-driven organizations and non-profit corporations. All of these organizations also have a strong knowledge translation orientation and are expected to meet specific objectives designed to optimize the health of Canadians. Again, the organizations vary in the degree of centralization, but all have made steps to incorporate provincial perspectives.

All the research/policy organizations receive funding from the federal government (and sometimes from other funding sources).

**a) Federal health initiatives**

Following a pilot project in 1997, the Canadian Population Health Initiative (CPHI) is now a program within the federal government’s Canadian Institute for Health Information (CIHI). CPHI conducts and supports research to foster a better understanding of factors that affect the health of individuals and communities and to contribute to the development of policies that reduce inequities and improve the health and well-being of Canadians.

A pan-Canadian collaborative public consultation process was completed in 2001; since then, the work of the CPHI has been organized by priority themes within action plans, which are determined and updated periodically by the CPHI Council based on impact evaluations and consultations. The CPHI has funded research and conducts significant knowledge transfer and exchange activities. It has also had a focus on networking – working closely with Health Canada and Statistics Canada and having Memoranda of Understandings with the Canadian Public Health Association, the Public Health Agency of Canada, and the Institute of Population and Public Health at CIHR.

The initiative has been a major influence in increasing awareness and shaping debates about population health among government decision makers and public health providers.

**b) Federal strategic programs**

The federal government has, over the last two decades, supported a number of strategic initiatives in key areas of health need. The federal health strategies have been housed in different federal agencies. The Public Health Agency of Canada houses the Canadian Diabetes Strategy and the Canadian Heart Health Strategy, and Health Canada is the parent organization for the Federal Tobacco Control Strategy. There are many more.

Each strategy has been implemented by organizations with stable funding, networks throughout the provinces, and a strong focus on improving practice through research and knowledge exchange. The recently formed Canadian Partnership Against Cancer (an independent non-profit organization designed to deliver the Canadian Strategy for Cancer Control) exemplifies this approach.

The Canadian Heart Health Strategy is at an earlier phase. The strategy is being planned to follow the achievements of the Canadian Heart Health Initiative, a 15-year partnership between the provinces and Health Canada. The Initiative generated networks between the federal government, the provinces, the Heart and Stroke Foundation of Canada, and a wide variety of academic, professional and community groups. Both utilize working or action groups specific to certain objectives or areas of expertise, all of which work in concert to develop and/or enact the strategy. The core secretariat is responsible for co-ordinating and integrating the various aspects of the strategy.
c) Non-government organizations (NGOs)

Non-profit organizations are important contributors to research support in Canada. Some, like the Arthritis Society, also support national centres of excellence, or in the case of the Canadian Diabetes Association, are major partners in larger strategic programs. Pan-Canadian non-profit corporations have a central secretariat with a representative governing board (i.e. representative of experts, stakeholders, and geographic regions of the country). Some are more centralized than others. For example, the National Aboriginal Health Organization (NAHO) is governed by a Board of Directors that includes 10 appointed from NAHO’s member organizations, and five members elected by the 10 appointed Board members. Three centres operate within NAHO, each with its own research activities and core staffing/infrastructure. NAHO has a strong centralized structure, but is connected with a diverse range of organizations and networks across Canada.

**SUMMARY OF PAN-CANADIAN ORGANIZATIONAL MODELS**

The organizations that are driven by research communities tend to have little if any core secretariat, rely on the volunteer labour of many of their members, and have a limited scope of activities. Those driven by research communities tend to place more emphasis on grassroots capacity-building. It may be simply the case that it is easier for volunteer members to focus upon grassroots mobilization. More substantial support is likely to be outside the control and resources of these community-driven organizations.

Organizations that arise from the NCE program or from peer-reviewed team funding are highly focused on research capacity, outputs and knowledge transfer.

The larger NGOs and organizations that arise from federal strategies work hard to strike a balance between provincial and territorial representation and population needs. All versions of these policy/strategy-driven organizations have a strong orientation to setting priorities and objectives, to carrying out evaluations, and to evolving in response to changing research needs.

**4) APPLICABILITY OF MODELS TO CWGPHCI OBJECTIVES**

The examination of international primary care research organizations highlight the key features and decision points that will be important for a pan-Canadian primary care research co-ordination initiative. Our scan of Canadian organizations highlights what is possible in the Canadian context. Although each country’s primary care research organization model developed out of unique national circumstances, the seven commonalities and core organizing principles point to a number of features of a future Canadian model. It seems that a Canadian strategy must:

- Frame a research capacity initiative within a larger strategy of PHC reform. Overseas experience would suggest that an initial focus on primary care may be easier to implement.
- Invest in a careful process of planning the strategy prior to implementing a specific model. The implementation should be designed to allow for periodic adjustments to the model in response to evaluation and changes in priorities.
- Include the development of common structures, including a co-ordination body with targeted primary care research funding from competitive funding bodies, and centralized information-sharing processes.
- Include a focus on sustainable, long-term research infrastructure.
- Emphasize collaboration with existing professional and policy organizations.
- Involve a blend of clinician and non-clinician researchers.
The ways in which the primary care research organizations in other nations vary also provides guidance for the development of a Canadian strategy. Such variations highlight important decisions that will need to be made and important variables that must be tailored to suit the pan-Canadian context. Four key polarities must be considered:

