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Information Management and Technology

March 2007

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This report is one in a series of five syntheses of PHCTF initiative results addressing the following topics: *Chronic Disease Prevention and Management*, *Collaborative Care*, *Evaluation and Evidence* and *Information Management and Technology*. The fifth report is an overall analysis on the role and impact of the PHCTF in primary health care renewal entitled *Laying the Groundwork for Culture Change: The Legacy of the Primary Health Care Transition Fund*. All are available electronically on the PHCTF website (**www.healthcanada.gc.ca/phctf**), which also contains information on individual PHCTF initiatives.



Preface

When Canadians need health care, most often they turn to primary health care (PHC) services.¹ PHC is the first point of contact with the health care system, and traditionally has focused on the role of family physicians. In the past, Canadians visited their family physicians when in need of health care and their physician either provided services directly or, if more specialized care was required, coordinated patients' needs with specialists, hospitalized-based services, or other parts of the health care system.

This episodic, responsive model has served Canadians well, particularly in the context of a relatively young population and prevalence of acute care needs. However, in recent years, several circumstances have given rise to concerns about the ability of this model to meet the changing needs of Canadians. The population is aging, rates of chronic disease are rising, and the health care system needs to respond to these changing circumstances.

For example, prevention and management of chronic disease to avoid or delay costly complications requires a broad skill set, a proactive approach to care delivery, and a patient-centred approach (including active involvement of the patient in his or her own care). Faced with growing numbers of patients with these complex needs and shortages of family physicians in some areas, many family physicians have expressed concerns regarding their working conditions, including long hours and impacts on their own health and family life. These circumstances point to the advantages of a team-based approach to care, with various health care professionals working together to help the patient maintain and improve his or her health. For example, a nurse practitioner might undertake routine monitoring of a diabetic patient, with advice from a dietitian, and involve the physician when more specialized expertise is required.

There is a growing consensus that PHC professionals working as partners in this team approach will result in better health outcomes, improved access to services, improved use of resources, and greater satisfaction for both patients and providers.² Such teams are better positioned to focus on health promotion and improve the management of chronic diseases. A team approach can improve access to after-hours services, reducing the need for emergency room visits. Information technology can support communication among providers, as well as provide support for quality improvement programs (e.g., clinical practice guidelines for chronic disease management). In these ways, all aspects of personal care are brought together in a coordinated way.

Accordingly, in September 2000, Canada's First Ministers agreed that improvements to PHC were crucial to the modernization of the health care system. As part of their 2000 Health Accord, they agreed to work together, and in concert with health professionals, to improve PHC and its linkages with other parts of the health care system.

The Primary Health Care Transition Fund

To support this commitment, the federal government announced the creation of the Primary Health Care Transition Fund (PHCTF). From 2000 to 2006, the PHCTF provided \$800 million to provinces, territories and health care system stakeholders, to accelerate the development and implementation of new models of PHC delivery. Specifically, it provided support for the transitional costs of making the shift to new models of PHC delivery (e.g., new curricula for team-based training, or information systems to support team-based care).³ Although the PHCTF itself was time-limited, the changes it supported were intended to have a lasting impact on the health care system.

¹ Any publication that addresses "primary care" or "primary health care" faces definitional issues. While the two terms are sometimes used interchangeably, some authors draw a distinction between them. However, there is little consensus on this distinction. Generally, the term "primary care" is more limited, and focuses on traditional physician-based medical services, while "primary health care" is broader, including primary care but also extending to other health care providers, and sometimes beyond the health care sector to include other determinants of health such as housing or education. This footnote is intended only to draw attention to the fact of these definitional issues, and not to attempt to resolve them. The issue is addressed within this report to the extent that it was considered relevant by its author.

² As PHC services are responsive to the needs of the communities that they serve, the composition of teams will vary; there is no "one-size-fits-all" model.

³ The PHCTF was preceded by the federal Health Transition Fund (1997–2001), but was distinct from it in several respects. While the Health Transition Fund had four priority areas (including PHC), the PHCTF was exclusively focused on PHC. The Health Transition Fund's mandate was to fund pilot and evaluation projects to generate evidence regarding health care system reform, while the PHCTF was intended to support substantive, sustainable change.

While the PHCTF was a federally funded program, all provincial/territorial governments agreed to its objectives:

- increase the proportion of the population with access to PHC organizations which are accountable for the planned provision of comprehensive services to a defined population;
- increase the emphasis on health promotion, disease and injury prevention, and chronic disease management;
- expand 24/7 access to essential services;
- establish multidisciplinary teams, so that the most appropriate care is provided by the most appropriate provider; and
- facilitate coordination with other health services (such as specialists and hospitals).

All initiatives funded under the PHCTF were required to address at least one of these objectives.

To create opportunities at various levels and to encourage a collaborative approach, PHCTF funding was available through five funding envelopes. First and foremost, the *Provincial-Territorial Envelope* provided funding directly to provincial/territorial governments to support their efforts to broaden and accelerate PHC renewal. This envelope accounted for approximately 75 per cent of PHCTF funding, and was allocated primarily on a per capita basis. Initiatives reflected the priorities and unique circumstances of each jurisdiction, as well as PHCTF objectives.

The remaining 25 per cent of funds was divided among four pan-Canadian envelopes which were intended to encourage collaborative approaches and to address unique population needs.

- The *Multi-Jurisdictional Envelope* (5 initiatives) enabled two or more provincial/territorial governments to collaborate on common initiatives.
- The *National Envelope* (37 initiatives) was open to provinces, territories and health care system stakeholders, and supported collaborative initiatives that addressed common barriers and sought to create the necessary conditions on a national level to advance PHC renewal.
- The *Aboriginal Envelope* (10 initiatives) responded to the needs of Aboriginal communities for high-quality, integrated PHC services.
- The *Official Languages Minority Communities Envelope* (3 initiatives) responded to the unique PHC needs of francophone minority communities outside Quebec and the anglophone minority community within Quebec.

The Role of Knowledge Transfer

PHC renewal requires fundamental changes to the organization and delivery of health care services. It is a long-term undertaking that began before the PHCTF was created and will continue beyond it. Knowledge development is a key component of this process, for although PHC renewal has yielded some impressive results to date, its evidence base remains relatively modest. Therefore, dissemination of the results of PHCTF initiatives was a key element of the PHCTF. To this end, PHCTF dissemination included: the preparation of summaries and fact sheets for individual PHCTF initiatives consolidated in one report, commissioning of synthesis reports, development of a comprehensive website, and holding a national conference in February 2007. In addition to dissemination activities organized by Health Canada, individual initiatives were responsible for disseminating their initiative-specific results.

The production of a series of “synthesis reports” was a key element of this dissemination strategy. To maximize the usefulness of this material for target audiences (including health care system stakeholders, health care providers and researchers), and to identify common trends or key “lessons learned” arising from the initiatives, experts in health system issues were engaged to prepare a series of synthesis reports. The topics of the reports reflect prominent areas of focus within the PHCTF initiatives:

- *Collaborative Care* (Vernon Curran, Director, Academic Research and Development, Memorial University);
- *Chronic Disease Prevention and Management* (Peter Sargious, Medical Leader, Chronic Disease Management, Calgary Health Region);
- *Information Management and Technology* (Denis Protti, Professor, University of Victoria); and

- *Evaluation and Evidence* (June Bergman, Assistant Professor, University of Calgary).

In addition, an “overall” report by Sheila Weatherill, President and Chief Executive Officer, Capital Health (Edmonton), entitled *Laying the Groundwork for Culture Change: The Legacy of the Primary Health Care Transition Fund* examines the legacy of the PHCTF as a whole, and identifies trends across the entire body of PHCTF initiatives.

A Legacy for Change

The PHCTF was never intended to “do it all” and, indeed, the years since its creation have seen a continued emphasis on PHC renewal. Numerous health care system studies at national (Romanow, Kirby) and provincial levels have consistently emphasized the critical role of PHC renewal in health care system reform. Two more First Ministers’ Accords (2003 and 2004) have reiterated this emphasis. The Health Council of Canada, which was created following the 2003 Accord to monitor progress in health care renewal, has repeatedly emphasized the critical role of PHC, stating that “Canada’s future health system is dependent upon the modernization of primary health care ...”⁴

Although individual PHCTF initiatives ended in 2006, individually and collectively they have helped to build the foundation for further improvements to PHC in Canada. This report reflects, and is intended to provide insight into, this context of ongoing change and reform.

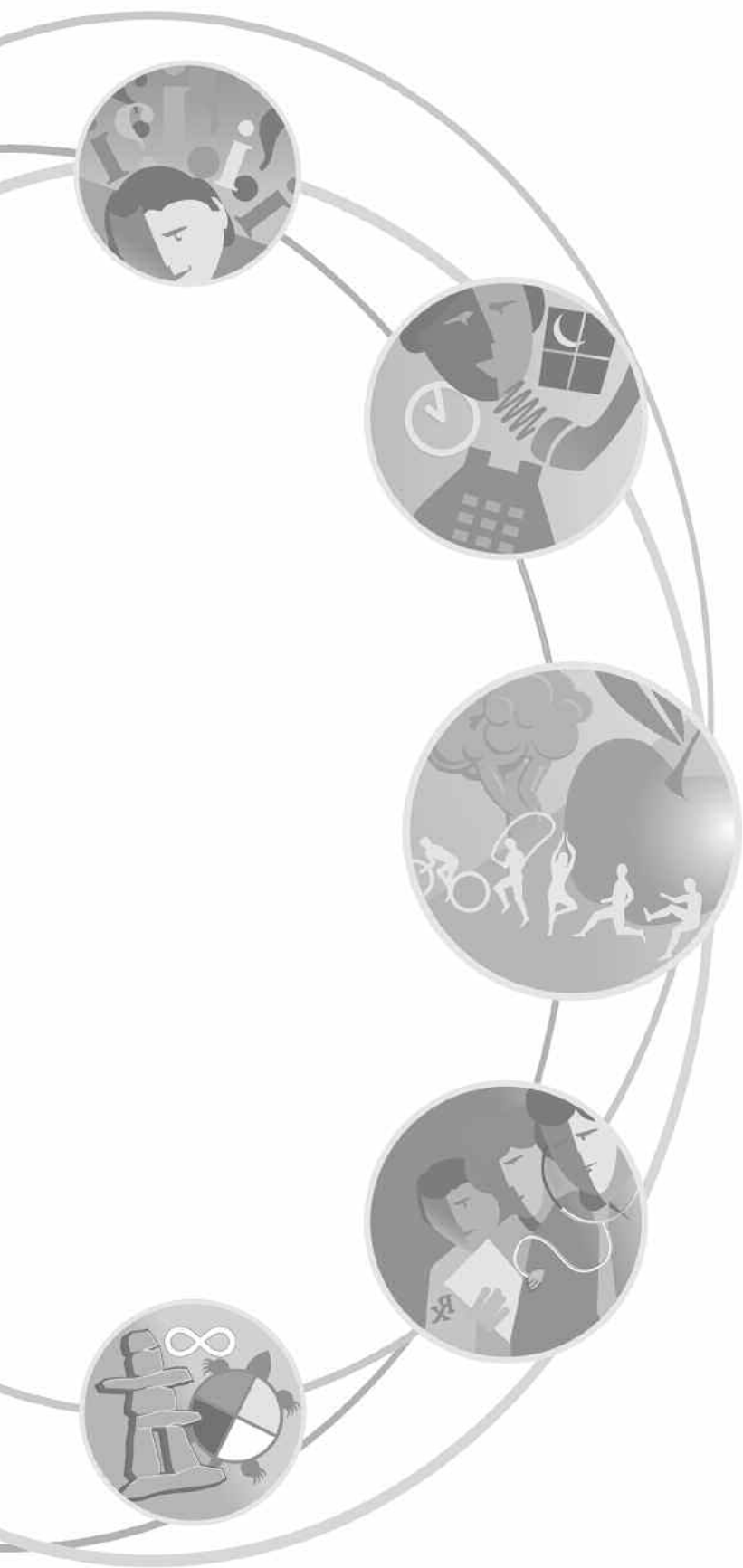
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⁴ Health Council of Canada, *Health Care Renewal in Canada: Accelerating Change*, (January 2005), p. 48.



Executive Summary

The fundamental objectives of primary health care (PHC) reform are to ensure continuity and coordination of patient care and to facilitate interdisciplinary health care teams. To meet these objectives, the availability of relevant health information to support quality decision-making across multiple health care settings and multiple health care providers is essential. Information management and technology (IM&T) is acknowledged to be a key enabler in reforming primary health care. One facet of IM&T, namely telehealth, has the potential to support more equitable access to primary health care and other services for rural and remote patients. Having access to technological communication supports, such as e-mail and telehealth perhaps involving satellite technology, means that health professionals and administrators can collaborate more easily and access accurate and up-to-date information when they need it. The result of their collaboration is improved access to care and more effective services for patients and clients and the communities in which they live. Retrospective analysis (secondary uses) of data collected by clinical information systems can support quality improvement, performance management and PHC service planning to meet the needs of populations.

There is increasing evidence in the scientific literature that IM&T has improved PHC in the areas of medical records, communication between physicians and patients, information sharing among health care providers and rapid access to reliable information for both physicians and patients. However, a recent Commonwealth Fund study revealed that 41 per cent of Canadian primary care physicians surveyed reported that a patient's medical record and clinical information was often or sometimes not available at the time of the scheduled visit. The same study reported that only 23 per cent of Canadian primary care physicians had electronic medical record (EMR) systems—in contrast to 98 per cent in the Netherlands, 92 per cent in New Zealand and 89 per cent in the United Kingdom.

EMRs offer a wealth of possibilities. Once a patient's history, diagnosis, allergies, medications and test results are in an electronic format, authorized health practitioners could have immediate access to this potentially lifesaving

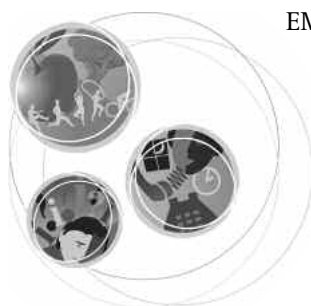
information should the patient be in their care. On-call or locum physicians could use their home computers to find all needed information about the patient, avoiding a trip to the hospital or clinic for them and possibly the patient. The ease of a referral process using pre-established templates populated by the EMR eliminates chart pulls, searching for the last lab results and reading the chart to create the referral history.

Some of the PHCTF initiatives chose to use IM&T, to greater and lesser degrees, to achieve their objectives. The use of IM&T to support PHC reform can be broken into two broad areas of application:

- **Service delivery and infrastructure support to facilitate team-based care**—particularly as it applies to chronic disease management, team-based communications and satisfying the information needs of clinicians and patients. A number of initiatives demonstrated an impact on this area.
- **Evaluation (secondary use of data)**—particularly as it applies to the collection of data for retrospective data analysis to support program delivery and quality improvement.

