

**HEALTH SERVICES AND POLICY RESEARCH SUPPORT NETWORK**

## **Partners in Research: Decision Makers and Researchers Working Together**

A report on the evaluation of the Investigative Team program



Michael Smith Foundation for  
**Health Research**

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## Contents

<b>Executive Summary .....</b>	<b>i</b>
<b>PART 1 Background.....</b>	<b>1</b>
About the Investigative Teams Program Evaluation Report.....	1
About the Investigative Teams Program .....	1
About the Investigative Teams.....	3
<b>PART 2 Evaluation Findings.....</b>	<b>5</b>
Integrating Researchers and Decision-Makers .....	5
Linking Research with Practice and Policy .....	8
Building Capacity .....	15
<b>PART 3 Evaluation Conclusions .....</b>	<b>19</b>
Did the Teams Achieve their Goals?.....	19
Did the IT Program Achieve its Goals? .....	22
Was the Investigative Team Structure a Good Mechanism? .....	24
Lessons Learned from the Investigative Teams Program .....	27
<b>Appendices .....</b>	<b>29</b>

## Tables and Figures

Table 1 Summary of the Investigative Teams .....	3
Table 2 Team Member Survey: Taking research to practice .....	14
Figure 1 Team Member Survey: Team research skills .....	16
Table 3 Leveraging by Team .....	18
Table 4 Team Member Survey: Team impacts.....	23
Table 5 Team Member Survey: Team functioning.....	25
Table 6 Overcoming barriers to evidence uptake .....	26

# Executive Summary

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In 2003, the BC Ministry of Health Services (MOHS) provided funding to the Michael Smith Foundation for Health Research (MSFHR) to develop a health services and policy research initiative to help inform broad-based health system improvements. A Health Services and Policy Research Network (HSPRSN) Steering Council representative of health authorities, academia, and Ministry of Health Services was created to oversee this initiative and four different programs were developed to achieve its objectives. The Investigative Teams (IT) program was implemented between October 2005 and March 2010. Its goal was to develop teams of researchers and decision-makers to create new knowledge that addressed relevant health services and policy issues in five priority areas identified by the health authorities and MOHS. The total funding provided to the IT program was \$3.3 million.

Five Investigative Teams were funded:

1. Intensive Care Unit Patient Safety
2. Mental Health and Addictions Services and Policy
3. Home and Community Care Research Network
4. BC Alliance on Telehealth Policy and Research
5. Rural and Northern Practice and its Development

Each Investigative Team was required to maintain a balanced membership of researchers and decision-makers with the goal of increasing focus on research relevant to health systems and policy issues and to facilitate the application of research findings to inform practice and policy change. The funding supported the costs of research infrastructure and implementation, including associated capacity-building and knowledge translation activities.

A program evaluation was carried out to determine whether the program and research team goals were met and whether the Investigative Team structure was an effective mechanism to support the conduct and uptake of research to inform health practice and policy. The evaluation report documents strengths and challenges of the program and the operation of the Teams.

Three key objectives of the program were examined:

- Integrating researchers and decision-makers
- Linking research to practice and policy, conducting research, and engaging in knowledge translation and exchange
- Building research capacity including the leveraging of external funding

Information was collected from the Teams' original proposals, reports from the Team Leads, and a Team Member Survey.

## **Successes**

The program was highly successful in increasing integration of researchers and decision-makers. The Team Leads identified the requirement for researcher and decision-makers to collaborate as the greatest strength of the Investigative Teams program; this opinion was also supported by the Team Member Survey. This manner of collaboration was previously very limited or non-existent prior to the Investigative Teams program as no other source of support was available in the province to develop the required infrastructure. The funding provided by MSFHR was essential to the success of the Teams and their ability to survive and thrive.

There are many well-documented barriers to the uptake of evidence by health system decision-makers. The integration of researchers and decision-makers on teams proved to be a mechanism that helped overcome many of these barriers. A greater integration of decision-makers throughout the research process reflected a smaller number of barriers reported by the Team Leads and members.

New knowledge relevant to practice and policy was created by all Teams. Team Members strongly agreed that this was the area of greatest impact of their work.

The wide range of knowledge translation and exchange (KTE) activities across all Teams provided the supporting processes and structures needed for researchers and decision-makers to effectively cooperate on taking research into practice.

The IT program itself greatly increased capacity to undertake and apply research by providing the funding to bring the researchers and decision-makers together and support them through administration, communications, and meetings. All Teams were able to significantly leverage the program funds, collectively obtaining over \$15.3 million in grants to fund research, collaborations, and other activities.

Three Teams achieved the full scope of the program's objectives and met their team research, capacity-building, and knowledge translation and exchange (KTE) goals. In several instances, Teams exceeded their goals by influencing policy or practice changes. Two Teams completed most of their planned activities and met the majority of their objectives. All Team Members who responded to the survey stated that the IT program was a good mechanism for supporting health services and policy research in priority areas.

### **Challenges**

Two major challenges were encountered by all Teams:

- the extensive upfront time required for team development and setting up of research projects (including developing protocols, resourcing, and organizational and ethics approvals);
- staff turnover in government and health authority and the subsequent difficulty in ensuring decision-maker participation.

Both of these challenges resulted in time delays for research and related activities.

### **Lessons Learned from the Program**

1. *Integration of researchers and decision-makers:* This collaboration was the most successful aspect of the program, but also the most challenging. Declining decision-maker participation and ongoing turnover were persistent challenges. This is likely to be a continuing challenge due to staff turnover and to clinical demands taking precedence over other activities. Hence, additional attention to obtaining organization commitment (at the executive level) may be necessary to ensure greater continuity in decision maker involvement on research teams.
2. *Team development and structure:* More time should be dedicated to the early development of team structure and relationships (particularly between researchers and decision-makers) with clearly defined roles and expectations of participation. This will allow all parties to have a better initial understanding of each others' needs before beginning to plan research activities.
3. *Applying research to practice – long term objectives:* It takes time to conduct research and even longer to effect change in the health system. A phased approach to future programs may be warranted, particularly if evidence of the impact of research on health system and policy decisions is required. These phases could capture: i) team development and refinement of a research agenda; ii) conducting the research, developing capacity, and implementing KTE activities; and iii) continued support for teams that demonstrate their research has influenced or has the potential to influence practice and policy in the health system.

# PART 1 Background

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## About the Investigative Teams Program Evaluation Report

The Investigative Teams (IT) program Evaluation Report summarizes the findings and conclusions of an evaluation of the IT program, one of four programs established by the Health Services and Policy Research Support Network (HSPRSN).<sup>1</sup> This report documents the strengths and challenges of the program, the functioning of the Teams, the extent to which the Teams were able to meet their goals, and whether the IT program objectives were met. This report is intended to inform the decision-making process for the development of future programs.

The Analysis and Evaluation Department at the Michael Smith Foundation for Health Research developed the evaluation plan and led the evaluation process. The evaluation plan is available in Appendix B. Data for the evaluations were collected from three sources:

1. Team Proposals – The Team Proposals are the originally submitted full applications outlining the goals of each Team.
2. Team Member Survey – The Team Member Survey was conducted online in August of 2009. MSFHR invited Team Members to provide their perspective on their involvement with the Team and the impact of the Teams' work. The survey was conducted anonymously. Fifty-one survey responses were received (40% response rate). The demographics of the respondents are provided in Appendix C.
3. Team Lead Reports – A Team Lead Report was completed by each of the five Team Leads in September 2009 on aspects of team participation and functioning, team activities, and opinions on the value of the program.

Data from each of these sources is presented throughout this report (for report template and survey see Appendix D).

## About the Investigative Teams Program

In March 2003, the BC Ministry of Health Services provided funding to the Michael Smith Foundation for Health Research (MSFHR) to implement a health services and policy research initiative to inform the development, implementation, and assessment of health system redesign. The Health Services and Policy Research Support Network (HSPRSN) comprised of health service researchers, representatives from the health authorities, and the Ministry of Health Services was established to provide direction and oversight for this initiative. The HSPRSN established three goals for the initiative:

1. To increase capacity for producing and using health services and policy research
2. To identify and support high priority health services and policy research projects and knowledge translation initiatives
3. To support alignment between health service and policy researchers and decision-makers in health service organizations

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<sup>1</sup> All acronyms used in the report are provided in Appendix A.

The IT program was one of four programs developed by HSPRSN. It was designed to enable teams to develop a research program that identified and addressed relevant health services and policy research issues in priority areas. The funding was intended to support the costs of research infrastructure and associated capacity-building and knowledge translation activities.

Investigative Teams were required to consist of researchers and decision-makers (policy and/or program) working in partnership to ensure that priority questions were identified and addressed by quality research, that research capacity was enhanced, and that research outcomes were disseminated to target audiences for consideration and action.

The BC Ministry of Health Services and the BC health authorities identified five priority areas on which Investigative Teams were to focus: Acute Care Redesign; Chronic Disease Management; Health Human Resources; Home and Community Care; and Mental Health.

Three important cross-cutting themes were also identified within the context of the five priorities: clinical outcomes measurement, patient safety, and differential impacts of changes in the health system on the health of specific populations.