<table>
<thead>
<tr>
<th>Centralized model</th>
<th>Networked model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy/strategy-driven research agenda</td>
<td>Investigator-driven research agenda</td>
</tr>
<tr>
<td>Clinician researchers are from multiple disciplines</td>
<td>Clinician researchers are general practitioners</td>
</tr>
<tr>
<td>Invests heavily in experts</td>
<td>Invests heavily in grassroots capacity-building</td>
</tr>
</tbody>
</table>

**Networked structure:** With few exceptions, international and Canadian examples were networked. This is perhaps not surprising, considering the importance of networks in contemporary society. Canada’s provincial government structure makes such an approach mandatory. Network governance has been defined as an approach to organizing autonomous organizations that, through implicit or open-ended agreements, co-operate to achieve common goals. Networked organizations are effective organizational structures for bringing stability and solutions to complex social systems that require contributions from numerous occupational groups and sources of expertise. They are especially useful when a social system lacks a clear, pyramid-like distribution of power, which means that a traditional bureaucracy is unable to control or compel the desired outcomes.

A networked organization often consists of a central hub (in the form of a secretariat or co-ordinating body) that brings co-ordination to the creation of a shared vision and strategy, and to the development and implementation of action plans focusing on agreed-to priorities (with the work carried out through partnerships and collaboration among network participants). A network structure is characterized by loosely coupled groups that are largely self-managing. Some research suggests that network-like organizational models are most effective when there is some level of co-ordination and shared infrastructure, agreed-to strategies and plans, and sufficient clarity around roles and responsibilities to allow for effective communication and co-ordination.

**Policy-related research agenda:** While it is important to not consider the balance between policy- and investigator-driven research as being mutually exclusive, it seems that a Canadian model would be most acceptable with a close link between research and existing healthcare priorities. Canada’s leading role in knowledge exchange further supports an emphasis upon a policy- and practice-driven research agenda.

**Interdisciplinary orientation:** Unlike countries such as Australia or the Netherlands, Canada’s burgeoning commitment toward interdisciplinary models of primary care highlights the need for any pan-Canadian primary care research capacity strategy to be inclusive of multiple primary care clinical disciplines. While a family practice orientation would have been appropriate 10–15 years ago, it is no longer feasible or appropriate.

**Orientation toward research experts:** The long-term objective of any strategic investment in research capacity is to produce high-impact and high-quality research with related positive impacts. However, the decision to focus investment on building grassroots research capacity or on high-impact research by recognized experts varies by context. The Canadian models exemplify both of these approaches. In countries where existing research capacity exists across appropriate academic disciplines but co-ordination is lacking, the decision to invest in centres of excellence is not surprising. In some countries, the shift to expert-oriented strategies of research capacity-building reflects the reality that adequate systems of grassroots capacity-building are already in place, and thus there is no need to duplicate these mechanisms. Canada needs to judge where it stands on this continuum. We consider that a pan-Canadian primary care strategy...
should prioritize capacity support for research experts, leaving provinces to support small-scale initiatives in response to regional and provincial needs.

Table 4 synthesizes design considerations that are relevant to the CWGPHI objectives with examples from studied organizations.

**TABLE 4: CWGPHCI OBJECTIVES AND RELATED DESIGN CONSIDERATIONS**

<table>
<thead>
<tr>
<th>Organizational Objectives</th>
<th>Design Considerations</th>
<th>Organizational Examples*</th>
</tr>
</thead>
<tbody>
<tr>
<td>The promotion and/or enablement of (i) knowledge creation and (ii) knowledge exchange concerning PHC research and practice</td>
<td>Span the full knowledge continuum, from generation to application</td>
<td>Canadian Population Health Initiative</td>
</tr>
<tr>
<td></td>
<td>Community involvement</td>
<td>National Aboriginal Health Organization</td>
</tr>
<tr>
<td></td>
<td>Include a focus on relationship-building and interaction among the creators and users of scientific knowledge</td>
<td>Canadian Partnership Against Cancer</td>
</tr>
<tr>
<td></td>
<td>Promotion and support for new researchers</td>
<td>Canadian Obesity Network</td>
</tr>
<tr>
<td></td>
<td><strong>Assistance in problem identification and priority-setting for PHC research / synthesis and knowledge translation activities</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Linkages to regional, provincial and federal policy makers</td>
<td>Australia’s Primary Health Care Research, Evaluation, and Development Strategy (PHC RED)</td>
</tr>
<tr>
<td></td>
<td>Community involvement</td>
<td>Canadian Partnership Against Cancer</td>
</tr>
<tr>
<td></td>
<td>Support and capacity building for knowledge translation</td>
<td>Canadian Partnership Against Cancer</td>
</tr>
<tr>
<td></td>
<td><strong>The formation of a repository of resources and tools for research, training, and decision-making specific to PHC</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Centralization of information/Searchable repository</td>
<td>Scottish School of Primary Care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Australia’s Primary Health Care Research and Information Service.</td>
</tr>
<tr>
<td></td>
<td><strong>The ability to advise on commissioning and granting initiatives related to primary healthcare</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationships with and influence upon funding bodies</td>
<td>Australia’s Primary Health Care Research, Evaluation, and Development Strategy (PHC RED)</td>
</tr>
<tr>
<td></td>
<td><strong>The provision (or oversight) of funding for research and research capacity.</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationships with and influence upon funding bodies, and/or direct provision of funding for policy-driven priorities (with related infrastructure to manage this process)</td>
<td>Canadian Stroke Network</td>
</tr>
<tr>
<td></td>
<td><strong>The promotion and advocacy for PHC system-level improvement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organization has the credibility to represent PHC stakeholders (broad membership and participation)</td>
<td>National Aboriginal Health Organization</td>
</tr>
</tbody>
</table>

* NOTE: Exclusion of a model in the table does not necessarily indicate the organization does not participate in the specific activity; the organizations listed are offered as examples of organizations that do comparable activities in their countries or specific to their focus.
4) RECOMMENDATIONS

Any model for a future pan-Canadian PHC research initiative needs to take into account the Canadian structure of government, the healthcare policy environment, and existing PHC research capacity. While lessons can be drawn from the international research capacity initiatives and from those of a number of existing Canadian organizations, none provides a sufficient template for matching the needs of primary healthcare in 2009.