Most of the initiatives with an EMR component had one (or more) of the following objectives:

- Facilitate interdisciplinary communication by providing IT systems to support communication and integration among PHC providers;
- Support interdisciplinary health care teams to provide a comprehensive integrated approach for planned care of patients with chronic diseases, with an emphasis on prevention and maintenance to decrease complications and hospitalization;
- Assist in the provision of algorithms/templates for chronic disease management that would enable the use of prompts to provide reminder/call-back features, proactive intervention and self-care support for health promotion and disease prevention, and evidence-based clinical guidelines; and



- Increase the coordination, effectiveness and quality of health care services.

Most of the telehealth initiatives reported that technology:

- Enables client access to specialists from a variety of referral centers;
- Reduces client stress levels and increases their confidence in the care being provided;
- Enables client access to a variety of health promotion and prevention material;
- Provides professionals with various forms of distance continuing education;
- Reassures family member care providers by enabling contact with patients receiving care outside their community;
- Facilitates training sessions and management meetings for staff; and
- Reduces the number of patient transports to larger urban centres, admissions to hospital, and the need for specialists to travel to remote sites.

As with any technology project, all of the initiatives faced the inevitable problems and barriers. They can be grouped under: program and change management, technology, data and standards, funding and human resources. Sometimes these challenges delayed project implementation—initial timelines changed and less was accomplished than anticipated; often, the evaluation component was seriously affected. Many of the initia-

tives' reports contain first-rate details and insights into the challenges they faced and hence provide valuable learnings for others.

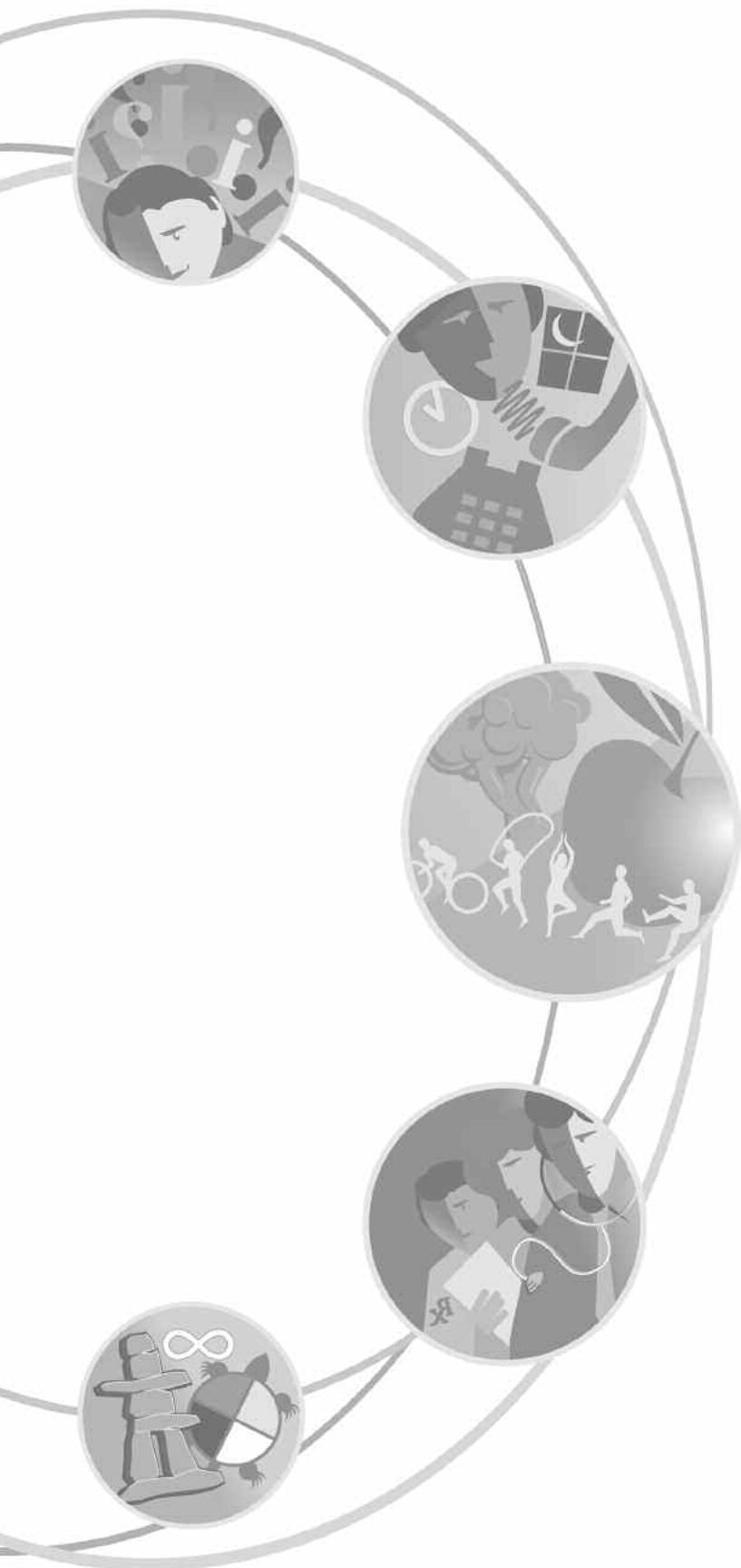
The results of the PHCTF initiatives point to a number of areas which have policy and practice implications, particularly: the importance of *IM&T planning* which is aligned to federal/provincial/territorial health system priorities; the significance of a *change management* philosophy which treats IM&T initiatives not simply as a rollout of new technology but as a project that will transform an organization; the need to adopt data, coding system accreditation and messaging *standards*; the importance of interdisciplinary *leadership* to initiate and support change; the need for *education* programs which help health professionals learn about and adapt to IM&T technologies; leveraging the success that emanated from the First Nations and Inuit communities *telehealth* initiatives; committing to a truly *patient-centred* approach by the adoption of portal technology that provides patients with access to their records, including the ability to schedule appointments online; and the need for policy on health information sharing and the protection of *privacy* including data governance and stewardship.

A number of PHCTF initiatives have added to the knowledge-base of evidence, indicating that the use of IM&T can have important clinical and economic impacts on PHC. In particular, some initiatives reported that in order to maximize the likelihood of success, it is crucial to adopt a proactive implementation strategy, one that takes into consideration not only the technology and economic aspects but, more importantly, the organizational and human factors. In IM&T, the hard stuff is the soft stuff.

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1 Setting the Context

The fundamental objectives of primary health care (PHC) reform are to ensure continuity and coordination of patient care and to facilitate interdisciplinary health care teams. To meet these objectives, the availability of relevant health information to support quality decision making across multiple health care settings and multiple health care providers is essential. Information management and technology (IM&T) is acknowledged to be a key enabler in reforming PHC. One facet of IM&T, namely telehealth, has the potential to support more equitable access to PHC and other services for rural and remote patients. Having access to technological communication supports, such as e-mail and telehealth perhaps involving satellite technology, means that health professionals and administrators can collaborate more easily and access accurate and up-to-date information when they need it. The result of their collaboration is improved access to care and more effective services for patients and clients and the communities in which they live. Retrospective analysis (secondary uses) of data collected by clinical information systems can support quality improvement, performance management and PHC service planning to meet the needs of populations.

There will be no significant improvement in health care quality and efficiency without high quality health information compiled and delivered electronically. Only in an electronic world is it possible to ensure that identifiable patient records are accessible to providers on a need-to-know basis. Building a first-rate health information system may have as great an effect on 21st century health care as Medicare did 40 years ago (Canada Health Infoway and Health Council of Canada, 2006). Unfortunately much of Canada's health care system still manages information with old technologies and practices, some of which literally originated in the 19th century. Just 32 per cent of Canadian physicians work in multidisciplinary teams where patients are directed to the health-care professional—nurses, doctors, social workers, psychologists—who are best suited to provide treatment. That compares with 81 per cent in the United Kingdom (Health Council of Canada, 2006). The task of building an information network that patients, providers, managers, and policy-makers can use to improve decisions at all levels is daunting. The health

information agenda competes with innumerable other claims on resources. The payoff from investments in health information may be years away, while waiting lists are on the front page of today's newspaper. Neither the public nor providers put better health information and tools high on top of their priority lists. As the recent Health Council of Canada report stated, "There is no way to determine whether governments are making substantial, positive changes to the Canadian health-care system because the information to measure progress is not being collected". Nor is implementation risk-free; cost estimates are notoriously unstable, benefits take time to prove and some failure is inevitable.

Notwithstanding these realities, there is more than sufficient evidence to justify the implementation of IM&T in PHC settings (Bates, Ebell, Gotlieb, Zapp, & Mullins, 2003; Department of Health, 2006; Keeler and Newman, 2001; Skinner, 2003; Thomas, 2002). The success stories being reported in New Zealand (Protti & Graham, 2003) and by the Veterans Administration in the United States (Anderson, 2006; Armstrong, 2006) are but two of the growing number of examples of what can be accomplished—particularly in the areas of chronic disease and cross-sectoral patient information flows—when commitments are made to effectively introduce IM&T systems in health care.

The Veterans Administration implemented universal, patient-centred primary care in 1995. Since then, the Veterans Administration has increased the number of patients treated by 34 per cent, decreased staffing by 15 per cent, and opened 407 community based patient-centred PHC clinics with no increase in budget. As the Undersecretary for Health stated, "If we've proved anything in the last 10 years, it is that quality PHC is less expensive" (Perlin, Kolodner, & Roswell, 2004). A key element of their success is that they implemented clinical information systems with clinical decision support throughout all of their organizations.

1.1 Definitions

In order for a consistent interpretation of this report, the author offers the following definitions of key terms used:

Information management (IM) for many is viewed as simply providing the right information to the right

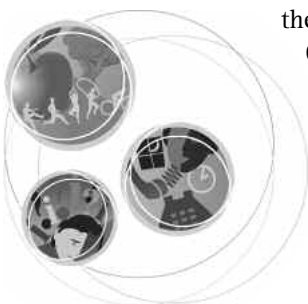


Table 1. Overview of Types of Electronic Records

	Electronic Medical Record (EMR)	Electronic Patient Record (EPR)	Electronic Health Record (EHR)
Source	Computer-based clinical data of an individual		
Location available	Physician office or practice, community health centre, or possibly an ambulatory clinic—a single location	Health care organization (e.g. hospital, acute care facility, regional health authority)—a single organization	A “longitudinal health record,” with data from a number of interoperable EMRs and EPRs
Accessed/shared by	Authorized practitioners in above location	Authorized practitioners in above location	Shared by authorized practitioners across sectors such as primary health care and secondary care

Source: Denis Protti, 2007.

people at the right time. Increasingly, IM is seen to contribute to improving the performance of people in organizations; this requires providing the best information (often requiring a data analysis capability) to the right people, at the right time *and* location, *and* for the right price. More importantly, it also includes the use of effective change management techniques.

The IM function includes data acquisition, refinement, storage/retrieval, distribution and presentation. These include such functions as data access/quality, analysis and reports, reporting policy and data standards, library services, information privacy and records management, education and training.

Information technology (IT) is any technology that processes and communicates data; it includes computers, voice, data and image communications, multi-media storage as well as traditional pen, paper, Kardex files, telephones and fax machines. The IT function is responsible for all aspects of applications and technology infrastructures. These include such aspects as contract management, technical standards and architecture, networks, systems security, electronic health record (EHR) building blocks, web services and tools, shared services, and managing operations. It is not uncommon to see the term IT replaced by information and communications technology (ICT).

Telehealth is the use of advanced telecommunication technologies to exchange health information and provide health care services across geographic, temporal, social and cultural barriers.

Health lines are health information services by phone, often provided on a 24/7 basis, usually staffed by nurses who provide callers with health information and advice. Their goals are typically to provide information and

advice about health, illness and health services, in order to enable patients to make decisions about their own health care and that of their families. They are sometimes seen as one way of rationalizing the use of hospital emergency departments.

The term *electronic records* (*electronic health records, electronic patient records, electronic medical records*) requires particular clarification as not all PHCTF initiatives use the same term to mean the same thing—a phenomena that unfortunately is still prevalent around the world. Although international agreement on what the various terms mean is becoming less elusive, different interpretations exist. The categorizations in Table 1 attempt to distinguish between the different types of electronic records—recognizing that they are not mutually exclusive and overlap does exist in some health care environments.

This report will primarily refer to the term EMR—unless a direct quote from one of the initiatives refers to another specific type of record. It should be noted that while this report will discuss IM&T, the focus is on clinical applications, not administrative and management ones such as financial or billing systems.

1.2 Current Issues and Trends in the Role of IM&T in Primary Health Care Reform

There is increasing evidence in the scientific literature that IM&T has improved PHC in the areas of medical records, communication between physicians and patients, information sharing among health care providers and rapid access to reliable information for both physicians and patients. However, a recent Commonwealth Fund study revealed that 41 per cent of Canadian primary

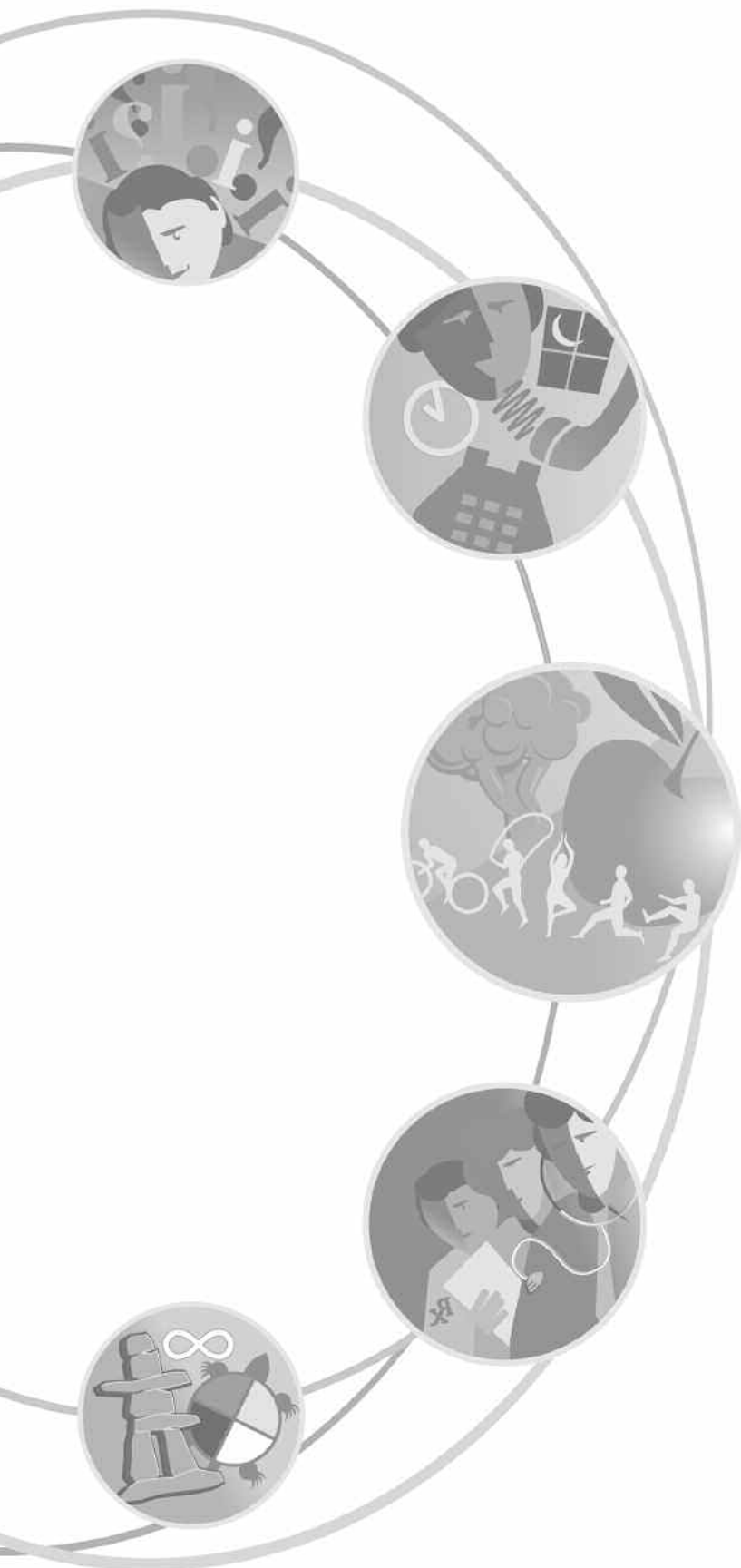
care physicians surveyed reported that a patient's medical record and clinical information was often or sometimes not available at the time of the scheduled visit (Schoen, Osborn, Huynh, Doty, Peugh & Zapert, 2006). The same study reported that only 23 per cent of Canadian primary care physicians had EMR systems—in contrast to 98 per cent in the Netherlands, 92 per cent in New Zealand and 89 per cent in the United Kingdom.