## Program Objectives

- Support excellent health services and policy research and knowledge translation activities that will inform the development, implementation, assessment, and refinement of current and future health care process redesign and change initiatives in support of innovation in the health system. The goal of undertaking such research is the development of evidence to support practice, system or policy changes.
- Address health services and policy research topics within the priority areas through the planning and implementation of a program of research that includes both short and longer term research projects. The program of research should include provision for synthesizing and disseminating current research knowledge, developing and prioritizing research questions, and conducting research to address knowledge gaps in the priority areas.
- Build substantial partnerships between researchers and decision-makers (policy and/or program) in BC's six health authorities and the BC Ministry of Health Services to: i) identify and address research questions that will produce practical and relevant results for the target audience(s); and ii) develop, implement, and evaluate strategies to support the dissemination and uptake of research findings by the target audience(s).
- Develop and sustain health services and policy research capacity in BC's six health authorities, the Ministry of Health Services, and academia. Through team interactions identify and address future research and capacity building requirements in the priority areas.
- Leverage additional peer-reviewed funding and other resources from regional, provincial, national and international sources to support the Team to undertake research projects and associated knowledge brokering activities.

## Program History

Investigative Teams were chosen through a two-stage application process: a letter of intent and a full proposal. Twenty-four letters of intent were received. These underwent external merit review and 13 applicants were subsequently invited to submit full proposals. On the basis of a second external merit review of the full proposals, five of these applications were approved for funding. While not specified as a requirement, the peer review rankings resulted in one team being recommended for funding in each of the five HSPRSN priority areas.

Grants of \$150,000 per year for period of three years were provided (October 2005 to September 2008) and there was the potential for an additional two years of funding depending upon successful progress and the availability of funding. Teams were required to complete a satisfactory progress review at the end of the first year to receive year two and three funding. Teams could also apply for a one-time Development Grant of \$50,000 as seed funding to cover preliminary research operating costs; all Teams applied for and received these funds. Thereafter, Teams could apply for up to \$50,000 in matching funding over the second and third years to leverage other sources of research operating funds. Two Teams applied for and received this funding to match leveraged research operating funds. Two unplanned extensions were awarded to accommodate the MSFHR's funding and review cycle. At the end of the program on March 31, 2010, the Teams will have received four and a half years of funding.

Teams were required to submit detailed progress reports at the end of the first, second, and third years of the program along with activity plans and budgets for the following year. Site visits were conducted during the first year by MSFHR staff to review each Team's activities. Annual meetings with Team Leaders were held in the second and third years to discuss progress, outcomes, challenges, and MSFHR's plans for the future of the program.

## About the Investigative Teams

The five Teams selected for funding each addressed one or more of the priority areas and cross-cutting themes. The Teams are summarized in Table 1. Team Member demographics are available in Appendix C. Details on the mission, goals, research rationale and strategy, team composition and governance structure for each team are described in Appendix E. A summary of team activities is given in Appendix F.

**Table 1 Summary of the Investigative Teams**

Team Leader(s)	Priority Areas	Team Focus
<b>Intensive Care Unit Patient Safety (ICU Team)</b>		
Dr. Peter Dodek CHEOS, Providence Health Centre/ St. Paul's Hospital, VCHA Associate Professor of Medicine, UBC	Acute Care Redesign with Health Human Resources;  Cross-cutting: Patient Safety	To develop a system for identifying objective safety-related outcome measures to assist in the design, implementation, and evaluation of organizational changes such as culture, human resources, and care processes that will improve patient safety in the ICU.
<b>Mental Health &amp; Addiction Services &amp; Policy (Mental Health Team)</b>		
Dr. Elliott Goldner, Head, Division of Mental Health Policy & Services, Mental Health Evaluation & Community Consultation Unit, Associate Professor, Medicine/	Mental Health with Chronic Disease Management;  Cross-cutting: Clinical Outcomes Measurement	To provide evidence to maintain and improve the integration of primary mental health care service delivery with specialist mental health services and community supports, including the development of integrated addiction and

Team Leader(s)	Priority Areas	Team Focus
Psychiatry, UBC		mental health services.
<b>Closing the Knowledge Care Gap for Seniors and Community Care: Home and Community Care Research Network (Home &amp; Community Care Team)</b>		
Dr. Jean Kozak Director of Research, Centre of Aging and Health at Providence Health Care Associate Professor, Health Care & Epidemiology, UBC	Home & Community Care, with Mental Health and Health Human Resources;  Cross-cutting: Clinical Outcomes Measurement & Differential Impacts of Health System Changes	To develop capacity to measure, at a population level, transitions in seniors' health and requirements for care in order: (1) to evaluate the effects of transitions on seniors' health outcomes, quality of life and their utilization of health services; and (2) to evaluate the effects on the work life of service providers.
<b>British Columbia Alliance on Telehealth Policy and Research (Telehealth Team)</b>		
Dr. Scott Lear Assistant Academic Director, Healthy Heart Program, St Paul's Hospital Assistant Professor, School of Kinesiology, SFU	Chronic Disease Management with Health Human Resources and Home & Community Care;  Cross-cutting: Clinical Outcomes Measurement	To provide evidence and capacity building to develop the integration of sustainable telehealth care services that can support patient-focused homecare initiatives in the management of chronic disease.
<b>Rural and Northern Practice and its Development (Rural &amp; Northern Team)</b>		
Dr. Martha MacLeod Professor, Nursing & Community Health, UNBC	Health Human Resources;  Cross-cutting: Patient Safety	To determine how the practice of health professionals in rural and northern communities can best be organized, supported, and developed to improve access to care and to enhance quality of care on a sustainable basis.
Ms Cathy Ulrich CEO, Northern Health (previously Vice President Clinical Services & Chief Nursing Officer)		

# PART 2 Evaluation Findings

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This section presents the findings of the Investigative Teams program evaluation. The findings are grouped under three refined program objectives that were addressed by all five Investigative Teams:

- Integrating researchers and decision-makers
- Linking research to practice and policy: conducting research and engaging in knowledge translation and exchange
- Building capacity including the leveraging of external funding

The program was highly successful in increasing integration and collaboration of researchers and decision-makers; Team Leads and Team Member Survey respondents identified the requirement for researchers and decision-makers to collaborate as the greatest strength of the Investigative Teams program.

Each Team approached the process of linking research to practice and policy in a different way depending on their goals, membership, and team structure. All Teams did a significant amount of research, with the choice of projects being informed by collaboration between researchers and decision-makers. All Teams engaged in a continuous process of knowledge translation and exchange (KTE); survey respondents noted that the IT program enhanced KTE in both directions from research to practice and policy and from health services issues to research. Finally, some team activities demonstrated that Teams were able to move beyond KTE and were able to influence practice and policy.

Research capacity was enhanced through skill development, collaborations and partnerships, building of awareness and supportive culture, creating of infrastructure and processes, and enhancing leadership. Research capacity was also enhanced by direct funding. All Teams were able to leverage additional funding from a range of sources to support the work of the Team, whether for conducting research, supporting KTE, team building, or hosting events. The findings are discussed in detail below under the three refined program objectives.

## Integrating Researchers and Decision-Makers

Health researchers frequently are required to show the relevance of their work to practice and policy, while decision-makers are challenged to use the best evidence to inform decisions about the operation of services and programs. Each Investigative Team was required to maintain a membership balance of researchers and decision-makers and capitalize on the partnership to increase focus on practical research relevant to health services, as well as facilitate the successful application of research findings in practice and policy. This membership requirement was the central tenet of the IT program, and it set the program apart from traditional funding programs for health service-relevant research units or teams consisting predominantly of researchers.

Overall, the program was highly successful in increasing integration and collaboration of researchers and decision-makers. The Team Leads identified the requirement for researchers and decision-makers to collaborate as the greatest strength of the Investigative Teams program. This was also supported through the Team Member Survey.

One of the main challenges of the program identified was the high turn-over in decision-makers and subsequent difficulty in ensuring decision-maker participation. The effectiveness of integrating researchers and decision-makers was assessed in the following categories:

- Team composition
- Maintaining membership
- Organizational challenges and supports
- Member involvement

## Team Composition

The researchers on the Teams were primarily individuals within BC who held (or previously held) research operating funds as a principal or co-investigator. Researchers of varying experience and from a variety of disciplines were included on the Teams. Students were often involved as researchers; however, they were not counted in the formal team membership.

Decision-makers included a variety of individuals, mostly in a supervisory or management role within their organization (typically a health authority) with the ability to directly influence health service delivery in programs or practice. Decision-makers also included policymakers from the provincial government or executives within the health system and program decision-makers who were directly involved in planning health services and programs (including major clinical programs).

The Teams also included other contributors such as administrators, coordinators, and experts (e.g. statistician, database developer); these were counted as team support rather than in the formal membership. Researchers or decision-makers designated as 'affiliate members' were included in the formal team membership by some teams, but their role as an affiliate was not always clearly defined.

The Team Member Survey investigated relationships among Team Members prior to joining the Teams by asking members how many of their teammates, researchers, and decision makers they knew before joining the Team. Almost all respondents (90%) had at least one previous relationship with another Team Member. Across all Teams, the range of prior associations with Team Members was 0 to 14 (about 0% to 64% of their teammates), with the average for each Team falling between 3 and 8 (about 14% to 36% of teammates). It was common that researchers knew more team researchers than decision-makers, and decision-makers knew more team decision-makers than researchers prior to team formation. Therefore, new connections and opportunities for collaboration were developed between the two types of members as a result of their team participation. Connecting with others, particularly because of the unique mix of researchers and decision-makers, was in the top three most frequently reported reasons for joining the Team among the survey respondents. In addition, 80% strongly agreed or agreed that new and positive relationships were developed between researchers and decision-makers as a result of the program. It was not possible to determine whether pre-existing relationships contributed to more effective team functioning or productivity.