We believe that the *Mapping The Future Of Primary Healthcare Research in Canada* report(4) provides a good starting point to consider Canada’s needs. However, several areas need to be emphasized. First, Canada’s provincial structure and physical size mean that co-ordination remains a pervasive need. Second, while some nations have fostered grassroots capacity approaches to building a culture of PHC research, we believe that Canada’s greatest need is for high-level research training and mid level career support for PHC clinicians and non-clinical research scientists. While we consider investigator-driven research to be fundamental to the advance of a discipline, we consider that the strategy should be oriented to support priority areas. Finally, the clear need for the collection and wide dissemination of PHC-related knowledge to practitioners, the community and to policy makers makes an information/knowledge transfer and exchange function critical.

Our review suggests that Canada’s needs would be best served by a networked organizational model that promotes a culture of high-quality clinical and health services research in primary healthcare in Canada. The model would require co-operation between existing organizations and groups with a clear stake in primary healthcare research and service delivery. While centrally co-ordinated, its research support strategies would need to be responsive to evolving provincial and regional needs. Activities would be congruent with contemporary Canadian primary healthcare policy; in particular, the move toward interdisciplinary primary healthcare. It would be underpinned by a philosophy of staged capacity-building, resisting the temptation of “dashes for growth.”(19) The ultimate success of the model would be facilitated if it were introduced as part of a broader pan-Canadian primary care strategy.

Based on the analysis and reasoning presented above, we offer 10 recommendations for the development of a Canadian PHC research and knowledge transfer strategy.

**Recommendation 1:** A co-ordinating body for PHC research and knowledge transfer should be formed. Its structure should correspond to a networked organizational model.

Perhaps because of its vast geography and complex political and cultural make-up, Canada is becoming a leader in the development and evaluation of network organizational forms. A network approach to the PHC research and knowledge transfer co-ordinating body would allow the development of capacity to be based on existing organizations and initiatives, with an emphasis on bringing stronger linkages and a shared vision and set of priorities to a broad, pan-Canadian community. A network approach would also allow the provinces and territories to retain significant influence over how the strategy is implemented within different Canadian contexts and jurisdictions.

The design of the organization should include approaches and mechanisms that allow for the ongoing evolution of the model in response to existing and emerging needs. We envisage a virtual structure with a small, central administration that would co-ordinate activities throughout Canada.
**Recommendation 2:** The network should be established with secure funding from the federal government.

While networks are inherently decentralized, transdisciplinary and translational collaboration is facilitated by the existence of a core secretariat and the availability of government funding. Successful Canadian comparator organizations (Table 5) have all received renewable funding for between three and five years from the federal government.

**Recommendation 3:** The network should be implemented in two stages, beginning with a two-year transition phase.

Comparable international models have been characterised by a series of steps. The transition phase would last for approximately two years and would see the establishment of a central secretariat function, the overall governance processes, and the identification and mobilization of the key hubs in the network.

**Recommendation 4:** Activities in the transition phase should commence following the appointment of an interim director, a secretariat and a steering committee.

The director would need to be a prominent, visionary primary care academic or decision maker with strong communication and leadership skills. He or she would be answerable to a time-limited steering committee that, at the outset, would evolve from the membership of the CHGPHCI. It should eventually comprise representatives from the CIHR, the community, provinces, and professional bodies.

**Recommendation 5:** In the transition phase, the secretariat for the network should initially be housed within the Canadian Health Services Research Foundation.

The primary healthcare capacity-building bodies in the comparator nations have been located in larger organizations such as a university department, a research institute or a government body. Given the record of accomplishment in designing and implementing pan-Canadian consultation processes, the CHSRF is well placed to establish this program during the first few years of the organization’s functioning. This should be subject to early review.

**Recommendation 6:** The organization should be responsible for five programs: network and infrastructure development; priority-setting and advocacy; funding support for priority-driven primary healthcare research; capacity-building; and information collation and dissemination.

The organization would have a relatively small central administration whose main responsibility would be to co-ordinate five main programs of work, along with other priorities that may emerge. The programs of work would be implemented at different times.

**Recommendation 7:** In the transition phase, the organization should focus on network and infrastructure development and advocacy.

The success of the network depends upon the building of partnerships with relevant federal bodies and with all provinces and territories, professional organizations, major disease and population-specific groups, and Canadian universities with interests and activities in PHC. These relationships will result in a network of researchers, policy makers and community members who are able to develop a broad co-ordinated approach to PHC improvement through research and KTE. Priority themes should be identified following wide consultation. A strategy should then provide a focus for further research support and capacity-building.

From its earliest stages, the network should act as a visible advocate for PHC system-level improvement and for improvements in data collection on the PHC system in Canada. This advocacy role should be directed at gathering support for the implementation of a federal PHC strategy (see recommendation 10).
The body should consider the use of theme leaders and action groups in key areas of need. (See questions to be put to the CWGPHCI.)