EMRs offer a wealth of possibilities. Once a patient's history, diagnosis, allergies, medications and test results are in an electronic format, authorized health practitioners could have immediate access to this potentially lifesaving information should the patient be in their care. On-call or locum physicians could use their home computers to find all needed information about the patient, avoiding a trip to the hospital or clinic for them and possibly the patient. The ease of a referral process using pre-established templates populated by the EMR system with the click of a mouse eliminates chart pulls, searching for the last lab results and reading the chart to create the referral history (Diraya, 2006).

The EMR is only the starting point for an electronic system which can and should augment the medical care provided in the clinician-patient relationship. The ideal integrated clinical information system also

includes the following: entering and tracking orders; data management; links to laboratory and imaging results; real-time use of knowledge resources and decision-support tools; and care management tools, such as health maintenance, alerts, and patient notification (Bodenheimer & Grumbach, 2003).

In the emerging environment of a patient-clinician partnership, there will be increased emphasis on patient access to electronic records and knowledge bases and on electronic communications between the “partners,” including the patient's caregivers—a situation which has become a reality in Denmark and is beginning to emerge in other countries (Protti & Johansen, 2003). A perfect example is the recently announced online tool using internet portal technology to support Ontarians with chronic kidney disease in managing their disease. As Richard Alvarez, President and Chief Executive Officer of Canada Health Infoway, recently said: “This innovative approach will support timely intervention and facilitate better communications among the care team members. By giving patients information at their fingertips, they will be less likely to make unnecessary calls to specialists for information, test results and prescription advice—this helps to relieve pressure on both primary health care physicians and specialists” (Canada Health Infoway, 2006).



2 Overview of PHCTF Initiatives

The majority of PHCTF funding was allocated to provinces and territories to support their individual renewal initiatives through the Provincial–Territorial Envelope. Funding was also directed toward overarching initiatives that dealt with common issues across jurisdictions through both the Multi-Jurisdictional and National Envelopes. The Official Languages Minority Communities Envelope and the Aboriginal Envelope funded initiatives that addressed the unique PHC challenges of Aboriginal and official languages minority communities across Canada. See the appendix for summaries of the PHCTF initiatives reviewed for this report.

Some of the PHCTF initiatives chose to use IM&T, to greater and lesser degrees, to achieve their objectives. The use of IM&T to support PHC reform can be broken into two broad areas of application:

- **Service delivery and infrastructure support to facilitate team-based care**—particularly as it applies to chronic disease management, team-based communications and satisfying the information needs of clinicians and patients. A number of initiatives demonstrated an impact on this area. This category can be further broken down into three domains, namely **EMRs**, **telehealth** and **other IM&T**. The author has classified the initiatives as falling *primarily* in one of the three domains, although some fall into multiple domains.
- **Evaluation (and secondary use of data)**—particularly as it applies to the collection of data for retrospective data analysis to support program delivery and quality improvement.

2.1 Impacts on Service Delivery and Infrastructure Support

Several initiatives demonstrated an impact on service delivery and/or infrastructure support to facilitate team-based care, while others are either in the early stages of implementation and/or have laid the groundwork to support service delivery and are unable yet to identify the impact of their EMRs. Some initiative leaders used the opportunity to implement IM&T strategies that had been developed prior to the PHCTF, and therefore the benefits accrued during the life of the initiative, while in other cases the benefits are yet to be realized.

As the *Health Care Renewal in New Brunswick* initiative report revealed: “The Electronic Health Record is under development in the community health centres and stakeholders have identified the importance of the electronic health record to support interdisciplinary team approaches in community health centres.” British Columbia’s Electronic Medical Summary project, which was part of that province’s PHCTF initiative, is noteworthy, as that province decided that a full-fledged EMR was not realistic and chose instead to take an incremental approach.

2.1.1 Electronic Medical Records

Most of the initiatives with an EMR component had one (or more) of the following objectives:

- Facilitate interdisciplinary communication by providing IT systems to support communication and integration between PHC providers.
- Support interdisciplinary health care teams to provide a comprehensive integrated approach for the planned care of patients with chronic diseases, with an emphasis on prevention and maintenance to decrease complications and hospitalization.
- Assist in the development of algorithms/templates for chronic disease management that would enable the use of prompts to provide reminder/call-back features, proactive intervention and self-care support for health promotion



and disease prevention, and evidence-based clinical guidelines.

- Increase the coordination, effectiveness and quality of health care services.

Electronic medical record systems were successfully implemented at all of the five *Tui'kn Initiative* sites. A core set of indicators are tracked using the EMR; a common coding manual and procedures allow for comparative analyses across communities. Data from the EMR is informing clinical decision-making, program planning and evaluation.

In the *Yukon PHCTF Initiative*, two clinical systems were implemented, namely a mental health information system and the integrated public health information system (iPHIS). The mental health application improved client and case management, with improved reporting capability being an immediate outcome. Future inter-agency collaboration is anticipated if the application is introduced to agencies with common clients/interests. The iPHIS greatly improved access to immunization records, improved the accuracy of records and reduced the time required for audits and recalls. The implementation process has led to standardization of policies in all of the territory's health centres.

EMRs were implemented in 16 PHC organizations as a result of the *British Columbia PHCTF Initiative*. Where data feeds were available, laboratory test results, medication history, diagnostic imaging results and specialist reports were interfaced to the EMRs. The initiative also developed a chronic disease management toolkit to support the chronic disease management initiatives. It is in use by more than 1,300 health professionals, including approximately 800 physicians, and supports British Columbia's full service family practice data collection and billing requirements. Saskatchewan, Manitoba and the Yukon have implemented the same toolkit. The *British Columbia PHCTF Initiative* furthermore demonstrated the secure electronic exchange of clinical data in support of patient referrals between general practitioners and specialists.

In the Calgary component of the *National Home Care and Primary Health Care Partnership Initiative*, eight community care coordinators in Calgary were electronically connected to physician offices and were using RAI-HC (Resident Assessment Instrument for Home

Care), and 14 physicians were trained in and using this instrument. Home care case managers used the technology to support fax and e-mail communication with their patient population who preferred this mode of information exchange. Close to 1,000 clients benefited from access to a comprehensive chronic disease management approach which demonstrated improved clinical outcomes for clients with diabetes. In Calgary, where the model had been in place longer than in Halton and Peel, where the Ontario component of the initiative took place, there was a statistically significant decrease in A1C (glycosylated hemoglobin) for clients over the life of the initiative.

In the Ontario component, eight case managers, ten physicians in Peel and six Halton physicians were connected and using a new CDM IT system. An EMR for diabetes care was created for all 942 clients at both sites who were part of the initiative. Community Care Access Centre staff reported that the referrals by physicians reflected an improvement in physicians' understanding of services that can support their patients. In terms of client/patient and provider satisfaction, while providers in both provinces were frustrated by the implementation delays, they were optimistic about the information management solutions and strongly supported maintaining the system. Providers (home care case managers and physicians) reported high levels of satisfaction with various aspects of the initiative: case management, chronic disease management and collaboration, increased levels of trust, communication and information sharing. Compared to results reported by Statistics Canada for the Canadian population as a whole, where the majority of people with diabetes reported that they were only in fair health, patient participants in both Calgary and Ontario were more positive about their health status.

Though they were still in early stages of implementation, by May 2006, the *Primary Health Care Renewal in Nova Scotia* initiative had 47 clinics and over 500 registered users in the Primary Healthcare Information Management (PHIM) program. The PHIM program permits the delivery of electronic lab and diagnostic imaging results from the three Nova Scotian hospitals that have information systems to the EMR software selected for the province. It was expected that by the end of September 2006, 30 per cent of Nova Scotia's PHC physicians would be registered in the program.

2.1.2 Telehealth

This includes videoconferencing, telemonitoring and health lines. The majority of initiatives in this domain clearly demonstrated an impact on service delivery and/or infrastructure support to facilitate team-based care and one could be deemed as having laid the foundation. In terms of health lines, two multi-jurisdictional initiatives focused on developing health lines, two provinces created new health lines, and two other provinces enhanced their existing health lines. There is evidence that health lines improve access to first-contact services. The remaining telehealth initiatives developed tools and frameworks to support telehealth and the evaluation of health lines.

The initiatives' reports identified that their telehealth systems support:

- Clinical decision-making
 - remote consultations with specialists
 - second opinion support for health care professionals
 - crisis intervention support
 - support during emergencies when patients cannot be transported due to weather or their unstable health status
- Education
 - professional development and continuing education for health care providers working in rural communities
 - patient education—providing support and education to enable patients to better manage their own diseases
 - prevention and wellness education
 - grand rounds
- Case conferencing
 - team conferencing for care planning, discharge planning

Most of the telehealth initiatives reported that the technology:

- Enables client access to specialists from a variety of referral centres including pediatrics and obstetrics.
- Reduces client stress levels and increases their confidence in the care being provided.
- Enables client access to a variety of health promotion and prevention material.
- Provides professionals in health and social services with access to various forms of distance continuing education (including continuing medical education) as a method to maintain and upgrade their clinical skills, and to enhance collegial relationships and peer-to-peer discussions.
- Reassures family member care providers by enabling contact with patients receiving care outside their community. This is particularly significant for unilingual residents, where treatment (e.g., palliative care) needs to be provided in facilities outside the region.
- Facilitates training sessions and management meetings for staff. Positive spinoffs possibly include decreased overall health care costs (per patient), improved patient outcomes, and more efficient use of human resources (“Do more with less”). As well, health professionals are attracted to and retained in the region, and nurses in remote communities can be backed up at a distance.
- Reduces the number of patient transports to larger urban centres, admissions to hospital, and the need for specialists to travel to remote sites.

The existing telehealth network was expanded to additional communities as a result of the *A Tool to Help People from Far Away—The IIU Telehealth Network Initiative*. The network was utilized in 10 communities in Nunavut by a wide range of health professionals, staff and patients for over 2,800 hours between April 2004 and December 2005. Typically, over a given month, hourly telehealth utilization was: 39 per cent for education purposes, 31 per cent for clinical activities and



17 per cent to support visitations. The purpose of this initiative was not to save money but rather to improve the range of medical, social and educational health services available to the residents of the communities and to deliver care in a new and practical way. However, Nunavut did realize economic benefits (conservatively estimated to be \$1,631,644) largely as a result of reduced travel costs for medical and educational reasons and for meetings. It is noteworthy that in the final year of the initiative, the use of telehealth increased by 40 per cent and, of that increase, 46 per cent was clinical (an interaction between a health care professional and a client). This is a remarkable achievement considering the program is still in its infancy.

In the *Enhancing Access and Integrating Health Services—Keewatinook Okimakanak (KO) Telehealth/NORTH Network Partnership Expansion Plan Initiative*, videoconferencing and diagnostic peripheral technologies (otoscopes, stethoscopes, patient exam cameras, document cameras) were the primary IM&T tools used in 19 sites. Telehealth scheduling staff also used the provincial telehealth scheduling tool to book appointments between community-based First Nations clients and health service professionals. They also used the K-Net satellite booking system to reserve bandwidth for sessions located in satellite-served communities.

In the *Initiative to Implement a Digital Radiology and Tele-Radiology System in Nunavik*, digital radiology equipment and viewing consoles were installed in two Nunavik health centres, and a diagnostic console for Nunavik images was also installed at Montreal General Hospital. The initiative has improved image quality and increased diagnostic accuracy by, among other things, allowing greater flexibility in the handling of images. Since the start of clinical activities in May 2006, some 500 X-rays have been transmitted per month. Nunavik residents have greater access to specialists, and local health workers have acquired new skills. The initiative's impact is also evident in the higher rate of satisfaction among health professionals. Radiology technicians report that they are happy with the advance because it reduces handling and makes their work more stimulating. Films are more accessible, transportation and storage problems have been eliminated and transactions can now be tracked on the server at all times. Nunavik has better integrated health services, a coordination mechanism adapted to the region and more effective management in identifying and meeting therapeutic needs.

In the *Ontario PHCTF Initiative*, a few of the many IM&T telehealth accomplishments included the following:

- By having providers and clients use a telemanagement system with telemonitoring, clinical decision support and telecommunication functions, it was reported that diabetic patients with uncontrolled hypertension experienced moderately improved outcomes.
- A “teleprimary” health care project was implemented to improve patient access in geographic areas of relative undersupply and to improve continuity of care. Through the use of technology, the initiative improved access to interdisciplinary PHC providers, encouraged interdisciplinary collaboration, and enhanced the knowledge and skills of practitioners.

The *Health Lines Initiative* enabled several jurisdictions to collaborate on various aspects of health lines which they had already established or were in the process of establishing through their provincial/territorial funding. In both that initiative and the *Alberta PHCTF Initiative*, the 24/7 telephone triaging by registered nurses used computer-based protocols to provide symptom-based health assessments, general health information and wayfinding services. One of the call centres used an e-triage for all emergency departments in the region to ensure more accurate reporting, as well as a registry to track chronic diseases. Another integrated the clinic's EMR with access to radiology reports and e-lab results. Surveys of the callers in one jurisdiction found that almost 100 per cent indicated that they would use the health line service again and recommend it to family and friends; they felt comfortable asking questions; they found the information they received useful; they were able to get the information they needed; and they felt more informed about their health questions or concerns after the call. Health lines with multiple triage end points have even higher satisfaction rates. Consumers like the one-stop shopping approach and responded positively to increased triage end points.