Team Members were asked whether they felt their Team had the appropriate mix of researchers and decision-makers and the appropriate expertise. Ninety-three percent of survey respondents agreed or strongly agreed that there was an appropriate mix of researchers and decision-makers. Ninety-one percent of survey respondents agreed or strongly agreed that the Team had the appropriate expertise, but there was evidence of a significant difference between the responses of researchers and decision-makers; researchers agreed more strongly with the presence of appropriate expertise. The reasons for this were not explored; however, given that the majority of work carried out across teams was in conducting research, the researchers may have been more familiar with the expertise required and were therefore more confident in their Team's expertise.

## Maintaining Membership

The turnover of decision-makers was high across all Teams. Although turnover over the course of a four-year program can be expected, four of the Teams (all except ICU) experienced a surge in decision-maker turnover in the range of 14% to 57% after the first year. The main reason for this appears to be restructuring of positions within the health authorities around this time. Although decision-makers were often replaced when they left the Team, re-establishing relationships and knowledge of team activities took time and created challenges. Team Leads also reported that there was often a loss of interest in the Team with each successive replacement.

Although Team Leads reported targeting particular positions at the health authorities for membership, replacements often came from different positions when these were vacated. Reasons for this included: positions not being refilled in a timely way, lack of interest by the replacement, insufficient relevant experience of the replacement, or restructuring of positions and their roles by the health authority.

Significant turnover in researchers occurred in 2007 in three Teams: Mental Health (9%), Telehealth (13%), and Home & Community Care (45%). Home & Community Care was the largest Team and experienced the greatest turnover overall. There was a major restructuring of the Team as a result of this turnover. However, it does not appear that the size of membership is related to the frequency or intensity of turnover across all Teams. All Teams managed to maintain a balance of researchers and decision-makers over the life of the program.

Both researcher and decision-maker survey respondents reported that lack of time was the greatest barrier to team participation. Researchers commonly reported that ensuring decision-maker dedication to the Team was a major challenge. The final reports from the Team Leads echoed this challenge and frequently pointed to the lack of engagement by decision-makers, often due to the replacement challenges mentioned above.

The challenges experienced by the Teams are consistent with those reported in other studies. Decision-maker turnover and lack of engagement by new decision-maker partners are well documented as being significant barriers to successful collaborative team research (Innvaer, 2002; Kessel & Rosenfield, 2008; Pittman & Almeida, 2006; Ross et al, 2003). Lack of time for participation, especially by decision-makers, has also been found to be a major limiting factor to team functioning (Choi & Pak, 2007; Nair et al, 2008; Poulos et al, 2007; Ross et al, 2003).

### **Team membership changes**

The following describes the impact of changes in membership on the Teams.

<i>ICU</i>	Most of the decision-makers had minor roles in the Team, and a core of researchers primarily led the activities. There was relatively little turnover, except that a few decision-makers left in 2007 and the changes did not have a large impact on the Team.
<i>Mental Health</i>	Restructuring within the health authorities resulted in team membership changes. The Team structure was altered to establish sub-groups around priority areas, which mitigated the impact of membership turnover on the Team as a whole. This structure may have improved the engagement of new members as they could choose to join a specific area of interest and expertise.
<i>Home &amp; Community Care</i>	There was significant turnover over the award term, which may reflect the unique network strategy adopted by this Team. The Team activities were originally structured around decision-maker leadership, but this caused difficulties when decision-makers left the Team and leadership had to be re-established. Decision-maker turnover was largely due to changes in positions within the health authorities, and often, vacancies were not filled resulting in several temporary decision-makers with limited involvement. There was no researcher turnover until 2007 when a relatively large number of researchers left over the year. The Team restructured the following year, but by the end of the award term in 2008 (prior to the extension period) more than half of decision-makers had left the Team.
<i>Telehealth</i>	Although experiencing a large turnover of decision-makers after the first year (57%), the Team Lead reported that the Team felt maintaining decision-maker membership from all five health authorities was crucial. Strong health authority relationships were supported throughout the Team's life and during turnovers, which may have mitigated negative impacts of changes in membership. The only exception was Northern Health, which did not sustain a position that best contributed to Telehealth needs.
<i>Rural &amp; Northern</i>	Decision-maker turnover mostly occurred after the first year, primarily due to changes within the health authorities. Those decision-makers who joined as a replacement were often less engaged. The Team restructured into a set of sub-groups around a central hub, which lessened the impact of turnover and even supported expansion of membership. In some cases, decision-makers were involved in particular projects, and completed their involvement when the project was finished.

## Organizational Challenges and Supports

Existing research support infrastructure, as well as commitment to research, varied among the health authorities and government ministries prior to the IT program. This variation may have contributed to differences among the Teams in their engagement of decision-makers depending on the emphasis of their partnerships and locations of research.

Team Members were asked if there were any particular supports from their organizations that made involvement in the Team easier. Survey respondents noted that most support came from the Team's administrative assistance (funded by the Team) in the form of funding for travel and meetings, and conferencing and communication support. Respondents reported receiving little support from their organizations. Some indicated that their organizations' 'buy-in' was important for supporting their involvement, but there was little or no direct contribution of resources to support team involvement. The few organizational supports reported were pre-existing researcher support (such as research assistants, research training resources, and ethics application assistance) that would have also been available to researchers outside of the Team.

## Member Involvement

Survey respondents were asked to rate their level of involvement in their team overall, as well as in specific areas: identifying research questions (or topics); developing research proposals or methodology; data collection, analysis, and interpretation; report writing; knowledge translation and exchange; and applying research findings. The majority of respondents felt that they were involved appropriately in every area with no clear difference between Teams.

Decision-makers reported, more frequently than researchers, that they were involved too little in identifying research questions and in interpreting research findings. As 63% of decision-maker respondents joined in 2007 or later (compared with 33% of researcher respondents), they may have joined too late to be involved in the initial research planning. In terms of interpretation of research findings, it is not clear why some decision-makers felt they should have been more involved or whether they were in fact less involved than other Team Members.

## Linking Research with Practice and Policy

The following summarizes how each Team developed its research agenda, describes their focus throughout the process, and highlights key achievements. A discussion of common themes is also presented.

The researcher and decision-maker collaboration helped identify priority issues within the health system and develop relevant research. Ultimately, the research evidence is taken to action within the health system to improve health services practice and/or policy. While the IT program did not anticipate system changes to be proven by the Teams within the program timeframe, the entire process was required to demonstrate relevancy and the ability to be useful in the final application. The process was described in the program objectives and prescribed in the Team's proposal requirements. The three elements of the collaboration process (described in detail in Appendix G) are:

- Determining priorities through knowledge translation and exchange
- Conducting research
- Using research through knowledge translation and exchange

All Teams conducted a significant amount of research, with the choice of projects being informed by collaboration between researchers and decision-makers. All Teams engaged in a continuous process of knowledge translation and exchange. Survey respondents noted that the IT program enhanced KTE in both directions from research to practice and policy, and from health services issues to research. Some team activities demonstrated that Teams were able to move beyond KTE and influence practice and policy.

Although the above common outcomes were observed, each Team approached the process in a different way depending on their goals, membership, and team structure. Some Teams focused on determining priorities, and some on conducting research, while others ensured their activities addressed all parts of the process. A full listing of team activities is provided in Appendix F. A list of the publications for each Team is given in Appendix H.

## ICU Team

The ICU Team research questions were formulated in the original Team proposal. Specific activities were developed at the ICU Team's Steering Council meetings. There was limited participation by decision-makers in this research question development process.

The ICU Team focused on completing specific patient care and safety research projects in areas identified as common priorities in intensive care units across BC. Several research projects were completed within the program timeframe. These included systematic reviews on patient safety outcomes in particular ICU practices, as well as research on the relationship of outcomes to organizational conventions in culture and nursing schedules. Several of the research projects were conducted over about three years, while others were initiated later on in the program from emerging priorities and opportunities.

Research findings were primarily disseminated through journal abstracts and publications; at the time of this report, the majority of publications were in preparation or press. Findings were provided to ICU leaders throughout participating health authorities; the primary goal of this exchange was to use the research projects to demonstrate the value of the ICU database.

A full listing of the ICU Team activities is provided in Appendix F and highlights are presented below. A list of publications can be found in Appendix H.

### Highlights – ICU Team

#### Integrating research and practice with the ICU database

Measurement of ICU data is important for both research activities and improvement of daily operations within ICUs. The Team recruited 14 ICUs from three health authorities (some ICUs approached the Team) to participate in an ICU database – a repository to manage and share clinical information. Significant effort was and continues to be made to build awareness and promote the benefits of the database:

- Presenting to the health authority Leadership Council
- Sharing examples of team research projects that use the database with ICUs
- Demonstrating pneumonia rate research to the BCCDC to support expanded surveillance

Although there have been challenges implementing the database province-wide, continual improvements are helping to build support from hospital ICUs. For example, Fraser Health has provided funding and their ICUs are now becoming more involved in new research proposals. Other ICUs are getting directly involved in research for the first time by using the database. The Team Lead has also been invited to participate in a Critical Care Working Group of the Acute Care Council with the BC Ministry of Health Services.