**Recommendation 8: A sustainable phase should follow the two-year transition phase.**

Once the secretariat is established and staffed, the governance process defined, and the network hubs identified, we suggest that the pan-Canadian PHC strategy move into a sustainable phase. During this phase, the emphasis of the secretariat may shift from a focus on concrete goals, projects, and deliverables to a focus on supporting strategic priorities and network hubs. We recommend that a board of directors be formed that provides regional representation as well as representation from key stakeholder groups. If possible, the secretariat may shift its location periodically; given the logistic challenges of allowing different organizations to host the secretariat, it might be more realistic to identify a permanent home for the secretariat – and if this is the case, this permanent home should be identified during the transition phase.

**Recommendation 9: The sustainable phase should prioritize four separate strategies**

**9a) The co-administration and/or facilitation of a program of targeted funding for PHC research and knowledge exchange.**

Our selective review of international organizations highlighted two distinct strategies to support research to address the high-priority PHC questions. In the first example, the organization acts as a funder of strategic, priority-driven research. An alternative approach is to make arrangements with existing funders to establish specific funds and mechanisms to support PHC research projects, programs and researchers. A hybrid of this model may be possible, with the network organization distributing seed funding for projects in development, with the larger funders administering competitive PHC-specific grants and personnel awards.

**9b) The co-administration and/or facilitation of a program to develop a cohort of future leaders in PHC research.** Emphasis should be placed on programs that: a) allow primary care clinicians and junior research scientists to undertake PhD studies in PHC research; and b) provide mid-career research support scholarships for PHC clinicians and research scientists.

Canada’s provincial system means that the flavour of research capacity support in PHC will inevitably differ from most of our international case studies. Unlike overseas, provinces are responsible for the delivery of PHC services. They allocate some support for primary care capacity-building through universities and through provincial research bodies (where they exist).

A pan-Canadian network will need to act as a catalyst and, where appropriate, a co-funder of provincial activities and those originating from federal agencies. However, given the critical need for well-trained future leaders in PHC research, we consider that the new body should prioritize activities increasing the numbers of PHC researchers with doctoral qualifications. Similarly, given the significant mid-career gap in salary support for research scientists and junior clinician scientists, we suggest that a program of support for these groups be a priority.

**9c) A centrally co-ordinated program that prepares, collates and distributes resources and information to assist PHC research practice and policy.**

A sub-program of the body should be to assume responsibility for acting as a repository of resources and tools for research, training, and decision-making specific to PHC. Activities would be determined following a needs assessment exercise commencing in the transition phase. The program would act to provide regular literature summaries on relevant policy and practice research. It would also sponsor all or part of an annual PHC research conference. This builds on (rather than replaces) the contributions of current conferences such as the North American Primary Care Group, the Family Medicine Forum and the CASPHR conference.
9d) An evaluation program to allow the evolution of the organization to be based on an ongoing assessment of its successes and stakeholder needs.

An early sustainable phase priority would be to design and carry out a long-term evaluation program to assess the organization’s effectiveness and the evolving needs of the broad stakeholder community. This program should begin with the creation of baseline measures at approximately the 24-month milestone of the organization’s existence; the evaluation could then continue with a program of ongoing evaluation and assessment that is linked to the organization’s strategic planning process. Given the limitations of current methods, we suggest that this evaluation program be informed by innovative methods of research evaluation.\(^{(26)}\)

**Recommendation 10:** The implementation of a distinct Canadian primary healthcare strategy is an important facilitator of the ultimate success of the network.

Our review of Canadian organizations suggests that the success of networks depends on the availability of substantial funding. Although National Centres of Excellence can provide important links and focus, we consider a future pan-Canadian PHC network dedicated to promote evidence-informed PHC policy and practice would be most effective if it formed part of a pan-Canadian primary healthcare strategy. The path towards such a strategy would require careful examination of the history and implementation of major Canadian strategies in other areas.

5) EPILOGUE

This report was prepared prior to a meeting of the Canadian Working Group on Primary Healthcare Improvement in Toronto from January 14–15, 2009. At the meeting the CWGPHCI resolved to broaden its activities toward gaining support for the development and implementation of a pan-Canadian Primary Healthcare Strategy. We believe this is a wise decision, and emphasizes the importance of this study’s final recommendation.

As mentioned in this report, the federal government has implemented a number of health-related strategies and initiatives, in areas ranging from diabetes to women’s health to tobacco control. All strategies have made extensive use of networks and all incorporate a strong research and knowledge exchange component. A future PHC strategy must have co-ordination and sustainability, two factors that compromised the ongoing impact of the recent Primary Health Care Transition Fund.

We consider that the next steps for the CWGPHCI would be to closely examine the stories leading to the implementation of comparable Canadian federal health strategies. Given a better understanding of the process leading towards the development of such initiatives, the CWGPHCI should then commence activities directed towards making a case for a broad, inclusive pan-Canadian primary healthcare strategy. Leadership from a skilled, high-profile director would be highly appropriate, as would administrative support from an agency such as the CHSRF. If a pan-Canadian PHC strategy is implemented, recommendations 1–9 would help direct the research capacity and knowledge transfer components of such a strategy.