A three-year evaluation of Health Link Alberta from the *Alberta PHCTF Initiative* indicates that the service is changing the way callers access and utilize PHC services. Callers report that Health Link increases their capacity to handle their own health concerns and to practice self-care. Approximately 57 per cent of triaged

calls are advised to practice self-care and the vast majority report that they comply with this advice.

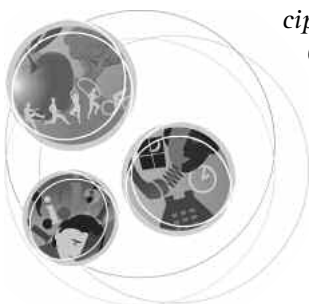
The *Ontario PHCTF Initiative* was one of two initiatives that took advantage of emerging mobile technologies. Its project Using Personal Digital Assistants and Patient Care Algorithms to Improve Access to Cardiac Care Best Practices demonstrated the usefulness and usability of developing a decision-support tool on a personal digital assistant (PDA). During a three-month clinical trial, 61 chest pain calls were received from patients by the nine nursing coordinators; nurses used the PDA “teleform” for 46 of these calls and the old paper form for 15. The project had identified 28 data elements as required documentation fields in cases of a call from a cardiac surgery patient experiencing chest pain. Results showed that for 61 per cent of the time the documentation with the PDA teleform was more complete than with a comparable number of chest pain calls using the paper teleform.

There is growing acceptance of mobile computing in the health care industry (Wu, Wang, & Lin, 2007). As Rubin reported, a stand-alone PDA-based computer decision support system for acute respiratory tract infections used at the point-of-care can encourage better outpatient antimicrobial prescribing practices and easily gather a rich set of clinical data (Rubin, Bateman, Donnelly, Stoddard, Stevenson, et al., 2006). Undoubtedly many initiatives would have taken advantage of existing and emerging mobile technologies if PHCTF were being launched today.

2.1.3 Other IM&T Initiatives

Rather than directly addressing service delivery, initiatives in this category had a greater impact on indirect service delivery and/or infrastructure support to facilitate team-based care. They did develop data and messaging standards and produce tools and frameworks for future use, conduct surveys and/or hold workshops, and produce reports about what is required to implement EMRs in PHC.

In its consultations, the *Enhancing Interdisciplinary Collaboration in Primary Health Care: A Change Process to Support Collaborative Practice Initiative* identified IM&T as a key element of collaborative care.



The Western Health Information Collaborative (WHIC) is a process initiated by the Western Premiers and Deputy Ministers of Health to explore collaborative opportunities with respect to health infostructure initiatives. As part of the *WHIC Chronic Disease Management (CDM) Infostructure Initiative*, WHIC developed standards to support chronic disease management. The data standards define content and the messaging standards define the way data is electronically exchanged. Together they enable the sharing of a common set of clinical information. Collaborative development of the CDM data standard—which in turn was the basis for the HL7 version 3 messaging standard—was the “number one” success of the *WHIC CDM Infostructure Initiative*. The participating provinces are currently in the process of implementing the data messaging standards, so it is premature to assess any impact in these areas.

The *Supporting the Implementation of Electronic Medical Records in Multi-disciplinary Primary Health Care Settings Initiative* was intended to support the implementation of EMRs which, in turn, support activities such as clinical decision support, record keeping, information sharing among providers, e-prescribing, population-based program planning, quality improvement initiatives, etc. An important emphasis of this initiative (and of the EMR toolkit that was developed) is that EMRs do not simply improve and automate existing processes (e.g. record-keeping), but also enable new or enhanced activities (e.g. quality improvement initiatives, population-based planning and program delivery). Following the recent introduction in England of the Quality Outcomes Framework (QOF) points programme with general practitioners, the impact on clinical outcomes shows what can be done to improving the quality of care if appropriate incentives are put in place (Kmietowicz).

The *e-Therapeutics Drug Therapy Management: Tools and Technology to Enhance Collaboration and Communication to Improve Safety and Outcomes from Drug Therapy Initiative* produced decision support tools for use by health practitioners. These electronic tools for decision support help address the challenge of providing optimal drug therapy; they provide PHC practitioners with potential point-of-care access to current, evidence-based Canadian information on drugs and therapies.

The *Continuous Enhancement of Quality Measurement (CEQM) in Primary Mental Health Care—Closing the Implementation Loop Initiative* identified data quality standards for measuring the quality of primary mental health care and recommended ways to implement these measures into existing health data systems. The CEQM database has multi-faceted search functions which allow for results to be customized to a wide range of stakeholders and regions across Canada. It also provides access to a larger set of 160 PMHC quality measures.

2.2 Impacts on Evaluation

Three initiatives are in the evaluation category as it applies to the collection of data to support program delivery and quality improvement initiatives.

The *Tui'kn Initiative* implemented an information system which allows the communities to monitor trends, utilization and outcomes, and to use this analysis to support clinical, policy and funding decisions. This system includes data from the electronic patient record and links a range of local, provincial and national sources. The initiative's promoters believe that it provides one of the most robust datasets for health planning and evaluation in the country.

The program statistics and client statistics in the *National Home Care and Primary Health Care Partnership Initiative* offered a source of information for evaluation.

Examples of the data elements collected included type of diabetes, number and type of interventions/services/supports received, number and type of referrals to other programs/providers, changes in A1C levels, and admissions to long-term care facilities or other institutions.

In the *Manitoba PHCTF Initiative*, a community service information system (CSIS) was designed to provide access to disparate sources of information by networking personal computers, creating local area network (LAN) services, connecting to provincial databases and the internet, and providing office and practice management software. The IT solutions implemented in CSIS were seen as a method of coordinating activities and information between and among service providers in the access centre/region. This facilitated more efficient scheduling and referrals and eventually increased the timeliness and quality of the services themselves, all of which led to better client service.

The minimal activity in this category is not surprising, since generating useful data for effective retrospective analyses to support program delivery and quality improvement requires a secondary data warehouse. To most effectively apply data mining and business intelligence tools, the data warehouse needs to be populated with data that is a by-product of operational clinical systems which are integral to day-to-day care, versus having separate data collection systems for statistical purposes only (Szirbika, Pelletiera, & Chaussalet, 2006).

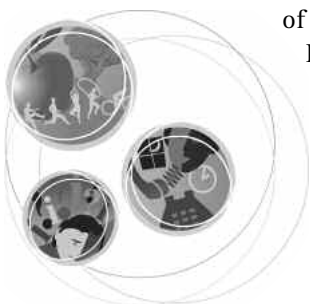
3 Key Learnings

The initiatives that chose to focus on IM&T did so in various ways. Some held conferences to disseminate information and to develop consensus on future steps; others sought to improve service delivery. Almost all of the initiatives that were in the service delivery category faced the inevitable problems and barriers that any technology undertaking brings with it. In this report, the challenges are sorted into these groups: program and change management, technological, standards and data, funding and human resources. In some initiatives, the challenges delayed project implementation—initial timelines changed and less was accomplished than had been anticipated; in many initiatives, the evaluation component was seriously affected. The following is but a summary, many of the initiatives' reports contain first-rate details and insights into the challenges they faced, and hence provide valuable learnings for others.

3.1 Program and Change Management Challenges

Planning. The need for a broad information management plan was identified in the early discussions of many initiatives, particularly with those that involved Canada Health Infoway. In a few cases, the effort to make plans to work with Infoway delayed initiation of systems. The multiplicity of software and IT solutions in place and the absence of a well defined, broad-based IT strategy within the jurisdictions complicated a number of the initiatives. Project planning often took longer than anticipated, sometimes because of a lack of knowledge on the part of many stakeholders as to what was involved in planning and implementing IT solutions.

Priorities. There were often delays due to aligning with competing priorities within provincial governments. Further delays related to competing internal priorities and insufficient IT staff resources. Regional health authorities (RHAs) sometimes stated that they were concerned with so many other priorities that they were not sure where the new IT applications fit within that list. There is a multiplicity of activity in PHC which means that any one initiative faces challenges of scope, sequencing, etc. For example, if PHC teams are being developed, at what point should an EMR be introduced among the various support and change management activities?



Coordination. The difficulty of coordinating staff at multiple sites with different vendors and priorities was frequently mentioned. Working with stakeholders at different levels and in various locations, who represent a range of interests, turned out to be a major challenge in a number of initiatives. (For example, it was difficult to reach a consensus on equipment purchases.) In application development and testing, there was conflict with other systems projects. Implementation of an IT system, in which more than one organization is involved and the test environment has many different users, is extremely complex. Technology coordination of all stakeholders' requirements, operational considerations, security and privacy impact processes necessitated a great deal of discussion and negotiation. Communication was an ongoing process that required dedicated time, staff and funding.

Process re-engineering. An impediment frequently identified was the lengthy "ramp-up" phase for new user practices. Accommodating the significant changes resulting from new and/or evolving business requirements and/or the introduction of new models was often mentioned. Many practices found the task of adopting EMR technology into their daily workflow to be very onerous. Practices were limited in their ability to find time to commit and learn how to use the new technology within an already busy day. The quickest adopters were the practices which had the flexibility to make time routinely available for training.

Project creep. This is a constant threat to any IT project. It was a challenge ensuring that the capacity of the system and/or enthusiasm of the users to adopt new features did not broaden the scope of the implementation which ultimately would affect budgets and timelines. Managing expectations was an issue as IT applications became more commonplace in the delivery of health care and services. The insufficient number of units and lack of network capacity to manage the request for use represented a challenge.

Current policies. Request for proposal (RFP) requirements of some of the provincial ministries can be prolonged processes. It was noted by some that there are too many research ethics boards, which slows progress.

3.2 Technological Challenges

Infrastructure. Computers and software in PHC settings are often older. Many facilities either had no LAN environment or had a sub-standard or uncertified LAN. There was a lack of reliable, fast internet service in PHC sites. Many sites were small and space for equipment and related peripheral devices was a problem. Within one initiative, the barrier was a lack of wireless devices; the solution was to develop its own blood pressure tele-management system. As networks grew (e.g. new communities joining the program) and community usage demands increased, there were operational, performance and financial limits. A few of the initiatives faced the challenge of having unusual licensing needs and delivery models.

Quality of service via satellite. Satellite transponders do not differentiate between data and video-conference packets and network capacity to maintain a minimum committed information rate was uncertain. In some cases, limited satellite bandwidth was an issue and the satellite service could support only a limited number of videoconferences. Increasing demands required balancing the needs of communities while managing the very high costs of dedicated trunks to each location.

Interoperability. Among physicians, there were many different EMRs, which made creating interfaces difficult. There was a range of hardware, connectivity and user familiarity with IT that needed to be accommodated and that necessitated training of staff. Primary care EMR systems lacked the capacity to be linked to and accessed by other community health care providers, such as public health units, pharmacists and local hospitals, to ensure continuity of care. Some initiatives encountered issues of incompatibility because computer systems purchased for some health professionals were not compatible with physician systems. There were technical problems concerning the transfer of data and images between systems.

3.3 Data and Standards Challenges

Data access. Some initiatives cited problems getting access to and extracting community-specific data from large provincial and federal data sets as well as incorporating data from other sources (such as hospitals). This information, if shared, could be a boon to the PHC system: it could alert staff to missing information and

the need for follow-up/referral, provide feedback to users and provide patient progress reports.

Data governance. There were concerns around ownership, control, access and possession principles—often having to be balanced against the concerns of data custodians around privacy and confidentiality. One initiative faced privacy and ownership issues that delayed network connectivity to some of the project's practice sites, necessitating the drawing up of legal agreements. Addressing data governance requires time and energy but is absolutely essential.

Standards. In some provinces, there are many EMRs and a lack of imposition of data or communication standards. In one case, this hampered the development of a system with advanced electronic decision support and necessitated manual on-site chart reviews which is long, laborious and produces major data entry, validation and transfer issues. Some initiatives were concerned about meeting the standards/laws governing privacy and confidentiality of patient information. The increasingly restrictive interpretations of health information privacy legislation was mentioned or implied in a few of the initiatives.

3.4 Funding and Human Resources Challenges

Recruitment. Recruiting local, qualified candidates from the communities and providing them with training programs to meet their needs was a challenge for some initiatives. Some had difficulty establishing an informatics team because of a shortage of expertise in areas of health informatics, project management, clinical care coordination and bureaucratic hiring processes. A number of initiatives had to hire consultants because of the lack of local expertise. Recruitment of community-based, non-academic family physicians and their patients is problematic, and becomes more difficult with each study because of a lack of research-ready infrastructure in PHC.

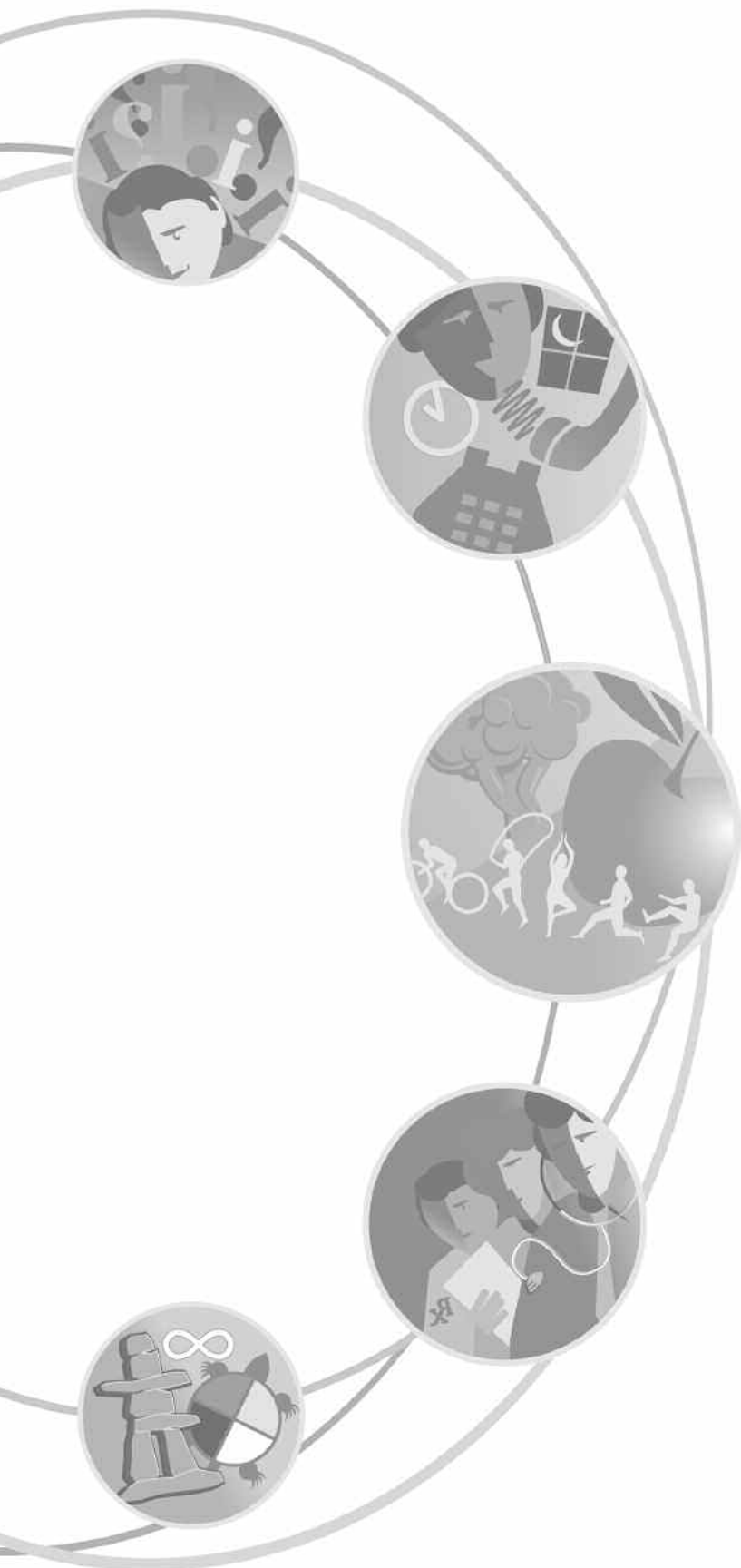
Priorities. Staff workload and competing demands made it difficult to participate in focus groups and user-acceptance testing. There was difficulty in engaging key stakeholders: their day-to-day responsibilities are so extensive that finding time for participating in new projects can be very challenging. Limited on-site technical support made it difficult to conduct technical assessments and plan for implementation.