#### Using practice evidence to inform research

The Team studied the impact of nursing work shifts on patient safety outcomes. The results of a preliminary analysis on hypoglycemia risks raised awareness of the importance of worker hours in patient safety and stimulated interest from ICUs to participate in further research. A nurse leader was engaged as a principal investigator to further explore this issue in a comprehensive multi-site study examining multiple safety outcomes. Funding of \$30,000 was received from the Vancouver Coastal Health Research Institute to support this study.

## Mental Health Team

Under the Lead's guidance, the Team membership created numerous project ideas and allowed all members to participate in identifying those with greatest potential. Project subgroups were formed and the leader of each subgroup was responsible for their project's activities.

The Team's four major research projects focused on practice and policy to ensure follow-through on application of the results. They were:

- Developing, evaluating, and implementing a Supported Self Management Module.
- Implementing and evaluating a pilot project of a 'Navigator' role: a community mental health services facilitator positioned to improve service access in rural areas and provide evidence to health authorities of strategies for improved service integration and capacity.
- Conducting research on access to mental health services users and developing a model of service-user participation with academics in the research process to improve the usefulness of research findings and promote dissemination; implementing, and evaluating this model in other community-based research initiatives.
- Conducting research and translating findings to government to impact policy on housing and homelessness (see below).

Key stakeholders were engaged throughout the research process, which may have improved the usefulness of the findings and provided motivation for stakeholders to apply the findings.

A full listing of the Team activities is given in Appendix F and highlights are presented below. A list of publications is provided in Appendix H.

### Highlights – Mental Health Team

#### Implementing the Supported Self Management Module

The Team developed and put into practice a Supported Self Management Module (SSM) for the treatment of mood disorders in primary care and workplace settings. The development was informed by a pilot study of behavioural intervention uptake that indicated successful uptake and dissemination of SSM in primary care settings. The Team worked with a variety of sectors, including government, health authorities, WorkSafe, Pacific Blue Cross, the BC Medical Association, and family physicians on the development and implementation of SSM. SSM is now being used in primary care and workplace settings in BC. Over \$365,000 funding was leveraged to support dissemination, training, and evaluation. The success of the project has attracted interest from health agencies in other provinces, and the BC Ministry of Health Services has developed supports and incentives for use of the module to advance the quality of mental health care across the province. Ongoing evaluation and expansion, including online resources, will continually improve SSM.

#### Contributing to Housing Policy Development

With support from the BC Ministry of Health Services, research was completed on the current state of housing for individuals with severe addiction and mental illness. At a time when homelessness is a major policy issue, this new knowledge contributed to the development of government policy in the purchase of housing units and conceptualization of housing services and supports. The success of this work enabled the Team Members to participate in a national demonstration project on mental health and homelessness funded by the Mental Health Commission of Canada. The Team Lead Report identified the coordination of efforts of a variety of stakeholders in Mental Health as one of the greatest benefits of the Investigative Team.

## Home & Community Care Team

Advisory Committees developed potential research questions through consultation with stakeholders as well as from themes emerging from ‘Knowledge Forums’ hosted within health authorities. The Steering Committee, comprising mainly of decision-makers but also including researchers and community groups, discussed research questions, identified additional priorities, and communicated decisions back to the Advisory Committees. Team Members participated in research in their areas of interest.

The Team network structure created an interconnected system of people to foster collaboration and build consensus on priorities in the field of Home and Community Care. The Team primarily engaged in knowledge translation and exchange activities.

Research conducted by members was used by the Team to bring forward to forums as evidence to support decisions on further research directions. The Team addressed all three of its priority theme areas (assisted living, dementia, and seniors at risk) through their research and knowledge exchange activities.

A full listing of the ICU Team activities is given in Appendix F and highlights are presented below. A list of publications is provided in Appendix H.

### Highlights – Home & Community Care Team

#### Creating synergy to address key priorities and issues

##### *Dementia*

Team Members completed several studies on aspects of dementia in seniors in acute and long-term residential care. At forums and other knowledge exchange events, results were presented to health authority executives and managers, researchers, students, and community groups working with seniors. Based on the success of the forums, health authorities committed their leadership to future forums in this area. A dementia forum involving several provincial stakeholders, as well as representatives from a national dementia network, led to the formation of national and regional project teams on dementia priorities, as well as collaboration with other Canadian researchers and decision-makers on ethno-cultural differences in experiences during the pre-diagnosis period of Alzheimer’s disease.

##### *Access to care for ethnic minority seniors*

A literature synthesis identified gaps in research, which led to the formation of a research group on oppression experienced by immigrant women in access to healthcare. A subsequent forum was held to share research results and identify new priority research questions. From these priorities, three new research proposals were developed. In addition, the Team held a symposium to share knowledge with academics, health authorities, community groups, and students that resulted in the formation of a research group to conduct a literature review on the health and healthcare of ethno-cultural minority older adults.

## Telehealth Team

Research questions addressed by the Team were formulated in the original proposal and carried through. Emerging priorities were discussed at annual team meetings and additional research was approved by the executive committee based on proposals submitted by Team Members.

Research focused on internet-based cardiovascular disease management opportunities are highlighted below. Several syntheses, reviews, and surveys were conducted to identify gaps in knowledge, potential research areas, and best practices in areas with potential for health system improvement. These areas included e-health policy awareness, Telehealth in home chronic care, internet-based chronic disease self-management, and Telehealth opportunities on First Nation reserves.

Telehealth Team Members were very active in knowledge translation and exchange activities throughout the program with particular focus on disseminating knowledge of the Team's work and research results, and building awareness of Telehealth issues in key stakeholder groups. They also exchanged knowledge to develop practical opportunities for using Telehealth and receive input on the future direction of the Team's activities and research.

A full listing of the ICU Team activities is given in Appendix F and highlights are presented below. A list of publications is provided in Appendix H.

### Highlights – Telehealth Team

#### Advancing Telehealth programs for Cardiovascular Disease

Several research projects were undertaken to develop a program of internet-based cardiac care. Initial studies involved front-line hospital workers in the research design and implementation to assess the feasibility of an internet-based management program including access and barriers to internet use for cardiovascular disease patients. Findings suggested that the internet can be a viable tool for maintaining continuity of care from the patient and provider perspective. These findings led to additional evaluation of internet service delivery through a randomized controlled trial for delivery of a cardiac rehabilitation program. A new custom heart rate monitor was developed by the Team for the patients. Funding for research was received from health authorities, industry, and organizations such as the Heart and Stroke Foundation of Canada.

The Team is also working with physicians and cardiologists to create a collaborative model of service provision for patients. Due to their participation throughout the project and involvement with the Team, strategies for uptake of the program and evaluation findings are being developed with Northern Health and Interior Health. In addition, the Team has submitted a proposal entitled "BC Cardiac Telehealth Program" that is being considered for implementation by PHSA. This will facilitate uptake of internet-based programs across the province.

#### Building awareness of Telehealth province-wide

The Team has made significant efforts to raise the profile of the Team and its work. These efforts have allowed dissemination of new knowledge, increased connections and collaboration opportunities, awareness among the public, and demonstration of Telehealth application. Key activities include:

- Targeted information packages to establish a presence and share information with groups of practitioners, researchers, and government.
- Website and newsletters to update a variety of organizations of the Team's activities.
- Promotion of key research projects to the public through media promotion.
- Workshops to demonstrate applications and network in the field. Workshops received sponsorship from health authorities and industry.
- Presentations to the Ministry of Health Services on activities and to collaborate on Telehealth initiatives.

## Rural & Northern Team

The Team's steering council consisting of researchers and decision-makers developed the strategy for identifying areas of research. The strategy included an environmental scan of current related research and then working closely with Team Members in the Research and Evaluation department, at Northern Health, to connect health service research needs and academic research interests.

Priority areas of research were identified in collaboration with Northern Health; the partnership is highlighted below. Much of it focused on nursing human resources issues such as: occupational stress; the role in primary healthcare in rural settings; manager and leader perspectives on recruitment support and retention; and interruptions in practice. Additional research looked at aboriginal rural access issues in telepsychiatry, group medical visits, and a comparison to access issues in urban settings. The majority of research was still in progress at the time of this report, but one study highlighted below, was able to start moving research to practice.

The Team also focused on raising the profile of rural health issues, particularly by participating in ongoing policy discussions with stakeholders and presenting research results to the Ministry of Health Services and the Chief Nursing Officers Council of BC. Health human resources in particular have become more integrated in government provincial planning.

The Team also developed a training program in rural acute care nursing, which is discussed further in the next section 'Building Capacity'.

A full listing of the ICU Team activities is given in Appendix F and highlights are presented below. A list of publications is provided in Appendix H.

### Highlights – Rural & Northern Team

#### Integration with Northern Health Research and Evaluation

The Team partnered with Northern Health in almost all aspects of their work. Concurrent to the Investigative Teams program, Northern Health had received a research capacity-building grant from MSFHR; therefore, Northern Health and the Team were able to work synergistically in developing a program of research in rural and remote health. Initially, the Team worked with the capacity-building staff on a strategy to identify research and evaluation needs and improve resources and processes that facilitate knowledge translation and exchange. Organizational changes are occurring on both sides that will make research more responsive to the realities and needs of the health authority and improve evidence-informed health services and practice. These changes also support long-term relationships between decision-makers, practitioners, and researchers. The IT program partnership mandate also promoted close connection with UNBC, where many of the Team's academic researchers are located. The Team was also able to leverage its relationships with Northern Health and UNBC to bring new researchers to northern BC.