Whatever the future, the CWGPHCI would be wise to remember that network-building is an emergent process that necessarily involves some degree of uncertainty. There will be early challenges and even setbacks. Persistence and patience will be essential qualities for the network to coalesce and begin to produce results.
**TABLE 5: CORE FEATURES OF INTERNATIONAL PRIMARY CARE/PHC RESEARCH ORGANIZATIONS**

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<tr>
<th>Country</th>
<th>Organization</th>
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<td>Australia</td>
<td>Primary Health Care Research, Evaluation and Development Strategy (PHC-RED) – Phase 1</td>
<td>Federal strategy followed recommendations in 1998 of the General Practice Strategy. The PHCRED Strategy is a series of integrated sub-strategies or activities, each addressing different but related needs. Evaluation started in 2004.</td>
<td>To embed a research culture in Australian general practice specifically and Australian primary health care more generally.</td>
<td>Funded by the (federal) Dept of Health and Aging; $150,000 priority setting consultations process; $19.2 million research capacity development program; $1.5 million researcher development program; APHCRI budget $15.2 million; Grants/Awards $13.2 million (all in AS)</td>
<td>Different with each phase (see below).</td>
<td>Different with each phase (see below).</td>
<td>Three elements are administered through National Health and Medical Research Council: investigator-driven project grants; priority-driven project grants in clinical areas; Fellowships/ Scholarships.</td>
<td>Great increase in PHC projects funded via NHMRC primary care strategy, though few additional fellowships awarded 2000-2004</td>
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<td></td>
<td>The Research Capacity-Building Initiative (RCBII)</td>
<td>Part of PHCRED strategy Initial funding began in 2000. Each funded University Department was required to submit a three-year strategic plan. At present, 22 university departments receive funding for capacity building/support.</td>
<td>To provide sustainable support to early and mid career researchers in PHC.</td>
<td>Total budget $19.2 million (not including RDP) via an annual grant of $20,000,000 to each of the initial 18 UDGPs and UDRHs on a non-competitive basis. In 2004 - the number of funded university departments increased to 22.</td>
<td>The university departments were to have either an individual advisory committee and/or a state-wide advisory committee to which they were linked</td>
<td>Via university Departments of General Practice or Rural Health and their collaborations with state-wide advisory bodies</td>
<td>Funds have been used for a range of activities, including network support, mentoring, bursaries and awards, and running courses Networks flourished to a greater extent than expected, to the benefit of PHC research.</td>
<td>2000-2004 Evaluation reported an increase in research activities in these university departments 2006 RCBII Annual Report showed: 176 peer reviewed publications, 326 conference presentations (21 international); 66/98 external grant applications funded No change in PhD or masters but a dramatic increase in mentoring over 3 years (~200+), in number of FTE in academic and research staff, and in research education Substantive increase in participation in PHC conferences</td>
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<td>Australia</td>
<td>Researcher Development Program (RDP)</td>
<td>Part of the PHCRED strategy</td>
<td>To increase the number and range of people with knowledge and skills in PHC evaluation and research</td>
<td>$1.5 million.</td>
<td>Via University Departments (they needed to apply for support)</td>
<td>Varied – assisted by state-wide PHCRED coordinator.</td>
<td>Funded 60 researcher placements, 1/4 of which were GPs</td>
<td>2006 - 265 researchers funded: 108 at pre-Masters level; 47 at Masters level; 20 at PhD level; 13 at post doctoral level; 56 at other levels; 21 unknown including 67 Research Fellowships</td>
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<td>Australia</td>
<td>APHCR</td>
<td>Initially funded for five years with $15 million, $10 million of which was set aside to commission priority driven research in primary health care.</td>
<td>To provide national leadership in improving the quality and effectiveness of primary health care. Goals are to: 1. Strengthen the knowledge base of primary health care by conducting and supporting research; 2. Facilitate the uptake of research evidence in primary health care policy and practice; 3. Enhance research capacity in primary health care through strategic partnerships with other relevant national and international groups.</td>
<td>Oversight from Research Advisory Board (the Board decides on priority driven research questions, reviews recommendations and decides on membership of Expert Review Committees.) - all other roles are advisory</td>
<td>APHCR is a coalition of health service research groups, linked in a hub-and-spoke model. Has a Director and a secretariat. Central staffing is &lt;5 FTE</td>
<td>APHCR has formed partnerships with a number of organizations and is seeking to form national and international networks in a strategic way.</td>
<td>Premature although collaborations working well and numerous funded evaluations of PHC have been commissioned</td>
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APHCR was formed as part of the first PHC RED strategy. It was established at the Australian National University in 2002. Its first director and a Research Advisory Board were appointed in late 2003 and a strategic plan was finalized in 2004.
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| Australia | The Primary Health Care Research and Information Service (PHCRIS)             | 1995 - established as National Information Service. Its name was changed in 2001 in line with PHC RED strategy | Mission is to generate, manage and share information and knowledge that will inform, influence and enhance Australian PHC practice, policy and research.  
  - Objectives: 1) Generate knowledge about activities and outcomes of the Divisions of GP and PHC research; 2) Manage and facilitate access to data and information for Divisions and PHC research; 3) Knowledge transfer and exchange. | 2007 expenditures were (A$)1.26 million | PHC RIS has a strategic advisory group. A comprehensive business plan developed in negotiation with the Department of Health and Ageing. The organisation works with three stakeholder groups: primary health care researchers, primary health care policy advisors and the Divisions of General Practice Network (DGPN) | Housed at Flinders University (Adelaide) Staffed by 5 executive staff members + 10 core staff members | PHCRIS communicates with stakeholder groups and facilitates networking between them.  
  Also conducts a small amount of applied research and facilitates priority setting for the Strategy.  
  Collates research and evaluation data from a variety of sources. It maintains searchable databases, coordinates knowledge dissemination through written and web-based publications and - conducts Australia’s major primary care research conference | Contributed to 13 conferences, 3 newsletters and 11 journal articles.  
responded to stakeholders requests for information |