Equipment costs. Computers, telehealth equipment, network upgrades, training and a host of other costs must be incurred before some applications are available province-wide. It is difficult for RHAs to invest when there are competing priorities for funds and they cannot measure the outcomes of using IT applications against their annual budget. Vendors offered to install equipment in communities; however, vendor staff time was expensive and their availability was uncertain.

Sustainability. Although the intent was for PHCTF initiatives to be sustainable, this was not possible in all

cases. It is not always feasible to develop a defensible business case for new programming. In smaller jurisdictions, new programming is an addition to, rather than a reconfiguration of, resources within the system. Some start-up or initial development costs were funded through the PHCTF with the intent that ongoing costs would be absorbed within the departmental budget. This approach has been applied to IT initiatives, chronic disease management activities and even to enabling desktop access to health research literature. A number of initiatives expressed the hope that future funding would come from Canada Health Infoway.





4 Implications for Policy and Practice

The results of the PHCTF IM&T initiatives have policy and practice implications for a number of areas:

Information management & technology planning. Comprehensive IM&T planning that is completely aligned with federal/provincial/territorial health system priorities is needed to guide and coordinate future developments in Canada. The role of IM&T has already been proven in other countries to assist with case management. It is particularly effective when there is a commitment to operate within a clinical framework and when the entire health care team takes responsibility for clinical outcomes. Similarly, if there is any area in which IM&T has had a positive impact it is in chronic disease management, where technology is able to support community-based and multi-disciplinary responsibilities.

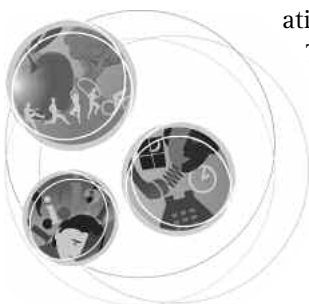
Change management. PHC reform requires a clear focus on strategic change management that effectively includes the broad range of stakeholders. The availability of tools and supports is necessary but is not sufficient. Ultimately, the extent to which IM&T is used will be more a *reflection* of broader progress in PHC renewal than a *key factor* in accelerating renewal. A number of the PHCTF initiatives' recent findings clearly demonstrate the importance of treating any IM&T initiative—even relatively uncomplicated PACS (picture archiving and communication systems) deployments—as not simply a rollout of new technology but as a project that will transform an organization (Paré & Trudel, 2007). Proponents of these projects must not lose sight of the fact that, even if technological complexity represents a significant issue, it must not garner all of the attention—the social and workflow change realities are perhaps even more important. It is crucial to anticipate and address organizational and behavioural challenges from the very first phase of any innovation process.

Standards. Champions are needed to lobby for the adoption of standards. A national organization, with responsibility for enforcing the adoption of standards for data, coding (e.g. SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms]), knowledge representation, system accreditation and messaging, is necessary if the emerging EMRs and EHRs are to be interoperable and truly national in scope. Implementing stan-

dards takes time, so a pragmatic stance is necessary: the perfect can easily become the enemy of the good enough for now (British Computer Society [BCS], 2006). As in England and other countries, the standards in Canada, now under the auspices of Canada Health Infoway, should be extended to include chronic disease management and patient safety. The use of electronic forms, care pathways, and tools (including algorithms and minimum data sets) is a high-priority area for a number of health providers. These tools are critically important as best practice guidelines that help to ensure consistency and direction for managing patient/client care, both on an individual and population level.

Leadership. Effective, equitable interdisciplinary leadership is critically important to bringing about change in PHC. Professional associations have frequently demonstrated the ability to work effectively together to initiate and support change. The partnerships (among national associations, their provincial counterparts and levels of government) that developed from the PHCTF need to be fostered and nourished. Much criticism has been voiced in this country about jurisdictional differences and policy paralysis. These new partnerships serve as a model for policy reform. Approaches to regulation, liability considerations and health human resources (including the present supply of health professionals, impact of wage structures and the professional substitution debate) are all important, but not necessarily insurmountable barriers to achieving interdisciplinary collaboration. The success of the *WHIC Initiative* should be looked at carefully.

Education. Health care providers have to be engaged in the use of IM&T for it to be successful. Learning about and adapting to IM&T technologies is a key challenge for health professionals. Hastening their comfort with electronic information systems, through education and training, is a priority if collaborative teams are to become more commonplace. Others have suggested that progress in this area must proceed as rapidly as possible. In terms of understanding who to educate and engage, it seems worthwhile to educate those who are already in place and are familiar with other parts of the system. For example, training technicians from the First Nations communities who were familiar with the health station/nursing station environment enabled better communication at the local level and avoided long installation delays.



Telehealth. Telehealth is more than videoconferencing and teleradiology. One example of the wider arena is that patients can be monitored in their own homes using data collection technology; images and text can be captured and sent via a store-and-forward mechanism (e.g. using a retinal screening camera to capture digital images to be sent to an ophthalmologist). The success that has emanated from the telehealth initiatives should be leveraged in order to enhance health care services to remote communities, including those of the First Nations and Inuit. The Aboriginal initiatives demonstrated that technology supports portability, and that at a time when resources (including specialist resources) are diminishing, appropriate use of telehealth is filling the gap. Hopefully the lessons learned and progress made will find its way onto the already impressive Aboriginal Canada Portal (<http://www.aboriginalcanada.gc.ca/acp/site.nsf/en-frames/index.html>).

Patient-centred care. If a truly patient-centred approach at the local health community level is the desired goal, there is a need to support the adoption of a patient portal providing, among other things, access to patient records (including the ability to add to them and initiate corrections as well as schedule appointments online) and to clinical knowledge in a patient-digestible form. The successful exploitation of such a portal will require extensive education of both patients and health care professionals, and will support—and require—re-engineering of the care process. A patient-centred approach will also stimulate the creation of personal health records (PHR). PHRs are internet-based records that are under the full control of the individual. They are becoming more common, particularly in the United States. These are gradually being recognized as an important aspect of health care reform because they encourage patients to take a more active role in their health and treatment processes (Dossia, n.d.). These types of change are the cornerstone of making patients and caregivers the *primus inter pares* of their care

teams, and of encouraging them to assume responsibility for their health (BCS, 2006). If patients are expected to take control of their health, there is a case for giving them custodianship of their records (possibly on a smartcard or a PHR). Through the internet, the public has unprecedented access to health and medical information, and care providers will increasingly be faced with more knowledgeable patients. In other sectors, patients have experienced the convenience of using online access to services, such as booking appointments, accessing their personal information and communicating with service providers by e-mail. It is inevitable that they will expect the same capability when dealing with their physicians. Patients are increasingly becoming more engaged in managing their own health, and technology makes this easier.

Privacy. As more emphasis is placed on collaboration among health care providers, a number of the initiatives point to the need for policy on health information sharing; the protection of privacy will have to be more explicitly addressed. One only has to look to England (Day, 2007) to see the consequences of not doing so; privacy should be upfront and not left to 11th hour vetoes. As more IM&T initiatives are introduced, there are a number of policy considerations in the overlapping areas of data governance, wireless technologies and privacy. As well, it is important to be clear about both data custodianship and data responsibility, which are separate issues. Key to dealing with the data governance issues is establishing the generic requirements for information sharing; the goal of this sharing is to improve both the quality of individual patient care and the efficiency with which that care is provided. Data protection needs to be balanced against patient safety and the greater public good in terms of cost and efficiency. If patients do not feel comfortable with the confidentiality of their data, they will not allow significant information to be recorded or they will withhold it—so informed patient consent is paramount (BCS, 2006).

5 Conclusion

Those working to improve PHC in this country must choose from among many competing priorities. It is true that the benefits of implementing IM&T solutions are proven and well documented, yet despite this fact, many initiatives decided to pursue other worthy objectives. Could it be because of a lack of awareness and/or appreciation, a fear of technology, or possibly a lack of skilled human resources? Or could it be that IM&T is a strong secondary priority, one that many health care organizations will choose to address as a next step. It is also important to note that many provinces and territories were potentially undertaking IM&T activities through alternative sources of funding, and hence chose to use their PHCTF funding for other objectives.

It is unlikely that Canadian patients lack interest in IM&T. The recent Markle Foundation study, which found that Americans overwhelmingly want to have electronic copies of their medical records, would likely have the same findings in Canada (Robeznieks, 2006). The Markle study also found that 97 per cent of respondents think it is important for their doctors to be able to access all of their medical records in order to provide the best care. We are fast becoming a connected world, and one suspects that if the PHCTF were being launched today, IM&T would be a much more significant component of many more of the initiatives.

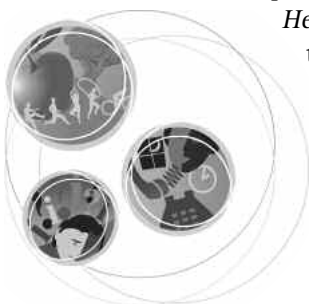
It is noteworthy that a number of the PHCTF initiatives have added to the knowledge base of evidence supporting the use of IM&T and its significant clinical and economic impacts on PHC. In particular, a number of the initiatives reported that in order to maximize the likelihood of success, it is crucial to adopt a proactive implementation strategy, one that takes into consideration not only the technology and economic aspects, but more importantly, the organizational and human factors. In IM&T, the hard stuff is the soft stuff.

There was very little commentary by the initiatives on the impact of IM&T on patient safety and the reduced duplication of tests, although the *Primary*

Health Care Renewal in Nova Scotia initiative did report that its PHIM program will improve the quality and safety of patient care and will allow providers and patients to make safer, faster and better treatment decisions.

Taylor and others have reported that automated online medication screening and risk alerting appears to have significant potential to reduce inappropriate prescribing practices and improve patient outcomes (Taylor, Kawasumi, Bartlett, & Tamblyn, 2005). As Schade reported, most of the U.K. physicians believe their EMR systems improve patient safety and quality of care (Schade, Sullivan, De Lusignan, & Madeley, 2006). One physician attributed a reduction in acute myocardial infarction incidence to better lipid management because of attention to the Quality Outcome Framework goals; another noted reduced variation in chronic disease care because “the system does not miss patients” (Kmietowicz, 2006). Quality of care in U.K. PHC practices appears to have improved in recent years as a result of the introduction of IM&T (Campbell, Roland, Middleton & Reeves, 2005). It would be useful to encourage integration of the *e-Therapeutics Drug Therapy Management: Tools and Technology to Enhance Collaboration and Communication to Improve Safety and Outcomes from Drug Therapy Initiative* into one or more of the EMR initiatives.

At the heart of PHC reform is the sharing of information and information pathways among team members. Without this sharing, improving continuity of care and service delivery is very difficult, if not impossible. Continuity of information among health professionals has been correlated with improved quality of care and administrative processes and improved patient safety. As the *Enhancing Interdisciplinary Collaboration in Primary Health Care Initiative* reported, Reid and others have found that continuity can be classified into three broad types. *Informational continuity* means that information from prior events is used to give care that is appropriate to the patient’s current circumstance. *Relational continuity* recognizes the importance of knowledge of the patient as a person; an ongoing relationship between patients and providers connects care over time and bridges discontinuous events. *Management continuity* ensures that care from different providers is connected in a coherent way. Management continuity is usually focused on specific and often chronic health problems. According to Reid, no single definition will do, and there is no simple way to measure whether a patient is benefiting from continuity of care or not (Reid, Haggerty & McKendry, 2002). However it is defined or measured, continuity of care continues to be a vital focus in PHC reform, and IM&T greatly facilitates it.



In conclusion, some of the PHCTF initiatives demonstrated that EMRs, which are slowly evolving in Canada, will provide one of the elements that health professionals require to collaborate in providing patient-centred care. Others proved that technological communications supports, such as e-mail and telehealth systems involving satellite technology, will result in improved access and more effective services for patients and clients and the communities in which they live. Many found that education and support to hasten the knowledge, comfort

and incentives for health care professionals to adopt clinical information systems is perhaps the number one priority in this country. Certainly Canada will have to concentrate its efforts in both education and technology if it hopes to reach the level of accomplishment in addressing PHC reform achieved by other nations. Canada's ability to sustain its health system over the coming years—and to meet the health care needs of Canadians and the workforce needs of health care providers—largely depends upon it.



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Appendix

List of Initiatives Relevant to Report Theme: Information Management and Technology

This appendix provides summary information on the PHCTF initiatives which were reviewed in the preparation of this document. For further information, please refer to the PHCTF website www.healthcanada.gc.ca/phctf.