#### Taking research to practice in the Working Relationship Study

Through Northern Health, public health nurses identified a desire to improve their practice. The Team researched effective practices in working with high priority families from both the family and nurse perspective. The results of this study, which highlighted the vital role of public health nurses in providing support and developing trusting relationships with families, are being used to re-conceptualize the basis of public health nurse practice within Northern Health. The study has prompted changes in practice such as supporting changes in electronic charting.

## Across Teams

Each Investigative Team had a unique strategy for achieving its goals and addressing the IT program objectives. The evaluation looked at approaches and challenges common to the Teams throughout the process of developing and conducting research, and encouraging the use of research to effect change and innovation in the health system.

### Determining priorities and conducting research

Teams conducted a significant amount of research. Across the Teams, different methods were used to determine research projects, but all were informed through collaboration between researchers and decision-makers. Lack of time and high decision-maker turnover were frequently seen as one of the greatest barriers for securing continuous decision-maker involvement.

Team Members were asked to assess the impact of their Team's work (Table 2). There was a difference in the responses between researchers and decision-makers in one area: researchers felt more strongly that new knowledge was created as a result of the Team's work than did the decision-makers. This difference of perception may reflect the fact that much of the research was still underway at the time of the survey, and progress or findings may not yet have been effectively communicated to decision-makers who were not involved in the daily research process.

### Using research through knowledge translation and exchange

Knowledge translation and exchange (KTE) was an integral part of all Team activities and was a continuous process. The Teams engaged in regular KTE activities with a range of audiences; information sharing was the main reason cited for establishing partnerships.

The common lessons learned from the Team Lead Reports suggest consideration of the following to improve KTE activities:

- Demonstrate the applicability of research findings to the health care system and frontline health care workers
- Evaluate the use of research findings by the recipients of the information (e.g. policy makers, frontline healthcare workers) and incorporate this knowledge into research plans
- Tailor the presentation of research results for specific audiences, in particular, the media and general public
- Select appropriate policy- and practice-relevant topics to sustain the interest of key audiences such as health care managers and policy makers

Respondents to the Team Member Survey indicated that the IT program enhanced knowledge translation and exchange in both directions: from research to practice and policy; and from health services issues to research. Studies of researcher and decision-maker partnerships contend that collaboration is most effective when continual knowledge exchange occurs between partners, so that

**Table 2 Team Member Survey: Taking research to practice**

What has happened or changed as a result of the Team's work?	Rank (1 = strongest impact)				
	ICU	Telehealth	Rural & Northern	Home & Community Care	Mental Health
<b>New knowledge has been created</b>	1	1	3	1	1 (tie)
<b>New knowledge has been translated or exchanged</b>	3	2	1	2	1 (tie)
<b>New knowledge has resulted in change to a program, practice, or policy</b>	2	3	2	3	3

*Survey respondents were asked to assess the impact of their Team's work by rating their agreement with each of the above impact statements. The mean response for each statement was used to rank the impacts.*

researchers see the value of contextualizing work and decision-makers see how this work can help them accomplish their purpose (Golden-Biddle et al 2003). As collaborations between researchers and decision-makers increase, knowledge translation and exchange strategies must increasingly incorporate active processes and interactive engagement.

Some areas of the research process do not require active decision-maker involvement. However, when decision-makers are involved in research planning, data collection, result interpretation and KTE, the research can be focused more around a targeted application. There is little available in the literature about the effectiveness of research evidence in influencing decision-making, and debate continues about which mechanisms are most effective to support the evidence-into-policy-practice pathway (Armstrong, 2007). Acquiring research evidence is only one component in decision-making processes (Speller et al, 2005). Making decisions informed by evidence requires identification of how evidence could best be used, consideration of the context for making change, and securing resources for application.

### **Improving health systems, policy and practice**

The greatest challenge for the Teams in applying research evidence to the health system was the timeframe of the IT program. Given the length of time to develop and implement research programs, it could be expected that measurable changes in the health system would not be seen within the program timeframe. However, some team activities demonstrated that Teams were able to move beyond generating and sharing new knowledge and were able to influence practice and policy.

#### **Impact of the Teams' Work (from the Team Member Survey)**

*"A number of new initiatives have occurred in health authorities as a result of the team research; at the same time, a number of new research proposals have developed because of questions raised by decision-makers."*

*"We have established ongoing working relationships with several researchers resulting in two new "funded" research/ practice collaborations"*

*"Greater involvement needed by decision-makers in the actual research as it moved from conceptual to practical to reporting phases."*

*"More progress (needed) in establishing new research projects. The work was somewhat preliminary under the circumstances (my decision-makers' impatience showing)."*

## **Building Capacity**

Research capacity-building is highly context-specific and can involve very different approaches depending on the participants and purpose. Different groups will have very different start and end points depending on their capacity needs. Each Team built capacity to provide support for their research and knowledge translation and exchange activities. The Teams implemented a variety of capacity-building activities based on their needs; these could be categorized under the following five themes:

- Developing skills
- Enhancing collaborations and partnerships
- Building awareness and supportive culture
- Building infrastructure and processes
- Enhancing leadership
- Leveraging funding

Team Members reported that the IT program enhanced team skills and individual learning. Partnerships formed through the program resulted in efficiencies in resource-sharing and in the implementation of research activities. Knowledge translation and exchange (KTE) activities raised awareness of research activities among health authorities and organizations, and among front line-workers. The IT program itself was frequently cited as a main capacity-builder, allowing the Teams to build infrastructure and processes. Teams worked to obtain executive 'buy-in' from partnering organizations at all levels (including nationally), enhancing their profile in the community and allowing them to participate as leaders in several processes external to the IT program.

Research capacity was also enhanced by direct funding; all Teams were able to leverage additional funding from a range of sources to support the work of the Team, whether for conducting research, supporting KTE, team building, or hosting events.

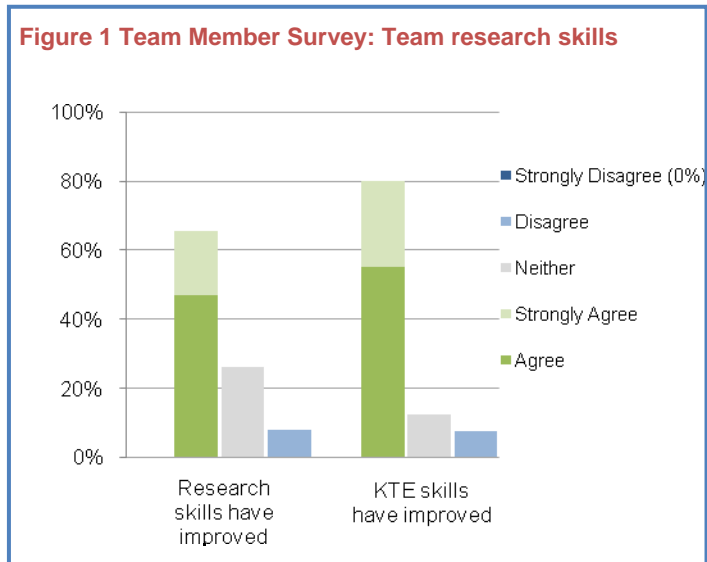
The following discussion details the capacity-building efforts and outcomes of the IT program.

### Developing skills

Team research skills increased due to the collaboration of members of varying knowledge and expertise and the engagement of external experts. The ICU and Rural & Northern Teams noted in particular that they recruited experts to assist in research protocol development and data interpretation.

Team skills in knowledge translation and exchange increased through the process of connecting researchers and decision-makers to identify research needs and then taking research to practice. Ongoing learning from the processes and strategies that worked best to facilitate knowledge exchange and ensure the relevancy and usefulness of research findings proved to be one of the main sources of increase in capacity.

Figure 1 summarizes the Team Member Survey results with regard to developing skills. Over 60% of respondents to the Team Member Survey felt that the Team’s research skills had improved, while 80% agreed that KTE skills had improved. There was no significant difference in the responses among Teams or between researchers and decision-makers.



Team Member Survey respondents were asked to state “the greatest benefit of being involved with the Team”. Twenty-four percent of respondents cited the learning opportunity and gave examples such as mentorship from senior members, gaining appreciation of the research process, learning from different experts on the topic, and gaining skill in mobilizing knowledge.

Students at various levels (undergrad, Master’s, PhD, post-doctoral fellow) were involved with every Team. They primarily participated in the research process, but also had opportunities to participate in forums or workshops hosted by the Teams. Across all Teams, there were 93 students involved.

The Rural & Northern Team focused on improving research and knowledge translation skills among students and registered nurses. In collaboration with researchers and practitioners, a research course was created and a specialized rural nursing curriculum was developed with guidance from the Chief Nursing Officers Council of BC. Together, these programs assisted nursing students to increase their knowledge and confidence in reflecting critically on practice and bringing evidence to practice decisions. One hundred ninety-four students have participated, and the impact on nurses and their practice is being evaluated.

### Enhancing collaborations and partnerships

The Teams brought together people within an area of interest from a variety of sectors and fields. This created a synergy through collaboration, contributed to eliminating duplication of effort, and helped build capacity. The Team Leads reported that partnerships were formed primarily with health authorities and hospitals. Some partnerships were formed with community-based organizations, inter-organizational committees, and networks. Few partnerships were reported with government; those that were reported were primarily formed to disseminate information and, in a couple of cases, to participate in working

groups such as the Geographical Information System (GIS) by Home & Community Care, or Critical Care by ICU.