**PHC RED Strategy - Phase 2**

After a review of the PHCRED strategy, the strategy was continued in 2006 - to consolidate and build on the experiences/achievements, address limitations of the first phase  
To expand the existing primary health care research workforce, while improving the relevance and uptake of evidence in primary health care policy and practice  
Focus on generation of high quality evidence  
A$61 million  
Governance, staffing and activities were broadly similar to the previous iteration. The second phase is focusing on both the expansion of the Primary Health Care research workforce, and in also in producing relevant evidence and supporting its uptake
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<td>Scotland</td>
<td>Scottish School of Primary Care (SSPC)</td>
<td>In 1999 - Scottish Primary Care R&amp;D Strategy 'Shaping the Future' identified the creation of the SSPC as the key agency to stimulate and co-ordinate a cohesive programme of research and training. The School was established following a two-year Foundation Phase (2000-2002)</td>
<td>To a. develop programmes of internationally recognized, methodologically rigorous research addressing issues important to Scotland and beyond b. increase recruitment to trials and other methodologically rigorous research c. ensure higher level career development opportunities. The SSPC also coordinates the Scottish Primary Care Research Network.</td>
<td>funded by the Scottish Government's Health Directorate, NHS Scotland and the Scottish Funding Council. 2007/8 funds (in pounds): 334K from Chief Scientific Office, 108K from Scottish funding council, 53K from SSPC contributions, and 207K from SPCRN income</td>
<td>2007 - a consortium of nine Higher Education moved the management of the school from NES to the university sector three committees oversee the work of the SSPC: Executive, Management, and Advisory.</td>
<td>The school is currently managed from offices in the Division of Clinical Population Sciences &amp; Education in the University of Dundee.</td>
<td>Coordination of three programmes of research, the MSc Primary Care programme, and the Scottish Primary Care Research Network. SSPC maps postgraduate research courses in Scotland and identifies research training needs, and works with providers to ensure that these needs are met.</td>
<td>2007-2008 - 66 high quality studies of relevance to primary care have been facilitated by SPCRN compared to less than 40 in 2005-6. Of the 66, fourteen were national in scope.</td>
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<td>Netherlands</td>
<td>Netherlands School of Primary Care (CaRe)</td>
<td>A federative research school in which four research institutes participate (NiVEL, CAPHRI, EMGO, UMC St. Radhoud). Each of the four institutes has specialized areas of study. It was recognized by the government of Netherlands as a research school in 1995 with renewals in 2000 and 2006</td>
<td>To promote the development of scientific evidence-based knowledge in the field of primary health care and to implement this knowledge as evidence-based practice.</td>
<td>Each research institute has its own funding channels. CaRe, receives funding directly from the University of Maastricht for its infrastructure. Event costs are paid proportionally by the four participating institutions. CAPHRI and EMGO both have an annual budget of approx. 17 million Euros; NCEBP of about 5 million Euros; NiVEL about 12 million Euros. For all the institutions, most funding is external (national and international grants).</td>
<td>Board of Governors, oversees Board of Directors</td>
<td>0.2 FTE scientific director, 2 research managers, and a secretary</td>
<td>1. Coordinates common activities of the participating institutes, and PhD program 2. Trains young researchers (including PhD training system) 3. Hosts annual CaRe day NOTE: Each of the four institutes has additional function (e.g. NiVEL maintains national databases)</td>
<td>In 2007: 1636 academic publications (1202 in refereed journals), 231 monographs, 88 PhD theses, and 401 professional publications/products From 2000 to 2007, have gone from 75.5 FTE senior researchers to 120 FTEs. In 2007, 144 FTE PhD students.</td>
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<td>England</td>
<td>National Institutes for Health Research School for Primary Care Research</td>
<td>Founded Oct 2006. The school is a partnership between the five leading academic centres for primary care research in England, as determined by the periodic Research Assessment Exercise</td>
<td>To increase the evidence base for primary care practice through: 1. high quality research to inform the development of clinical practice in primary care; 2. strategic leadership to support the development of primary care research.</td>
<td>Core funding + competitive NIHR funding</td>
<td>The Director, Deputy Director, and other partners in the School from various universities in UK. The School management is supported by a Senior Scientific Administrator based at the University of Manchester.</td>
<td>Administrative hub is housed at the University of Manchester. Consists of a Senior Scientific Administrator and administrative and communication leads. Five programme groups meet independently.</td>
<td>Five programs of work: 1. Prevention and early diagnosis of serious disease 2. Monitoring and management of patients with long term conditions 3. Co-morbidity and patient centred outcomes 4. New approaches to patient practitioner interaction 5. New research methods for primary care. - host publications repository - promote peer learning sets for mid-career academic clinicians - work with Primary Care Research Networks. - financial assistance to assure quality of online Masters of Research (MRes) for PHC researchers.</td>
<td>Too early to attribute outputs to the School.</td>
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<td>Finland</td>
<td>National Research and Development Centre for Health and Welfare (STAKES)</td>
<td>National Board of Social Welfare and the National Board of Health became the National Agency for Welfare and Health (NAWH), which was replaced in 1992 by STAKES, under the Ministry of Social Affairs and Health. Effective 1 Jan 2009, was merged with the National public health institute to become the National Institute for Health and Welfare.</td>
<td>An expert agency, STAKES statutory function is to monitor and evaluate activities and developments in social welfare and health care, to produce and acquire information and expertise at the national and international level and to make relevant information and expertise available to users.</td>
<td>Funded as a sector research institute under the Ministry of Social Affairs and Health but is funded by all the municipalities.</td>
<td>Led by a Director General who works with a 15 member Advisory Board and several Deputy DGs provide the management structure governance system.</td>
<td>Not available</td>
<td>Promotes the use of Finnish registers for research purposes. STAKES does their own research and commissions research periodically.</td>
<td>Not available</td>
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<td><strong>Coalitions of researchers and policy makers</strong></td>
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<td>Canadian Association for Health Services and Policy Research (CAHSPR)</td>
<td>2004 - CAHSPR replaced the Canadian Health Economics Research Association CHERA.</td>
<td>To provide a multidisciplinary / multisectoral professional association fostering and supporting:  - linkages between researchers and decision makers  - knowledge translation and exchange  - education and training  - advocacy for research and its more effective use in planning, practice and policy making.</td>
<td>Membership dues funded organization  Has four benefactor members ($10000/yr), one supporting member ($5000/year), twelve institutional members ($2500/yr), and one university member ($750/yr) plus that received from individual members.</td>
<td>Board of Directors</td>
<td>An executive director. Utilizes a ‘distributed leadership’ model with six committees</td>
<td>Hosts an annual conference. Supports the journal Healthcare Policy. Produces a weekly electronic bulletin.</td>
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<td>Canadian Association for Research on Work and Health</td>
<td>Founded in 2001.</td>
<td>Goals include: 1. to advocate for occupational health research in Canada 2. to represent the community of occupational health researchers 3. to facilitate collegial, scholarly links among occupational health researchers</td>
<td>Fee-based membership organization. Board of Directors meets biannually to oversee general management of the association.</td>
<td>An organizing committee and four working groups comprised of: 1. website, inventory &amp; communications; 2. national meeting; 3. funding; 4. priorities.</td>
<td>Website posts upcoming conferences, training and job opportunities of relevance to work and health. Hosts annual conference</td>
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<td>Canadian Hospice Palliative Care Association (CPCA)</td>
<td>3 provincial organizations formed the Canadian Palliative Care Association (CPCA) established in 1991 as a national charitable non-profit association. Opened its office in Ottawa in 1994.</td>
<td>To provide leadership in hospice palliative care in Canada. Focusses on advocacy and public policy development, awareness and information, and member support.</td>
<td>Annual budget of $500k-$700k from donations, and Federal departments.</td>
<td>18-member board of directors, including 11 provincial representatives. Board of Directors oversees planning, policy development, and work plan.</td>
<td>Executive director and some additional staffing - ten task groups Advisory Committees.</td>
<td>Coordination with corresponding provincial associations. Houses/coordinates the Quality End-of-Life Care Coalition for Canada. Coordinates the national Hike for Hospice fundraising and national awareness. Advocates for improved hospice palliative care policy, resource allocation, supports for caregivers. Website, newsletter. Partners with industry to provide information services. Presents awards for Excellence and Leadership in this field.</td>
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**National networks/centres of excellence**