Provincial-Territorial Envelope

Yukon Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): Department of Health and Social Services, Government of Yukon; with Ministry of Health, Government of British Columbia; Pallium Project, Alberta Cancer Board; Bureau of Statistics, Executive Council Office, Government of Yukon; Information and Communications Technology, Department of Highways and Public Works, Government of Yukon

Approved Contribution: \$4,537,282

The Yukon government faces many challenges in delivering health services from a structural, functional and technological perspective. For example, one-third of the territory's population live in small pockets of a few hundred people, while two-thirds live in the urban capital of Whitehorse. Despite Yukon's small population, its health care system is quite complex, with services delivered or funded by three levels of government (federal, territorial and First Nation). Life expectancies of Yukoners are about 10 per cent lower than the Canadian average, and the territory posts the highest death rates in Canada due to accidents and injuries. The Yukon government recognized that improvements to both the coordination and efficiency of its health care system were needed, new linkages among providers were required, and the roles and responsibilities of the individual, family and community needed to be examined. To begin the change process, Yukon set two objectives for its initiatives: to increase the emphasis on health promotion, disease and injury prevention, and management of chronic diseases; and to facilitate coordination and integration with other health services. The initiative spawned the Yukon Diabetes Collaborative, which emphasized better coordination and collaboration among providers and is widely regarded as Yukon's success story. In addition, this initiative negotiated access to British Columbia's Chronic Disease Management toolkit; produced the *Yukon Health Guide*; and implemented fetal alcohol syndrome assessment and intervention training. The Palliative Care Development Project increased coordination among care providers and identified key areas for future programming. Its many information technology (IT) initiatives laid the groundwork for the implementation of an electronic health record and other IT developments in the territory. Sustainability has been a challenge for the Yukon initiative from the beginning, but new funding has been provided through the Territorial Health Access Fund (THAF) for some activities.

Northwest Territories Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): Government of the Northwest Territories, Department of Health and Social Services (DHSS); with Tlcho Community Services Agency; Yellowknife Health and Social Services Authority; Beaufort Delta Health and Social Services Authority; Fort Smith Health and Social Services Authority; Dehcho Health and Social Services Authority

Approved Contribution: \$4,771,470

This initiative supported the transition of health care delivery in the Northwest Territories (NWT) to a Primary Community Care (PCC) model. This model, the basis of the Integrated Service Delivery Model (ISDM) being implemented in the territory, targets service and system integration, from primary community care to secondary and tertiary levels of service. It has a strong focus on offering a more comprehensive range of primary health care, wellness and social services. Comprising 11 projects and designed to promote a collaborative, client-centred approach for health and social services, this initiative aimed to: 1) provide public/staff education; 2) coordinate primary care renewal in the NWT; 3) develop integrated primary health care teams/services; 4) support improved women's reproductive health services; and 5) provide training for various health care providers, including nurse practitioners and community health workers. Main activities undertaken included: the facilitation of several workshops to increase capacity for self-care and healthy choices and a symposium to educate health stakeholders on the reform directions; the establishment of two interdisciplinary health services—the Tlcho Integrated Wellness Centre and the Yellowknife Community Health Clinic; the implementation of public education strategies to strengthen self-care; the design and implementation of a midwifery program and a prenatal care clinic to improve women's reproductive health services; the creation of key training programs; and several evaluations and related activities. This initiative supported an increased understanding of the PCC model and furthered the transition to this model of care in the NWT. Several key resources were developed, including: a self-care handbook (adapted to the NWT and available in English and French); health and social programs tailored to meet the needs of the communities and health providers in the North, such as the Healing Path Wellness Program, the Midwifery Program, and the Northern Women's Health Program; and training programs such as the Nurse Practitioner Clinical Training Centre, the Aboriginal Community Health Worker Training, and an 18-hour lactation management course.

Nunavut Primary Health Care Renewal Initiative

Lead and Partner Organization(s): Nunavut Department of Health and Social Services

Approved Contribution: \$4,508,924

This wide-ranging initiative aimed to address some of Nunavut's most pressing challenges: the lack of health human resources and



the fact that there are few Inuit working in the health field; the lack of training and networking opportunities for the territory's widely dispersed health care workers; the need to improve access to primary health care (PHC) services; the need to address the health challenges of its far-flung and culturally diverse population, such as mental health, tuberculosis and sexually transmitted infections; and finally, the vital need for health promotion and community development. The initiative sought to enhance PHC services in Nunavut through four specific goals: 1) establishing a PHC and a rehabilitation clinic in Iqaluit; 2) emphasizing health promotion and encouraging PHC outreach to communities; 3) establishing demonstration projects and supporting network-building events that promote the practical use of interdisciplinary PHC teams; and 4) facilitating, coordinating and integrating health services to improve and strengthen communication between PHC providers and their communities. It achieved its objectives by creating culturally sensitive training programs to develop Nunavut's health human resources, and educational resources in the territory's four official languages to address serious public health concerns. Furthermore, the initiative spawned opportunities for community development and participation in health programs and facilitated interdisciplinary networks across Nunavut's three regions. The training program in mental health (Mental Health Diploma), which is offered at the Nunavut Arctic College, and the toolkit *Engaging Nunavummiut: A Guide to Strengthening Community in Nunavut* are just a few examples of the resources produced under this initiative.

British Columbia Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): British Columbia (B.C.) Ministry of Health; with B.C. Health Authorities and associated agencies; B.C. College of Family Physicians; B.C. Medical Association; non-government organizations such as B.C. Healthy Heart Society; University of Victoria; University of British Columbia; Centre for Health Services and Policy Research (CHSPR); B.C. communities

Approved Contribution: \$74,022,488

The population of British Columbia has grown by 19 per cent over the past decade, and at least 36 per cent of its population has at least one chronic disease. This initiative focused largely on helping general practitioners to improve care for priority populations, which were determined as such based on evidence showing gaps in care. The populations cited are: people with chronic diseases, frail elderly people, people with mental illness or addictions, people at the end of life, pregnant women and Aboriginal people. The initiative addressed three areas: improving health outcomes, supporting a range of practice models, and professional/organizational development, evidence and evaluation. Over the four years of the initiative, British Columbia focused primarily on two major chronic conditions: diabetes and congestive heart failure. It succeeded in raising the quality of care—according to clinical practice guidelines—for patients with these conditions, while corresponding mortality and hospitalizations appear to have decreased (thereby saving tens of millions of dollars). British Columbia developed more than 14 distinct models of service organization and delivery across the province. They are generally integrated community models, enhanced family practices and provider networks. Over the four-year course of the initiative, a total of 92 practice models were implemented or improved, and 26 sites

undertook enhancements to the structure or delivery of primary health care. Electronic medical record technology was introduced in 85 per cent of sites, and most sites engaged in health promotion and disease prevention activities. Overall, this initiative has strengthened British Columbia's ability to address its health care challenges.

Alberta Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): Alberta Health and Wellness; with Capital Health; Calgary Health Region; Chinook Regional Health Authority; Palliser Health Authority; David Thompson Regional Health Authority; East Central Health; Aspen Regional Health Authority; Peace Country Health; Northern Lights Health Region; Associate Clinic of Pincher Creek, Alberta; Edmonton Police Service; University of Alberta; University of Calgary; University of Lethbridge; Strathcona County Emergency Services; Alberta Alcohol and Drug Abuse Commission; Treaty 7 First Nations; the town of Pincher Creek; Canadian Mental Health Association; Alberta Mental Health Board; Alberta Medical Association; NAPI Friendship Centre; Aakom-Kiyi Health Services; Piikani Nation

Approved Contribution: \$54,876,073

Large-scale primary health care (PHC) initiatives were undertaken to improve access, accountability and integration of services. These initiatives were intended to bring about fundamental and sustainable change to the organization, funding and delivery of PHC services in Alberta. Two major strategies were implemented:

- The development and implementation of a province-wide 24/7 health information and advice service (Health Link Alberta); and
- Support for capacity building, through a Capacity Building Fund, which has funded nine initiatives, and other provincial coordination activities that supported the implementation of new care models and the broader implementation of Capacity Building Fund activities across the province.

Based on the common Primary Health Care Transition Fund objectives, Alberta established five of its own: 1) develop and integrate innovative health promotion, disease and injury prevention and chronic disease management programs; 2) develop, support and use integrated care models and other innovative service delivery methods; 3) develop and implement effective change management strategies at regional and provincial levels; 4) establish and implement education and training services to support new models of service delivery; and 5) identify and develop infrastructure that supports the delivery of PHC. Health Link Alberta has improved 24/7 access to appropriate PHC services, increased coordination and integration among PHC services and providers, increased emphasis on health promotion, disease prevention and chronic disease management and encouraged more appropriate use of Alberta's health care resources. Through the Capacity Building Fund and other provincial coordination activities, Alberta has developed innovative models in children's mental health, and has emphasized health promotion and disease prevention, chronic disease management and other areas of PHC. It has also established teams of health care providers, implemented new care models and identified change management strategies to develop teams and support a culture change towards multidisciplinary practice.

Saskatchewan Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): Saskatchewan Health

Approved Contribution: \$18,592,405

The Saskatchewan Action Plan for Primary Health Care was released in December 2001 with the overall aim of improving the quality of primary health care (PHC) services and access to them. Since the Action Plan's inception, however, Saskatchewan changed its governance structure, reorganizing its 32 health districts into 12 regional health authorities (RHAs). Saskatchewan intended to develop its PHC networks and teams within the new RHAs, and identified the following objectives for its PHC initiative: build PHC capacity within Saskatchewan Health and the RHAs; develop PHC programs in RHAs through community development and team facilitation; develop a 24-hour telephone advice line; provide educational opportunities to upgrade the skill level of PHC team members; and develop incentives for physicians to participate in the plan. Saskatchewan was able to accomplish these objectives through the creation of 37 PHC teams, which serve approximately 23 per cent of the population. More than 90 per cent of the teams provide 24/7 access to a physician and/or registered nurse practitioner. HealthLine, the provincial telephone advice line, has managed more than 200,000 calls since August 2003 and now includes an online health information service. A provincial team development project has brought team facilitation expertise to every RHA. The number of both nurse practitioners working in an expanded role and physicians on alternate payment plans who work on a PHC team has increased. Saskatchewan is committed to a renewed PHC system. Activities supported through the Primary Health Care Transition Fund will continue, in part, through Health Accord funding provided by the federal government.

Manitoba Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): Manitoba Health, Regional Support Service, Primary Health Care Branch; with Assiniboine Regional Health Authority; Brandon Regional Health Authority; Regional Health Authority—Central Manitoba Inc.; North Eastman Health Authority; South Eastman Regional Health Authority; Interlake Regional Health Authority; NOR-MAN Regional Health Authority; Parkland Regional Health Authority; Burntwood Regional Health Authority; Churchill Regional Health Authority; Winnipeg Regional Health Authority; CancerCare Manitoba

Approved Contribution: \$20,844,059

To renew its primary health care (PHC) system, Manitoba set three goals: 1) promote the development of PHC organizations delivering service to Manitobans based upon the principles of PHC (with the related objective of needs-based planning and services); 2) enable PHC service providers to deliver services in ways that reflect PHC principles (with the related objectives of planning for interdisciplinary training and alternative remuneration models for both physicians and other PHC providers); and 3) improve the ability of PHC organizations to deliver services (with the related objectives of providing infrastructure and tools, such as guidelines and change management techniques) to support movement towards PHC reform. As a result of this

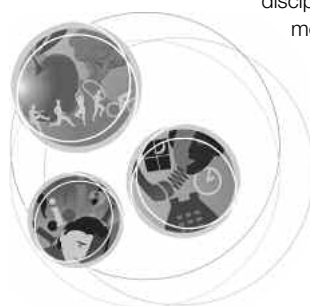
province-wide initiative, several new PHC centres were developed in the communities of Brandon, Camperville, Waterhen, Niverville and Winnipeg, serving approximately 77,000 people. There was a focus on team development through such initiatives as the Collaborative Practice Education Initiative and the Comprehensive Assessment, Referral and Access System. Health services became more integrated through the Urban Primary Care Oncology Network (UPCON) initiative, which linked oncologists with family physicians to provide better coordinated patient care. Information technology projects were also undertaken, such as the Community Service Information System in Winnipeg and the expansion of telehealth in Churchill. Despite some challenges (e.g., significant progress and implementation delays, recruitment and retention difficulties, change management issues), this initiative provided the foundation for PHC renewal in Manitoba by improving access, strengthening system integration and improving quality of service. The resources developed by this initiative included an outbound program to monitor patients with congestive heart failure; a PHC handbook with tools and practical information for patients/clients and their families; resources for team development and change management; and a post-graduate interdisciplinary curriculum on collaborative practice.

Ontario Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): Ontario Ministry of Health and Long-Term Care

Approved Contribution: \$213,170,044

In order to advance primary health care (PHC) in the province, Ontario undertook nine key PHC renewal initiatives that aimed to: improve access to PHC; improve the quality and continuity of PHC; increase patient and provider satisfaction; and boost the cost-effectiveness of PHC services. In particular, Ontario wanted to ensure that there was flexibility in payment and delivery models for PHC, while meeting the agreed-upon national goals of PHC renewal. Four of the nine initiatives were centrally implemented; these included enrolment in new PHC models, systems development and information technology, communication, and project management. The other five initiatives were implemented through operational grants (101) and included demonstration, research and evaluation (interdisciplinary projects); accreditation; leadership and training; mental health; and rehabilitation projects. In addition, Ontario awarded 59 capital grants, the majority of which served to integrate a range of different disciplines into practices. Over the four years of the initiative, Ontario focused on supporting physician and patient enrolment in other PHC models; developing and implementing information technology systems, including a decision support and a workflow management system; developing several resources for patients and providers; developing a new curriculum to build knowledge and skills in continuous quality improvement and interdisciplinary collaboration; and designing a new accreditation process. In addition, Ontario's PHC Team provided ongoing management, accountability monitoring and reporting of all initiatives, which included several site visits to operational and capital grant projects, and organized key knowledge transfer events, which included conferences and two workshops to update participants on the progress of Ontario's transformation strategy and to share lessons learned. This initiative has advanced Ontario's PHC strategy. Over 90 interdisciplinary PHC teams have been established and enrolment in new PHC models has increased substantially. Furthermore, capital and operational grant projects have provided needed infrastructure,



skilled human resources, and new services and programs that are strengthening PHC services. Several resources were produced including toolkits, best practices and protocols, innovative models of care, evaluation instruments, training modules, care plans and accreditation standards.

Quebec Primary Health Care Transition Fund Initiative

Lead and Partner Organization(s): **Ministère de la Santé et des Services sociaux du Québec; [Quebec Department of Health and Social Services]**

Approved Contribution: \$133,681,686

Quebec has made Family Medicine Groups (FMGs) one of the cornerstones of its reform. An FMG is a new organization composed of family physicians working as a group in close collaboration with nurses, and providing a wide range of services to clients who enrol voluntarily. The groups belong to a more extensive network comprising other FMGs, hospitals and other services. The array of services offered by the FMGs includes the provision of care suited to the health status of registered patients; disease prevention and health promotion; medical assessments; and diagnosis and treatment of acute and chronic conditions. The goal of the FMGs is to ensure that Quebec's primary health care system remains viable and accessible. Their objectives are consistent with the those set at the First Ministers Meeting 2000 on primary health care renewal, and with the shared objectives of the Primary Health Care Transition Fund (PHCTF), namely, to:

- Ensure people in Quebec have access to a family physician;
- Ensure better access to services, as well as better overall management (continuity of care) and patient follow-up;
- Improve the delivery and quality of medical care, and the administration of front-line services;
- Develop services that supplement those of local community service centres (CLSCs); and
- Recognize and value the role of the family physician.