The three main reasons cited for pursuing partnerships were:

- To share individual expertise and knowledge
- To share organizational information and/or resources
- To collaborate on the implementation of research activities

Sharing individual expertise improved the relevancy of research questions and the subsequent research protocols. Continued sharing over research projects improved the usefulness of the research results in practice. Engagement of partners throughout the research process provided the motivation to make best use of the research results. Partnerships with health authorities, hospitals, and community organizations motivated practitioners and decision-makers to engage in research and knowledge translation and to use research in practice and policy.

Teams were also able to capitalize on existing information and resources through their partnerships. This included involving organization staff or university students in research data collection, using existing data and databases, and taking advantage of research support infrastructure (for example, grant proposal assistance).

### **Building awareness and supportive culture**

Each Team worked to disseminate information and raise awareness among health authorities and health organizations of the Team's research and its usefulness.

Some Teams regularly involved front-line workers or community groups in research protocol development and data collection. In many cases, this involvement encouraged participants to follow through with the application of the research results and to take more interest in research opportunities. The ICU, Telehealth, and Rural & Northern Teams indicated that many of the hospital participants were involved in research for the very first time.

The Mental Health Team provided research training for service users to involve them in the research process and build confidence and agency. They also routinely participated in forums with the Centre for Research on Mental Health and Addictions at SFU that included front-line workers to discuss key issues. The Telehealth Team hosted a series of workshops with government organizations, health authorities, and other participants to learn about Telehealth application and related issues. The Home & Community Care Team held numerous forums and workshops to bring people together to share information and find opportunities for collaboration.

### **Building infrastructure and processes**

Perhaps the most important capacity-building area resulting from the IT program was creating, testing, and learning from a variety of processes and structures to facilitate the scope of the Team's work. The learning experiences of both researchers and decision-makers in creating an efficient and effective Team were invaluable for developing the capacity to work collaboratively on research and KTE activities.

The member survey responses strongly indicated that the IT program itself was one of the greatest capacity builders. The program funding was the only support available for the infrastructure needed to support a researcher/decision-maker collaboration to communicate, meet, work together, and resource common activities.

Many Teams created a variety of resources, particularly websites, to support either specific research areas or the Team overall in order to share information with stakeholders and the public. The Mental Health Team was able to take advantage of videoconferencing to bring the Team together.

The Rural & Northern Team recognized an opportunity to integrate with other research capacity-building occurring in Northern Health; the Team worked synergistically in developing a research program in rural and remote health, and realized efficiencies in building infrastructure through collaboration with Northern Health and with UNBC.

## Enhancing leadership

Strong leadership is important in building a supportive research culture. Several Team Leads reported that getting executive decision-makers to ‘buy-in’ and express their support for the Team had a catalytic effect on securing the participation of the rest of the organization; it also influenced other decision-makers. Even in areas of the research process where decision-makers were not involved, their expressed support afforded the research a level of legitimacy with other decision-makers and policymakers, and facilitated access to resources and information. For example, the ICU Team engaged the health authority Leadership Council, which prompted hospital ICUs to approach the ICU Team to get involved.

Teams also sought partnerships with national or other provincial organizations. By engaging on a national platform, Teams were in a position to lead provincial and local organizations in specific areas. For example, the Mental Health Team is participating in a national demonstration project on mental health and homelessness, and members of the Home and Community Care Team are engaged in a national dementia network.

## Leveraging

The IT program provided funds for infrastructure support and some seed funding, but Teams were required to find other sources of funding to support research projects. All Teams were able to leverage additional funding from a range of regional, provincial, national, and international sources to support the work of the Team, mostly for research projects but also for sponsorship of events and knowledge translation activities. Funding sources included the public sector (e.g. MOHS, health authorities), national agencies (e.g. CIHR), disease-specific charities, and private sector insurance companies. In-kind support was reported based on unsubstantiated estimates and consisted of contributions by the health authorities and MOHS of facilities (office space, equipment) or staff time.

Team leaders reported that the infrastructure and networking capacity created through the IT program award significantly influenced the success of funding applications for research projects and/or KTE activities. They also commented that the collaborative relationships and synergies built with decision-makers, ministry policy makers, and other researchers were valuable for obtaining funding.

Overall, the Teams received over \$15.3 million in non-IT program grants and \$165,000 in in-kind support (Table 3). Details of funding are provided in Appendix I.

**Table 3 Leveraging by Team**

	Grants	In-kind support	Sources of Funding
<b>ICU</b>	\$ 30,000	\$ Unknown	VCH
<b>Telehealth</b>	\$ 496,685	\$16,000 (facilities)	Heart & Stroke Foundation of Canada; Pfizer; VCH
<b>Rural &amp; Northern</b>	\$ 4,348,353	\$ 63,000 (facilities)	CIHR; CHSRF; Australian Research Council; NHA; MOHS; Network award
<b>Home &amp; Community Care</b>	\$ 1,812,701	\$ 46,000 (facilities, staff time)	CIHR; SHRC; CPSI; Tapestry Foundation
<b>Mental Health</b>	\$ 8,690,348	\$ 40,000 (staff time)	CIHR; VCH; PHSA; Mental Health Commission of Canada; Great West Life; Blue Cross; BC Mental Health & Addiction Research Network; WorkSafe BC

*In-kind support an estimate only*

# PART 3 Evaluation Conclusions

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This section examines the findings of Part 2 in terms of the Investigative Team program objectives. The challenges and successes of the Teams and the IT program overall are assessed and an analysis of lessons learned for future program development also is presented.

The following discussion details the results of the evaluation with respect to the three key questions:

- Did the Teams achieve their goals?
- Did the IT program achieve its goals?
- Was the IT structure a good mechanism?

Three Teams achieved the full scope of the program's goals and met or exceeded their team research, capacity building, and KTE goals including influencing policy or practice changes. Two Teams met most of the program goals by completing some of their objectives. Four of the Teams will continue the work begun under the IT program with other funding sources. The IT program overall achieved its goals of increased relevant research, increased integration between researchers and decision-makers, and improved KTE and research capacity. All Team Members who responded to the survey felt that the IT structure was a good mechanism for conducting health services research in priority areas.

Three main opportunities for future programs were identified as a result of this evaluation. These were in the following areas:

- Integration of researchers and decision-makers
- Team development and structure
- Applying research to practice – long term objectives

## Did the Teams Achieve their Goals?

Although the mission and goals of all the Teams met the program's objectives, each Team took a different approach to achieving them. Some Teams focused primarily on a research agenda that would develop evidence to address policy relevant questions, while others placed their main emphasis on capacity-building or knowledge exchange activities that could help inform the development of relevant research questions and the use of evidence in practice. Development plans ranged from a small number of clearly-defined research projects and dissemination activities to ambitious and complex research agendas involving a wide range of stakeholders.

The Teams were required to ensure that research questions and activities demonstrated relevancy and applicability to the health system, but given the relatively short timeframe were not expected to ensure that research evidence was implemented in practice; however, some Teams included implementation of health system changes as long-term goals.

Three Teams achieved the full scope of the program's goals and met or exceeded their team research, capacity building and KTE goals, including influencing policy or practice changes. Two Teams met most of the program goals by completing some of their objectives.

The most common challenges for the Teams in accomplishing planned activities were: the turnover of MOHS and health authority staff; and the extensive time required in developing protocols and setting up the research projects, which also consisted of applying for multiple research ethics approvals. Both of these challenges resulted in time delays for research and related activities. A summary of the projects and activities completed by each Team is given in Appendix F.

The majority of Team Member Survey respondents across all Teams agreed that their Team was effective in achieving its goals. The ICU Team and Rural & Northern Team Members felt the most strongly that their Teams had achieved their goals.

Each Team's successes and challenges in the achievement of its goals are discussed below. A summary of each Team's path forward is given at the end of the section.

## **ICU Team**

The goals of the ICU Team were to discover new knowledge about improving patient safety in the intensive care unit through observational and interventional studies, translate this knowledge into practice, evaluate these changes in practice, and generalize effective practices to other acute and community care areas.

The Team was successful in completing research projects in four of the five areas in their original proposal, and in achieving the key objectives of identifying priority areas of research common to patient care at ICUs across the province and promoting the ICU database to improve related research. The results of a study on nursing work schedules and their impact on patient safety, using research findings from the ICU database, stimulated interest from several ICUs and enabled the recruitment of new participants to expand the research, bringing to fourteen the total number of hospital ICUs involved in the project.

The Team has begun to realize the translation of new knowledge into practice; through publications and presentations, the Team has raised awareness of the value of measuring patient safety for quality improvement in the ICU (publications of all teams are listed in Appendix H).

As a result of delays related to lengthy approval processes within each hospital, the Team has not yet achieved its goals of implementing and evaluating changes in practice, and generalizing effective practices to other settings; however, it has built a strong foundation of research evidence that will enable it to move forward in addressing these goals.

## **Mental Health Team**

The Mental Health Team aimed to create applicable new knowledge addressing the transformation and improvement of mental health and addictions services and policies in Canada. Initiatives were planned in three broad theme areas: integrating the network of primary and specialist services and supports for mental health and addictions, improving understanding of current practices and outcomes, and extending the system to include community and family supports.