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<tr>
<td>Canadian Obesity Network-Réseau Réseau Canadien en obésité (CON-RCO)</td>
<td>2006- established as a Networks of Centres of Excellence New Initiative Non-profit corporation.</td>
<td>To become the primary Canadian network of health professionals, researchers, policy makers, and other stakeholders interested in preventing and reducing the mental, physical and socio-economic consequences of excess body weight.</td>
<td>Includes CIHR Award for period from October 2005 to October 2009: $1,600,000</td>
<td>A Board of Directors and Scientific Director advised by a Scientific Committee.</td>
<td>Theme leaders. Promotes interdisciplinarity across themes</td>
<td>Website knowledge repository, including KTE products for policy makers and practitioners, clinical guidelines, schedule of events. Capacity building activities</td>
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### Canadian Stroke Network (CSN)

**Historical Context**
- Began in 1999 with seed funding from the federal government.
- Not-for-profit corporation

**Objectives**
- To ensure that Canadian researchers collaborate and stay focused on creating valuable new knowledge in stroke.
- To ensure that the best stroke knowledge is applied in Canada and leads to valuable health and economic benefits.
- To build Canadian capacity in stroke by increasing the number of researchers and health professionals focused on stroke.

**Funding**
- $4.7 million from the federal government.
- $6.4 million per year from NCE from March 2008 to March 2010.
- Funds are received from the Canadian federal government as well as other private and public sector partners.

**Governance**
- Governance structure includes a 21-person board of directors, 16 project leaders across the country, a senior management team.

**Staffing/Infrastructure**
- Core secretariat housed at University of Ottawa.
- Four theme leaders; Four committees: business development, ethics, external scientific review, planning & priorities.