The *Commission d'étude sur les services de santé et les services sociaux* (Clair Commission) first proposed FMGs in December 2000, and the Quebec government announced their creation in 2001. Quebec has declared its intent to register 75 per cent of the population on FMG lists in the coming years, and expects to establish some 300 FMGs in the province. FMGs began appearing in the fall of 2002, and the PHCTF has since contributed to their development. In February 2006, slightly more than 100 FMGs were active or in various phases of implementation. Some 1,000 family physicians and 200 nurses work in FMGs, and nearly 800,000 Quebecers are enrolled in them. Other FMGs are in the certification stage. A *Université de Montréal* case study of five first-wave FMGs found that there had been notable progress in collaboration between physicians and nurses in most of the FMGs under study, and that the majority of users saw only the benefits of enrolling in an FMG.

Health Care Renewal in New Brunswick

Lead and Partner Organization(s): **New Brunswick Department of Health;** with Atlantic Canada Opportunities Agency; Atlantic Blue Cross Care; Business New Brunswick; National Research Council

Approved Contribution: \$13,689,805

Primary health care (PHC) renewal in New Brunswick (NB) is about improving access to PHC, within a system that will deliver the right health care service, in the right way, at the right time, by the right provider, at a cost taxpayers can afford. NB's vision for a healthy future shifts the focus from acute care to community-based services. It identified two priorities: the establishment of a network of community health centres (CHCs) and improvement in ambulance services. Five CHCs were established and are operational. Training was provided to health care providers through five provincial conferences and the Building a Better Tomorrow training initiative. An orientation manual was developed for staff in all CHCs. An electronic health record is in place and will be in operation soon at all sites. More than 500 ambulance attendants received advanced life support skills. The ambulance dispatch service was upgraded, along with the associated information technology. More than 500 nurses working in emergency rooms across the province received enhanced training, and they are now able to assess, treat and discharge emergency room patients who do not require the services of a physician. Similarly, more than 800 licensed practical nurses in nursing homes and regional health authorities were provided training that better enables them to work to their scope of practice. The telehealth pilot, EMP care@home, is in progress. It is evident that NB is committed to sustaining the work of this initiative. Two more CHCs are being opened and planning has begun for a third. Capital investments in facilities, technologies and change strategies have been made to achieve NB's priorities, and the Department of Health has realigned existing resources for the ongoing support and maintenance of these endeavours. Overall, NB appears to be well positioned to provide PHC to its residents through the use of CHCs.

Primary Health Care Renewal in Nova Scotia

Lead and Partner Organization(s): **Nova Scotia Department of Health**

Approved Contribution: \$17,073,265

Nova Scotia's Vision for Primary Health Care, developed in 2003, set the stage for primary health care (PHC) renewal plans and activities in that province. With support from the Primary Health Care Transition Fund (PHCTF), the Department of Health developed three transitional initiatives to support this vision: implement enhancements to PHC services and create new ways to develop sustainable PHC networks or organizations; support costs associated with change (to encourage collaborative groups of PHC professionals to work in new or strengthened PHC networks or organizations); and support the PHC system transition to an electronic patient record. The Department of Health and the District Health Authorities (DHAs) collectively planned and conducted a range of activities to support this transition. The initiative strengthened the capacity of DHAs to support community planning for PHC renewal; supported planning and implementing new or strengthened networks/organizations; developed the necessary transition structures, processes and evaluation tools used to assess the initiatives; offered financial support to renovate PHC organizations,

including establishing physical space that would facilitate communication and networking as well as participation in PHC planning; supported the development of sustainable models for PHC organizations, including alternative payment plans and teams with nurse practitioners, and chronic disease management and health promotion initiatives. Nova Scotia also laid the groundwork for the electronic health record, in terms of defining standards for clinical software and developing confidentiality and security policies, implementation support, an evaluation strategy, and new/upgraded hardware and software. The Diversity and Social Inclusion program produced the first provincial guidelines for the delivery of culturally sensitive PHC in Canada. The provincial website www.gov.ns.ca/health/primaryhealthcare/default.htm details the PHC renewal initiative.

Prince Edward Island Primary Health Care Redesign

Lead and Partner Organization(s): Government of Prince Edward Island

Approved Contribution: \$6,526,879

Prince Edward Island (PEI) undertook primary health care (PHC) redesign to address issues such as shortages of health professionals, provider satisfaction, increasing demand for health care services, rising health care costs, high rates of chronic disease and other issues related to accessibility, integration and coordination. This initiative's multiple goals fell into six categories: improve access to comprehensive PHC services; improve continuity of care through coordinated and integrated PHC service delivery; increase emphasis on health promotion and chronic disease prevention and management, including self-management; maintain or improve patient/client satisfaction with PHC; maintain or improve provider satisfaction through collaboration; and improve accountability.

To achieve the goals, five initiatives were planned: establishing five collaborative Family Health Centres (FHCs); implementing a provincial healthy living strategy; integrating palliative care; improving drug utilization; and promoting the use of videoconferencing. Over the four years of the initiative (2002–06), PEI took an incremental, phased-in approach to advance the first three initiatives. As a result, FHCs currently serve approximately 22,800 people (16 per cent of the PEI population) and all FHC staff have been trained in collaborative practice and PHC. The Healthy Living Strategy supported various programs aimed at encouraging healthy lifestyle choices, many of which were directed at children. Front-line palliative care staff and clinical resource teams across the province have received basic and enhanced training to support and deliver palliative care, and an integrated palliative care program has been established across the province. Some key resources produced by this initiative include five health centres with collaborative practice teams, numerous and varied health promotion and chronic disease prevention activities and programs, and a nationally recognized palliative care service delivery model with palliative care clinical resource teams.

Newfoundland and Labrador Primary Health Care Initiative

Lead and Partner Organization(s): Newfoundland and Labrador Department of Health and Community Services

Approved Contribution: \$9,705,620

With the overarching aim of having at least 50 per cent of the population provided with primary health care (PHC) by PHC teams by 2010, this province-wide initiative had four specific goals: to enhance accessible, sustainable primary health care (PHC) services; to support comprehensive, integrated and evidence-based services; to promote self-reliant healthy citizens and communities; and to enhance the accountability and satisfaction of health professionals. Over the four years of this initiative, a wide range of activities led to the establishment of eight PHC teams, with three more team areas in the early stages of proposal implementation, and three more finalizing proposals. Proposals were developed based on population needs. Large numbers of professionals participated in team development and scopes of practice processes, and early evaluation results show positive shifts towards increased teamwork. Community Advisory Committees were established in all PHC team areas. All PHC teams, in cooperation with the provincial Wellness Strategy and Regional Wellness Coalition, increased support for wellness initiatives. The Chronic Disease Management Collaborative was implemented in seven rural PHC team areas, and is in the early implementation stage in urban settings. The evaluation processes were formalized for all PHC team areas and for special projects (such as enhanced sharing of information). Partnerships have been forged with academic institutions for professional education and development, as well as with the Newfoundland and Labrador Centre for Health Information to move forward with a number of information management initiatives for evaluation and future direction (sharing of electronic health information, telehealth, electronic medical records and the PHC classification system ICPC2). The anticipated results of the initiative are better health outcomes, improved health status, sustainability and greater cost-effectiveness.

Aboriginal Envelope

Health Integration Initiative (HII)

Lead and Partner Organization(s): First Nations and Inuit Health Branch, Health Canada; with First Nations communities and organizations in British Columbia, Alberta, Manitoba, Ontario, Nova Scotia and New Brunswick; an Inuit organization in Nunavut; health ministries from six provinces and one territory and associated regional health authorities; the towns of Norway House (Manitoba), Sioux Lookout and Moosonee (Ontario); professional nursing colleges in Nova Scotia and New Brunswick; health care providers and evaluators

Approved Contribution: \$10,800,000

First Nations and Inuit people receive health care services from the federally funded health services in their communities and the provincial territorial health systems. Various government reports have identified the need for better coordination. To address this need, the Health Integration Initiative was created, with the aims of: exploring, developing and analyzing models for better integration of federally funded health systems in First Nations/Inuit communities with



provincial/territorial delivery of health services; and identifying mechanisms for collaboration and harmonization between federal, community-based programs and provincial/territorial health systems. Over the three years of the initiative (2003–06), the Health Integration Initiative undertook applied research and policy development and funded eight integration projects, which were meant to: test the practicalities of integrating federal First Nations and Inuit and provincial/territorial health systems; eliminate duplication of effort; identify existing gaps in services; create potential economies of scale; and identify areas for improvements (timeliness, access and quality of services). Some of the initiative's accomplishments include developing legislation for creating a First Nations health authority in northern Ontario; creating an integrated health care delivery structure for the residents of the First Nation and community of Norway House; undertaking a collaborative, multi-jurisdictional approach to diabetes management in northern Alberta; and integrating primary care services from the regional health authority with community health services in the Elsipogtog First Nation. Joint plans for health care delivery, tools and resources (such as care maps, guidelines and policies) have been created and will continue to inform the delivery of health services within the communities. The funded projects have all been successfully implemented, and most of the early outcomes seem to indicate that the projects have contributed to a shift to collaborative partnerships that will be useful for the implementation of the Aboriginal Health Transition Fund from 2006–10.

Tui'kn Initiative

Lead and Partner Organization(s): **Membertou Band****; with the five Cape Breton First Nations communities (Membertou, Potlotek [Chapel Island], Eskasoni, Wagmatcook and We'koqma'q) in collaboration with Health Canada; the Nova Scotia Department of Health; Cape Breton District Health Authority; Guysborough Antigonish District Health Authority; Dalhousie University

**This was a collaborative initiative by the five First Nations bands listed above. The technical agreement was hosted by the Membertou Band on behalf of the community partners.

Approved Contribution: \$2,946,380

The five First Nations bands in Cape Breton, Nova Scotia, have some of the highest rates of morbidity and premature death in the country and have near-epidemic rates of diabetes. Out of deep concern over this situation, the Tui'kn (meaning "passage" in Mi'kmaq) Initiative was born to introduce a new way of thinking about health and delivering health care in the five communities. Its four major goals were to: remove the barriers to an integrated, holistic, culturally appropriate, multidisciplinary primary health care (PHC) model; create the mechanism for collaborative planning and partnerships within each community, among the five communities and among the local, district, provincial and federal levels of government; develop capacity for the collection, management and interpretation of health information at the local level; and translate the renewed model of PHC into action. Over the three years of the initiative, it undertook four strategies and identified four pillars of priority action. The four strategies were: achieving a full complement of family physicians; supporting nurses to practice to their full potential; implementing an electronic patient record system in all five Tui'kn sites; and building community capacity to collect, manage and interpret health information by training Health Information and Evaluation Coordinators in each community and through the development of a Health Information System that links diverse data sets. The four pillars of community action were: diabetes prevention and management; non-traditional tobacco use; childhood injury preven-

tion; and prescription drug misuse. Action plans, partnerships and a publication resulted from working on these pillars. Through this initiative, the five bands gained confidence and learned that they can work together to identify and meet the health care—and other—challenges that they face. They learned about building capacity for the collection, interpretation and manipulation of health information at the community level. They were successful in recruiting health care professionals and established a health information system that allows them to monitor trends, utilization and outcomes, and to use analysis to support clinical, policy and funding decisions.

A Tool to Help People from Far Away—The Ikajuruti Inungnik Ungasiktumi (IIU) Telehealth Network

Lead and Partner Organization(s): **Department of Health and Social Services, Government of Nunavut**

Approved Contribution: \$2,700,041

Nunavut faces unparalleled challenges in delivering health care and social services to its people. Its 25 communities vary in size from 148 to 7,000 and are connected only by sea, air and satellite communication. The Ikajuruti Inungnik Ungasiktumi (IIU) Telehealth Network, which means "a tool to help people from far away," is therefore vital to delivering health care services to this territory's small and isolated population. This network has existed since 1999 and has brought videoconferencing and store-and-forward technology (the temporary storage of a message for transmission to its destination at a later time, which allows for routing over networks that are not accessible at all times, like those in remote locations) to 15 communities. However, 10 communities—with populations ranging from 150 to 800 people per community—remained isolated and unconnected. This initiative helped to support the network's expansion to seven of these communities—Clyde River; Hall Beach; Resolute Bay; Coral Harbour; Repulse Bay; Taloyoak; and Kugaaruk—and the Nunavut government leveraged the PHCTF investment to encourage private donations to connect the remaining three. The aims of the expanded IIU Telehealth Network were to:

- Improve access to health care services, social services, public health, education and administration;
- Support the ongoing investment into telehealth;
- Help staff providing services in remote locations;
- Deliver tools to support the integration of telehealth into the Health and Social Services delivery system, including health information and access to other specialists/professional opinions; and
- Use telehealth as a community development tool, providing communication between communities and regions in support of broader population health determinants.

This initiative helped the Department of Health and Social Services to adapt to the challenges of geography, climate and weather so that more patients are able to receive care closer to home. It has helped to enable Nunavut to provide comprehensive programming and services to all Nunavummiut (people of Nunavut), as well as make the newest jurisdiction in Canada the first to connect all of its communities with telehealth technologies. Through this initiative, personnel have been trained and certified to run and maintain the information technology equipment, and the gap between the health services available at the community level in the North and those in the South of Canada has narrowed.

Enhancing Access and Integrating Health Services—Keewatinook Okimakanak (KO) Telehealth/NORTH Network Partnership Expansion Plan

Lead and Partner Organization(s): **Keewatinook Okimakanak (Northern Chiefs Council);** with Northern Ontario Remote Telecommunications Health (NORTH) Network (now part of the Ontario Telemedicine Network)

Approved Contribution: \$3,441,495

Telehealth is entering the mainstream as a standard of practice for delivering quality health services to geographically isolated communities. The Keewatinook Okimakanak (KO) Telehealth initiative was designed to build on the success of its existing telehealth service model, extending the service to an additional 19 Aboriginal communities in northern Ontario while increasing the capacity of local communities to plan, manage and deliver this service. KO Telehealth uses telecommunications technology (such as secure videoconferencing, digital stethoscopes and patient exam cameras) to enhance clinical encounters and support community-based health education and training sessions in remote settings. For patients, this enhances their access to health care providers and reduces travel time and costs. During the initiative, telehealth systems and network services were introduced in all the designated areas. Telehealth staff were recruited and trained to support the service and their role was found to be critical to community acceptance and utilization of the service. The use of primary health care services increased among the target population and there was a high level of acceptance of the technology among patients and health providers. The KO Telehealth initiative has contributed to First Nations' understanding and capacity to implement telehealth services. The model could be used effectively by other northern and remote communities. The KO Telehealth website, www.telehealth.knet.ca, provides extensive details on the experience of the initiative, including a methodology for coordinating and integrating provincial and federal program access.