The Team exceeded its goals! In addition to conducting and disseminating research in all three priority theme areas, the Team applied research to practice and provided evidence that influenced health services policy in the mental health field. For example, the Supported Self Management module for treatment of depression is now an important component of the BC Ministry of Health Services' package of incentives, and supports designed to advance the quality of primary mental healthcare in the province. A growing number of family physicians in BC use it and health agencies in other provinces are interested in applying it. A module was also developed for the workplace and is gaining popularity among employers across the country.

As a result of its expertise, the Team is leading the development of a national peer research network on mental health and addiction. The significant amount of funding the Team was able to leverage is an indication of the pre-eminence of the group and its leadership in the field of mental health and addictions services.

## **Home & Community Care Team**

The primary goal of the Home & Community Care Team was to create a sustained collaboration among decision-makers, knowledge brokers, and researchers across health authorities in BC to support

ongoing measurement and evaluation of transitions in home and community care services for seniors. To achieve this goal, the Team aimed to develop capacity within the home and community care sector, evaluate transitions on seniors' health outcomes, and enhance the ability of stakeholders in the sector to conduct health system research and use the findings to support effective evidence-based decisions to improve seniors' health outcomes.

The Team engaged in substantial knowledge translation and dissemination activities that contributed to meeting its goal of creating collaboration among provincial stakeholders within the home and community care sector. By presenting research evidence to researchers, healthcare managers, ministry policy makers and community stakeholders, the Team was able to identify priorities and gaps in the sector and develop research projects to address them. Research studies and dissemination activities were conducted in all areas of research originally identified as priorities – assisted living, dementia, and seniors at risk. In specific areas such as assisted living, the Team assisted health authorities and the Ministry of Health Services in evaluating system changes and program outcomes.

Due to changes in health authority and ministry participation in the project, the Team was unable to complete planned work on benchmarking transition indicators, including the evaluation of their effects on seniors' health outcomes and the work life of service providers.

Overall, the Team was successful in meeting its primary objective of increasing research capacity within the home and community care sector and providing effective knowledge translation and exchange opportunities for stakeholders.

## **Telehealth Team**

The goals of the Telehealth Team were to enhance health service provision for the prevention and treatment of cardiovascular disease through the creation of innovative telehealth solutions, build capacity in telehealth services, enhance the continuum of care among primary and secondary care providers, and increase the scope of telehealth services.

The Team was successful in meeting its goals. It has enhanced care services for cardiovascular patients through the development and implementation of virtual programs for cardiac rehabilitation and heart function. Research findings have informed an evaluation of internet-based cardiac services (in progress), and led to the development of a custom heart rate monitor for patients in the study.

As a result of their involvement in the project, two rural health authorities are considering implementing internet-based cardiovascular disease management programs and PHSA is initiating a province-wide program to facilitate uptake of two internet platforms developed by the Team – the Virtual Cardiac Rehabilitation Program and the Virtual Heart Function Clinic.

The Team achieved its final objective by engaging cardiologists and practitioners in creating a model for service provision between primary care physicians and cardiologists for investigation and management of cardiovascular disease, a project sponsored by the Ministry of Health Services.

As a result of its activities, the BC Alliance on Telehealth Policy and Research is now considered a provincial leader in telehealth for chronic disease management. The expansion of the Team's membership to include representation from all six health authorities is a reflection of this recognition.

## **Rural & Northern Practice Team**

The goal of the Rural & Northern Team was to build research knowledge that contributes to the advancement of rural and northern health care practice by developing a supportive infrastructure to enable the UNBC and Northern Health, along with other partners, to undertake relevant research and knowledge exchange activities related to professional practice in rural and northern settings.

The Team was successful in meeting its goals, even though its mission was very broad. Members have worked closely with the Northern Health capacity-building initiative to identify research needs and develop research strategies. In addition, they have evaluated existing initiatives for their influence on health planning of care services and have conducted research studies on priority issues. A major

accomplishment has been the Team's involvement in building capacity for nursing research and knowledge translation through involvement in the province-wide curriculum developed for nurses in rural acute care.

The Team has an ongoing process of sharing research results with practitioners and program managers, which has led to studies on the potential of applying research to practice. In addition, the Team presented evidence and identified issues in rural health human resources to the BC Ministry of Health Services that are now being included in provincial planning.

The Team has achieved its key goal of supporting and intensifying the long-term partnership between UNBC and Northern Health through the provision of structures and processes to enable and encourage collaboration between researchers and decision-makers. As a result of this collaboration, a synergy of actions and long-term relationships is developing between decision-makers and practitioners that will advance health services and health professional practice.

## **Moving forward**

All Teams reported that some work would continue after the IT program ends on March 31, 2010. Four of the teams have between one and five projects in progress that will not be completed until after the end of the program term. All of these projects are supported by funding from other sources.

Four of the Teams plan to continue to conduct research as a Team, submit funding applications and publications, share information, and undertake other knowledge translation and exchange activities. Most of these activities will be contingent on obtaining funding from other sources. Team Leads reported that although they have applied, or plan to apply, to other sources of funding, team activities and integration between researchers and decision makers will most likely diminish without further support for their collaborative infrastructure. The Mental Health Team Leader reported that while some members of the Team plan to continue to work together, they are likely to form into discrete groups with specific research and policy foci.

The Team Leaders were asked to assess the impact of current and completed research within the next five years. They anticipated that their research results would contribute to knowledge generation and new or improved healthcare practice. The Telehealth, Mental Health and Rural & Northern Practice Teams expect their work will create or change programs and result in direct cost savings in the health system.

## **Did the IT Program Achieve its Goals?**

The primary goal of the IT program was for the Teams to create new knowledge in health services and policy research that is relevant to application in practice and policy. To achieve this, the Teams were required to integrate researchers and decision-makers, which in turn required supportive knowledge translation and exchange and capacity building activities. Three areas were assessed:

- Increased relevant research in priority areas
- Increased integration between researchers and decision-makers
- Improved knowledge translation and exchange and increased capacity

The IT program was successful in achieving its goals in all three areas, with new knowledge creation being cited by survey respondents as the strongest area of impact. Details of the assessment in the three areas are given below.

### **Increased relevant research in priority areas**

Team Members who responded to the survey strongly agreed that new knowledge creation was the greatest area of impact of their effort. Table 4 summarizes the Team Member Survey responses on

overall team impact. All of the HSPRSN's priority areas and cross-cutting themes were addressed, not however, in a discrete way as was originally envisioned. Most of the Teams touched on more than one priority area in their work. The areas were also very broad and teams were allowed the flexibility to hone their activities to the needs identified by the researcher and decision-maker collaboration.

### Increased integration between researchers and decision-makers

Overall, the program was highly successful in increasing integration and collaboration of researchers and decision-makers. The Team Leads identified the requirement for researchers and decision-makers to collaborate as the greatest strength of the Investigative Teams program. This was also supported through the Team Member Survey. At the start of the program, such collaboration was very limited or even non-existent. Value was realized through increasing receptiveness of researchers to engage in knowledge translation and exchange and increased understanding among decision-makers of the research process. There were numerous examples, as illustrated in the Team highlights (see section 'Linking Research with Practice and Policy' on page 8) of achievements that were facilitated by the researcher and decision-maker collaboration. Hopefully, this positive reflection will nurture a cultural shift in how researchers and decision-makers work with each other in the future.

*Although collaborations and partnered research were taking place between individuals at UNBC and NH, as a result of the Team, award structures and processes were put into place to enable collaboration. Through the process of jointly working on knowledge creation and translation, organizational changes are happening in both institutions that will improve health services and health professional practice. Martha MacLeod, Rural & Northern Team Lead*

### Improved knowledge translation and exchange and increased capacity

Identifying research needs and disseminating results alone cannot lead directly to changes and improvements to practice and policy. Decision-making processes also require the collation of evidence and consideration of application context. Effective knowledge translation and exchange and underlying capacity are essential in taking research to practice. Over the course of the program, all Teams started to develop the supporting processes and structures needed to allow researchers and decision-makers to cooperate effectively.

The IT program greatly increased the capacity to undertake, exchange, and apply research. Program funding provided the required resources to develop infrastructure for the Team Members to come together in a way that would not have occurred otherwise.

**Table 4 Team Member Survey: Team impacts**

Across all Teams, what has happened or changed as a result of the Teams' work?

Rank (1 = strongest impact)	Impact
1	New knowledge has been created
2	New and positive relationships have developed between researchers and decision-makers
3 (tie)	Capacity for health service research has increased
3 (tie)	Knowledge translation and exchange skills of the Team have improved
3 (tie)	New knowledge has been translated or exchanged
6	Support for research collaboration has increased among Team members
7	Research skills of the Team have improved
8	New knowledge has resulted in change to a program, practice, or policy.

*Survey respondents were asked to assess the impact of their Team's work by rating their agreement with each of the above impact statements. The mean response for each statement was used to rank the impacts.*

## Was the Investigative Team Structure a Good Mechanism?

The IT program structure was created as a mechanism for conducting relevant health policy research and moving it forward into policy and practice. The program was unique compared to other research team programs because it mandated the collaboration of researchers and decision-makers throughout the process. The program provided funding to develop and maintain the structure to support team communications, administration, and meetings that allowed this collaboration to take place. It supported provincial coordination of people and resources, resulting in:

- improved research through coordination
- better reach across geographical areas and into communities
- improved ability to leverage grants
- increased overall reputation of the work being conducted

Team Members unanimously stated that the IT program structure was a good mechanism for conducting health services research in priority areas. They consistently rated overall team functioning high. Team communication and participation strategies were identified as areas for improvement. The IT program structure was effective in overcoming many of the commonly-documented barriers to evidence uptake by decision-makers. The following details findings of the evaluation on the overall IT program structure.