**Activities**
- Co-developed the Canadian Stroke Strategy.
- Chairs the WHO Stroke Care Best Practices panel.
- Funds a web tool for health professionals and public access.
- Maintains Registry that enables collation and comparison of data.
- Media and public outreach.
- Participates in national boards/committees.
- Hosts workshops, think-tanks, and seminars, annual lecture, conferences and courses.
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<td>Canadian Population Health Initiative (CPHI)</td>
<td>1997 - Began as a pilot initiative in response to a recommendation by the National Forum on Health. Initial funding from Health Canada. Part of Canadian Institute for Health Information since 1999.</td>
<td>To build a better understanding of the factors affecting population health. To contribute to policy development to improve the health and well-being of Canadians. To provide objective and credible information on population health issues. To establish collaborative strategies and networks to bring a focus to understanding the determinants of health.</td>
<td>$18.9 million over four years was provided in the 1999 federal budget. Now receives $4.4 million yearly within CIHI. Secretariat costs $1 million and $700,000 provided for research contributions.</td>
<td>Council is 6-12 persons in the population health field, tasked with providing leadership and co-ordination to CPHI in achieving its vision.</td>
<td>Functions as a program within CIHI. 23 FTE staff including a Director.</td>
<td>2001 - Collaborated to identify key population and public health (PPHI) priorities. Action Plan (2007-2010). Supports the National Centres of Excellence in Public Health. Offers population health training. Policy report dissemination through media, webcasts, workshops, formal presentations, the Health of the Nation newsletter etc. Completes and publishes environmental scans of research transfer/exchange strategies. Collaborates to produce a KT casebook. Commissions research and builds research partnerships. Jointly plans and sponsors annual conference.</td>
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<td>Canadian Partnership against Cancer</td>
<td>Independent non-profit corporation. Evolved from the Canadian Strategy for Cancer Control—a volunteer-driven coalition that drafted Canada’s first national cancer control plan and advocated successfully for its funding. Started in April 2007</td>
<td>To oversee the implementation of the Canadian Strategy for Cancer Control. Reduce the expected number of new cases of cancer. Enhance the quality of life of those living with cancer. Lessen the likelihood of Canadians dying from cancer.</td>
<td>Federal funding of $260 million over five years</td>
<td>Board of Directors, an Advisory Council, Action Groups, and a Senior Management Team</td>
<td>Action Groups create clusters of expertise on the partnership’s priority areas Chaired by a subject matter expert. Flexible membership is drawn from health practitioners and administrators, epidemiologists, researchers, patients and families</td>
<td>Extensive stakeholder consultation and network development to refine the Canadian Strategy for Cancer Control. Most activities are prospective: - a cancer control system performance indicators with reporting mechanisms. - partnership-wide activities in KTE - coordinate longitudinal cohort study - provide funding for the transfer of new knowledge between the scientific community, health professionals, policy-makers and the community at large.</td>
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<td>Canadian Heart Health Strategy (CHHS)</td>
<td>2006, federal funding provided for expert Steering Committee to develop a comprehensive, independent, stakeholder-driven Canadian Heart Health Strategy and Action Plan (CHHS-AP).</td>
<td>Develop Heart Health Strategy and Action Plan that will engage stakeholders with a commitment to improving cardiovascular health for Canadians. Agree on six to eight Theme Working Group topics and related strategic priorities. Develop a plan for a comprehensive and coordinated approach to cardiovascular health surveillance for Canada. Propose a five-year monitoring and evaluation protocol.</td>
<td>2006 - $3.2 million from Federal government (PHAC). $5.2 million promised annually</td>
<td>29 member Steering Committee is accountable to the federal Minister of Health and the Parliamentary Secretary for Health</td>
<td>Leadership partners include Heart and Stroke Foundation of Canada, Canadian Cardiovascular Society, and Canadian Institutes of Health Research. Director is supported by a Program Manager and an Administrative Coordinator.</td>
<td>Coordinating the development of a pan-Canadian strategy over the course of two years.</td>
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### Non-government organizations

<p>| National Aboriginal Health Organization (NAHO) | An Aboriginal-designed and controlled body committed to influencing and advancing the health and well-being of Aboriginal Peoples by carrying out knowledge-based strategies. 2000 incorporated as non-profit | Improve and promote Aboriginal health through knowledge-based activities. To promote an understanding of the health issues affecting Aboriginal Peoples. To facilitate and promote research on Aboriginal health and develop research partnerships. To foster the participation of Aboriginal Peoples in delivery of health care. To affirm and protect Aboriginal traditional healing practices. | Core funding from Health Canada ($4.71 million in 2006-7 fiscal year, the majority of their $5.83 million in revenue). | 10/15 members of the Board of Directors are appointed by NAHO’s member organizations. Additional five board members are elected by the ten appointed board members. Directors serve on executive and finance committees, activity related task groups, and governing committees. | Work is carried out in its three centres and two additional operational units. Additional staffing dedicated to specific projects and programs | Focus on production and dissemination of ethical and important health research specific to the Aboriginal Peoples of Canada. |</p>
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<td>The Arthritis Society</td>
<td>Began in 1936 as the Canadian Rheumatic Disease Association (CRDA). 1977, renamed the Arthritis Society. Presently Canada’s only not-for-profit organization devoted solely to funding and promoting arthritis research, programs and patient care.</td>
<td>To search for the underlying causes and cures for arthritis. To promote the best possible care and treatment for people with arthritis.</td>
<td>Major sources of revenue are from provincial level public. 2007 total revenues &gt;$33 million. Sending on fundraising (31%) and research/career development (23%).</td>
<td>19 person board of directors. Includes representatives from each division, and other members recruited from across Canada.</td>
<td>National administrative office in Toronto, division offices in each province, nearly 1,000 community branches throughout Canada.</td>
<td>Coordinates the national programs, but much of the work carried out by the Arthritis Society is administered by the provincial and local offices. Website Research funding. Research and Career Development Program. Education programs for health professionals.</td>
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REFERENCES


(12) Galbraith JR. Competing with flexible lateral organizations. Reading, Massachusetts, Addison-Wesley Publishing; 1994.