### Overall program assessment by team members

Team Members were asked in the survey whether they felt that the IT structure was a good mechanism for conducting health services research in a priority area: 100% answered yes. Respondent comments highlighted four main reasons:

- The IT program itself increased capacity for health system relevant research: it provided a means for Teams to meet, work together, and resource common activities.
- The required mix of researchers and decision-makers brought together participants from different sectors and disciplines.
- Synergy was created through cooperative action moving toward a common goal.
- Knowledge translation and exchange was enhanced in both directions: from research to practice and policy, and from health services issues to research.

The Teams experienced these benefits differently. The Telehealth Team emphasized the increase in knowledge translation and exchange. The Rural & Northern and Mental Health Teams emphasized the synergy created. The ICU Team commented strongly on the mix of researchers and decision-makers. The Home & Community Care Team Members' responses were not dominant in any particular area.

Team Members believed that the greatest personal benefits from participation were the learning experiences and the relationships built among themselves and with external researchers and/or policy makers. In addition, there were many opportunities for Teams to connect with other work being supported by MSFHR, such as the HSPRSN-funded Health Authority Research Capacity Building program and the MSFHR-funded Health of Population Networks.

#### Benefits of the IT Program (From the Team member survey)

*"The role of research and new knowledge creation is now part of our strategic vision as a service delivery organization."*

*"Has improved lines of communication between health authorities, practitioners, and academic researchers."*

*"This was a very well functioning team, with good collaboration, good academic output, and good impact on decision makers. Decision makers learned to direct and utilize research more effectively; researchers learned to link research to questions arising in the real world."*

*"While any initiative can be improved (and indeed there were learning experiences for all participants), the concept and execution of the activity was sound and productive."*

### Assessment of team functioning by team members

The Teams overcame several challenges early on to ensure fair and appropriate involvement of their members and to operate effectively. Overall, Team Members consistently rated Team functioning fairly high (4.0 on a scale of 1 to 5, with 1 indicating 'poor' and 5 'excellent'). Seven aspects of team functioning were assessed (Table 5).

The mean rating across all aspects ranged from 3.8 to 4.2. Across all Teams, organizational support was rated as the strongest aspect of team functioning. Progress monitoring of team research and objectives and team communication were thought to have the most room for improvement.

### Assessment of areas for improvement by team members

Survey respondents were asked to comment on where they thought their Team could improve. The most frequent suggestions for improvement were:

- Conduct more KTE within and outside of the Team. Examples provided include newsletters of achievements, a central repository of information related to the Team's area, and more presentations.
- Find effective strategies to facilitate participation of all members; many noted that many decision-makers became less involved over time.
- Create better cohesion of the whole team through regular meetings to share knowledge and ideas and improve communication on team activities.
- Communicate more effectively within the Team on progress and results.

These responses relate primarily to improving team communication, with particular focus on ensuring that members are kept up to date on the progress of research and activities. Decision-makers strongly emphasized the need for strategies to facilitate participation (43% of decision-maker responses). This was no surprise, as the engagement of decision-makers frequently emerged as a challenge of team functioning. Researchers pointed to the need for improved team cohesion (30%), which may be related to the challenge of decision-maker engagement.

### Overcoming barriers to evidence uptake

There are many well-documented barriers to the uptake of evidence by health system decision-makers (Choi et al, 2005; Innvaer et al, 2002; Moseley & Tierney, 2005; Petticrew et al, 2004). The unique approach of the IT program in integrating researchers and decision-makers proved to be a mechanism that overcame many of these barriers (Table 6, next page). The ability to overcome barriers was often a function of the Team's structure of researcher and decision-maker integration. A greater integration of decision-makers throughout the research process reflected a smaller number of barriers reported by the Team Leads and Members. There were two persisting barriers across all Teams: limited time of decision-makers to dedicate to the Team; and frequent turnover of decision-makers on the Team, typically a direct result of changes within the decision-makers' organizations.

**Table 5 Team Member Survey: Team functioning**

Across all Team, the strongest and weakest areas of Team functioning

Rank (1 = strongest area)	Item
1	Organizational support for Team participation
2	Team leadership (by Team Leads)
3	Managing conflict, balancing needs and interests
4 (tie)	Team governance structure
4 (tie)	Use of communication technology
6	Team communication
7	Progress monitoring of Team research and objectives

**Table 6 Overcoming barriers to evidence uptake**

Barrier	IT Program Advantage
Lack of contact between researchers and policymakers	Overcoming this barrier was a main goal of the program. Contact and dialogue were significantly increased through team participation.
Lack of timeliness and relevancy of research	One of the program's main goals was to ensure research and decision-makers work together to develop priority areas of research that are relevant to the current needs of the health system. Research does take time, however, many of the Teams' research projects spanned two or three years after initial planning. The timeframe of the program did not allow analysis of whether the research was able to influence health services in a timely manner.
Mistrust between researchers and policymakers	Although no information was collected about this barrier through the evaluation, it is expected that increased contact between researchers and decision-makers, development of long-term relationships, and each side having equal stake in the team activities will increase trust.
Resource limitations – costs	IT program funding provided for team development and operation. Funds were also used in some cases to support research or activities, while additional funding was leveraged by all Teams. The costs involved in applying research evidence to practice are unknown; the program timeframe was not long enough to move to this stage of application.
Resource limitations – time	This was one of the greatest barriers reported for decision-maker involvement in the Teams. In many cases, participation on the Team was taken on as additional work beyond the decision-makers' job responsibilities. The program was not able to overcome this barrier and in the future, ways to support dedicated time from decision-makers should be taken into account.
Poor quality research	Teams were able to involve leading researchers and field experts in planning and conducting research. Teams engaged in a significant amount of knowledge translation and exchange to assist policymakers in understanding the use of research evidence. Further evaluation could be conducted to understand the impact of the research.
High turnover of policymakers	This was a significant barrier across Teams. The program was not able to overcome this barrier, and in the future, additional strategies should be developed to support continuity of participation from policymakers in government.

**Additional comments by team members**

There were 18 comments from the Team Member Survey respondents on the IT program overall. These could be grouped into the following four categories:

- Capacity building requires long-term commitment. At a minimum, supports for team communication, administration, and relationship-building must be maintained. Without these, connections may weaken and health service researchers may be discouraged.
- More time should be dedicated to early development of the team structure and relationships (particularly between researchers and decision-makers) so that all parties will have a better upfront understanding of each others' needs before planning activities. This would also clarify the roles and authority for decisions among Team Members.
- Evaluation of the program should start at the beginning of the program to allow continuous improvement of team functioning and effectiveness. This could include the sharing of information among Teams, where appropriate.
- The Team Lead must be supported to be responsible for monitoring the Team process and outcomes. This may include ensuring that there is the time and support needed for the Lead to be dedicated to leadership.

## Lessons Learned from the Investigative Teams Program

At the time it was created, the Investigative Teams program was unique in that it required researchers and decision-makers to collaborate to create new knowledge relevant to health services practice and policy. No other support was available in the province to develop and maintain the infrastructure needed for such collaboration. The IT program funding was essential to the success of the Teams. The results of evaluation suggest three main lessons learned from the IT program:

### 1. Integration of researchers and decision-makers

This collaboration was the most successful aspect of the program, but also the most challenging.

- Declining decision-maker participation and ongoing turnover were persistent challenges.
- Due to staff turnover and clinical demands taking precedence over other activities, gaining organizational commitment (at the executive level) may be necessary to ensure continuity in decision maker involvement on research teams. Often, the decision-makers were unable to dedicate time to team activities due to competing organizational interests.
- A formal expression of support from senior leaders for organizational involvement would guide this commitment. It could involve recognition of the engagement and participation of appropriate staff positions and effort to ensure ongoing support during times of organizational change. It could also identify strategies to support member (particularly decision-maker) participation.

### 2. Team development and structure

Early development of the Team structure and relationships, particularly between researchers and decision-makers is very important.

- Roles and expectations of participation should be clearly defined so that all parties will have a better initial understanding of each others' needs before planning activities.
- The roles and authority for decisions among Team Members must be clear.
- Researchers and decision-makers need a shared vision and an equal stake in the Team processes and outcomes to feel that they are making a useful contribution and to find value in participation.
- The program should recognize the variety of decision-maker perspectives (e.g. senior executive, manager, practitioner) so the Teams can develop an understanding of how organizational roles impact contribution to the Team.
- Internal team communication on progress and activities can be improved. More upfront team development could allow for a more comprehensive communications plan.

### 3. Applying research to practice – long term objectives

It takes a time to conduct research and even longer to effect change in the health system. A phased approach for future programs may be warranted, particularly if evidence of the impact of research on health serves and policy decisions is required.

- Following selection of team for funding, an initial stage would provide funding for team development and refinement of a research agenda.
- The second stage would involve conducting the research, developing capacity, and implementing KTE activities.
- The final stage could provide continued support for those Teams that demonstrate that their research has influenced or has the potential to directly influence practice and policy in the health system.

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# Appendices

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For all appendices, please see accompanying document.



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Researchers Working Together**

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