Initiative to Implement a Digital Radiology and Tele-Radiology System in Nunavik

Lead and Partner Organization(s): **Nunavik Regional Health and Social Services Board;** with the McGill University Health Centre (MUHC); Nunavik Health Centres; *Ministère de la Santé et des Services sociaux* (MSSS) du Québec [Ministry of Health and Social Services]

Approved Contribution: \$801,900

This initiative was designed to ensure rapid, 24-hour access to radiology services for the population of Nunavik, a region where primary health care services had relied on traditional radiology equipment. It purchased digital radiology equipment and viewing consoles for two Nunavik health centres: Kuujuaq and Puvirnituq. It acquired picture archiving and communication systems (PACS) for both health centres, and installed a diagnostic console for Nunavik images at the Montreal General Hospital. To lay the groundwork for clinical activities, it trained staff at the two sites. By improving examination quality and diagnostic accuracy, and giving Nunavik residents greater access to specialists, the initiative helped boost the region's radiology services and improve emergency services. Since the start of clinical activities in

May 2006, some 500 X-rays have been transmitted per month. Wait times have also been shortened and emergency services improved for the population of Nunavik.

Multi-Jurisdictional Envelope

Health Lines

Lead and Partner Organization(s): **Alberta Health and Wellness;** with the governments of British Columbia, Manitoba, Northwest Territories, Yukon Territory, Nunavut and Saskatchewan

Approved Contribution: \$6,813,600

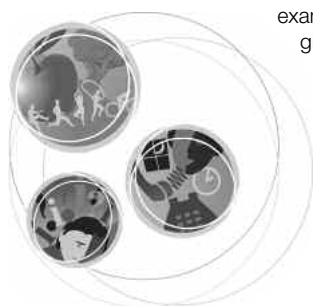
Health lines have become an accepted model of accessing and delivering high-quality health services, and they continue to expand and grow. The potential exists to use health lines to create linkages with primary health care to support clients and the health system in a variety of ways. This multi-jurisdictional collaborative involved seven jurisdictions working together to support health line development, as they faced common issues related to the planning, implementation and delivery of health line services. The collaborative's goal was to create economies of scale and avoid duplication by sharing expertise, knowledge and skills in the planning and delivery of health line services. The initiative targeted activities in five areas: staff education, evaluation, promotion and marketing, chronic disease management, and coordination and collaboration. An extensive array of resources was developed through these activities, including an Efficiency Self-Assessment Tool and a Business Planning Guide. The tools, frameworks and templates developed through the initiative can be used both within the partner jurisdictions and across the country, and can be found on the initiative website: http://www.health.gov.ab.ca/key/Multi_Jurisdictional%20Health%20Lines%20Initiative.htm. This initiative established a strong regional network that can help to advance national health line planning and implementation activities.

Selfcare/Telecare

Lead and Partner Organization(s): **New Brunswick Department of Health;** with Newfoundland and Labrador Department of Health and Community Services; Nova Scotia Department of Health; Prince Edward Island Department of Health; New Brunswick Department of Justice; Newfoundland and Labrador Department of Justice; New Brunswick Department of Intergovernmental Affairs; Newfoundland and Labrador Intergovernmental Affairs Secretariat

Approved Contribution: \$6,940,266

The four Atlantic provinces (Newfoundland and Labrador, New Brunswick, Nova Scotia, and Prince Edward Island [PEI]) approached the PHCTF with a proposal to examine the feasibility of establishing teletriage and a health information system in both official languages for all of Atlantic Canada. This initiative aimed to increase opportunities for the public to access helpful, accurate and timely evidence-based health information that could have a positive influence on the use of health care resources and individuals' behaviour and ability to stay healthy. Following the development of a business plan, each jurisdiction considered its participation. After careful consideration, Newfoundland and Labrador, in partnership with New Brunswick, committed to the implementation of: toll-free lines for symptom triage, general health information, health resources information, and poison control (not available in Newfoundland and Labrador); and an automated audiotape library service using the same toll-free lines to provide advice on health topics.



These services were implemented through an expansion of the technical infrastructure that existed previously in New Brunswick. Resulting telehealth services are delivered from contact centres operating 24/7, and staffed by experienced registered nurses who follow evidence-based protocols and algorithms. Despite the many challenges this initiative faced (for example, difficulties reaching consensus on governance models and the role of private sector, privacy legislation), it is supporting better use of existing health care resources and is strengthening access to health services across urban and rural communities. Furthermore, the initiative: elevated the profile of telehealth across Atlantic Canada; created a governance model to manage multi-jurisdictional, multi-site services; and engendered a higher degree of cooperation, not only between jurisdictions, but also within health care and government organizations in the provinces.

Western Health Information Collaborative (WHIC) Chronic Disease Management Infostructure Initiative

Lead and Partner Organization(s): Government of Alberta (lead jurisdiction on behalf of WHIC); with British Columbia Ministry of Health; Saskatchewan Health; Manitoba Health

Approved Contribution: \$8,000,000

The WHIC chronic disease management (CDM) initiative arose from clinicians' need for better access to clinical information on chronic disease. The initiative focused on facilitating the collection and dissemination of consistent, reliable CDM information, in order to provide clinicians with relevant clinical information to assist in treating persons with chronic diseases. It specifically concentrated on the development of data and message exchange standards to support CDM, including a transition toward implementing this health information infrastructure, or "infostructure," in the computer systems in the partner jurisdictions. Specifically, the initiative identified, defined and standardized core data sets and information interchange messages for three chronic diseases—diabetes, hypertension and chronic kidney disease—and implemented the data standards and messages in the four partner jurisdictions. In developing these standards, the initiative worked extensively with a clinical advisory group and stakeholders who attended multiple provincial workshops. The initiative has increased the capacity of primary health care teams to share the data needed for CDM clinical decision-making. A greater number of health providers from multiple sites now have timely access to clinical information and, as a result, care can be provided in the most suitable setting. The development of CDM standards in a generic framework has ensured that new diseases can be addressed with a minimal amount of change to data content and message definitions. The implementation of HL7 messaging standards, which has begun as a result of this initiative, will facilitate the exchange of common chronic diseases data. This will allow for the interoperability of information systems and, thus, communication of CDM information locally, regionally, provincially and eventually nationally. The initiative website, www.whic.org/public/profiles/cdm.html, hosts documents that may be of interest to other jurisdictions with an interest in implementing the CDM standards.

National Envelope

Enhancing Interdisciplinary Collaboration in Primary Health Care: A Change Process to Support Collaborative Practice

Lead and Partner Organization(s): Canadian Psychological Association; with Canadian Association of Occupational Therapists; Canadian Association of Social Workers; Canadian Association of Speech–Language Pathologists and Audiologists; Canadian Medical Association; Canadian Nurses Association; Canadian Pharmacists Association; Canadian Physiotherapy Association; Canadian Coalition on Enhancing Preventative Practices of Health Professionals; Dietitians of Canada; The College of Family Physicians of Canada

Approved Contribution: \$6,551,700

The Enhancing Interdisciplinary Collaboration in Primary Health Care (EICP) initiative arose from a shared conviction by those responsible for planning, managing and delivering primary health care (PHC) services in Canada that health professionals need to be used more effectively and efficiently. In particular, they wanted to enhance interdisciplinary collaboration among the broad range of health professionals who deliver PHC across the country. The initiative aspired to develop a set of guiding principles and a framework that describe how PHC professionals can work together effectively in every setting; have the principles and framework broadly supported by PHC practitioners and ratified by their professional associations; and to develop tools for PHC professionals to use to work more effectively together. Through research, pan-Canadian consultations and communication activities, the EICP initiative both promoted and facilitated interdisciplinary collaboration in Canadian PHC settings. The EICP partner organizations successfully developed and ratified a set of guiding principles and a framework to enhance interdisciplinary collaboration in PHC. The initiative created broad-based awareness of the benefits of collaborative practice and created a body of research about best practices and the state of collaborative care in Canada. The research reports, along with a toolkit featuring more than 200 tools to help PHC professionals work together more effectively, are on the EICP website, www.eicp-acis.ca. The initiative not only strengthened the relationships among the participating health professionals and their associations, but also demonstrated that effective, equitable interdisciplinary leadership is critically important to PHC renewal.

e-Therapeutics Drug Therapy Management: Tools and Technology to Enhance Collaboration and Communication to Improve Safety and Outcomes from Drug Therapy

Lead and Partner Organization(s): Canadian Pharmacists Association; with Alberta Health and Wellness; Best Medicines Coalition; Canada Health Infoway; Canadian Association of Chain Drug Stores; Canadian Agency for Drugs and Technologies in Health; Canadian Institute for Health Information; Canadian Nurses Association; College of Family Physicians of Canada; Health Canada Therapeutics Products Directorate; Health Canada Marketed Health Products Directorate; IBM Canada; National Association of Pharmacy Regulatory Authorities; National Specialty Societies of Canada; Nova Scotia Department of Health; Public Health Agency of Canada; MOXXI Project (Quebec); Royal College of Physicians and Surgeons of Canada

Approved Contribution: \$8,840,300

Drug therapy is a key aspect of primary health care for Canadians. Drug expenditures account for an increasing share of total health costs (17.5 per cent), second only to hospital expenditures, with \$24.8 billion spent on retail drugs in 2005. The goal of e-Therapeutics is to support best practices and promote optimal drug use for all primary care providers through a comprehensive Canadian online source of drug therapy information. The initiative's work was divided into six streams: governance and project management, content development and maintenance, technical development, change management, evaluation, and marketing and communications. A set of electronic decision support tools was developed to facilitate point-of-care access to current, evidence-based, Canadian drug and therapeutic information through the e-Therapeutics web portal, **www.e-Therapeutics.ca**. The initiative addressed the concerns of both health professionals and consumer groups about the safety of medication, the need for improved prescribing, and access to new information. e-Therapeutics was designed to be integrated with future electronic health record applications. The Canadian Pharmacists Association is committed to covering the ongoing costs of e-Therapeutics through a long-term business model.

Primary Health Care and Telehealth: Making the Links National Workshop

Lead and Partner Organization(s): Manitoba Health Primary Health Care Unit; with Manitoba Telehealth; Winnipeg Regional Health Authority

Approved Contribution: \$249,500

In September 2005, this two-day national workshop brought together 54 participants from across the country, all of whom represent primary health care (PHC) and telehealth. They came to share information and identify the ways in which the existing telehealth infrastructure within each jurisdiction could be used to support PHC reform and sustain the health care system overall. Telehealth services have traditionally been used to deliver acute care services to remote communities, but they can do more. This workshop focused on their ability to support primary care and PHC by: educating both providers and the public about health promotion, disease and injury prevention initiatives; supporting health professionals working in rural or isolated communities; and improving access to specialist services. The goal of the Making the Links workshop was to develop effective, practical and workable linkages between existing PHC and telehealth initiatives at the jurisdictional level. Participants discussed what is needed to develop successful links between PHC and telehealth, and examined new ways of thinking and putting into practice the solutions and ideas offered by technology to create a sustainable health care system. They also identified the top 10 key points that need to be examined and considered in order to develop effective links between PHC and telehealth, and came up with action items. The initiative's website, **www.makingthelinks.mbtelehealth.ca**, holds documents related to the workshop.

Increasing Support for Family Physicians in Primary Care

Lead and Partner Organization(s): The College of Family Physicians of Canada

Approved Contribution: \$232,900

Primary care (PC) reform in Canada has required the development of new models of care. This has had an impact on how family physicians (FPs) practice and has created some uncertainty about their present and future roles in PC delivery models. As a result, there is a need to find ways to adequately support FPs in managing the changes brought about by PC reform and to provide tools to assist them in meeting the new and evolving demands of their day-to-day practice. This initiative therefore sought to identify, develop and support a cadre of FP PC renewal leaders across Canada at the national, provincial, regional and local levels. These PC leaders had an opportunity to develop and enhance their leadership and advocacy skills; share experiences; develop a PC toolkit for FPs; and explore opportunities for FPs and other health care professionals to better understand and introduce interprofessional team approaches in PC. The toolkit includes six modules: Introduction to the Toolkit; Remuneration; Governance; Interdisciplinary Collaboration; Continuity and Comprehensiveness of Care; and Information Technology. In December 2006, the web-based PC toolkit will be publicly launched and a change management leadership group will be established. The toolkit will be available at **www.toolkit.cfpc.ca**. Together, the toolkit and leadership group will help FPs to access current and practical transition tools and obtain expert advice from colleagues experienced with newer PC models. The College of Family Physicians of Canada (CFPC) has committed itself to supporting a Primary Care Advisory Committee of FP leaders and maintaining and updating the toolkit. The CFPC believes that this initiative represents an important first step in increasing support for FPs in PC and that it creates the momentum to affect change.

Supporting the Implementation of Electronic Medical Records in Multi-disciplinary Primary Health Care Settings

Lead and Partner Organization(s): Primary and Continuing Health Care Division, Health Policy Branch, Health Canada

Approved Contribution: \$455,000

Renewal initiatives in primary health care (PHC) are highly dependent on the use of information management tools such as electronic medical records (EMRs). This technology has the potential to: support information-sharing among team members; improve quality and continuity of care (especially chronic disease management); support planning and accountability activities; and offer decision-making support. However, uptake in Canada has been relatively slow. Implementation of EMRs requires change management and guidance in practice settings, and these supports have not traditionally been provided. In this initiative, Health Canada sought to address this shortfall by developing and disseminating a toolkit to support the implementation of EMRs. The consultation phase confirmed the need for such a toolkit. It found that existing Canadian resources on EMR implementation tend to focus on providing the knowledge, tools, templates and methodologies to support "first-time" selection and implementation of EMRs. Change management resources, such as training and tools for "people" and "processes," have not been as well documented, or have been underutilized if they exist. This initiative therefore produced a bilingual toolkit to pro-



vide assistance to practitioners implementing EMRs, available at www.emrtoolkit.ca. In addition, it conducted a variety of dissemination activities aimed at putting the toolkit into the hands of health care system providers and planners. It undertook these activities with the overarching goal of furthering PHC renewal by encouraging the use of information technology in practice settings.

Continuous Enhancement of Quality Measurement in Primary Mental Health Care—Closing the Implementation Loop

Lead and Partner Organization(s): **Centre for Applied Research in Mental Health and Addiction, Faculty of Health Sciences, Simon Fraser University (formerly the Mental Health Evaluation and Community Consultation Unit [MHECCU] at the University of British Columbia);** with the Canadian Mental Health Association; Mental Health Consultation and Evaluation in Primary-care Psychiatry (MHCEP); l'Institut national de santé publique du Québec (INSPQ); Groupe de recherche sur l'intégration sociale; l'organisation des services et l'évaluation en santé mentale (GRIOSE-SM); University of Calgary; University of Saskatchewan; University of Toronto; University of Western Ontario

Approved Contribution: \$2,000,000

Most people with mental health problems are seen in primary health care (PHC) settings. A gap exists, however, between what current evidence shows is effective care and what patients are actually receiving at the practice level. This initiative aimed to help close the gap by embedding quality measurement of primary mental health care in a continuous process of consultation, dissemination, ownership and recurring system transformation. The goal of the initiative was to develop a national, agreed-upon set of quality measures for primary mental health care. These measures would be used to evaluate the quality of PHC and mental health services, both regionally and nationally. To reach its goal, the initiative first reached consensus on 22 priority areas (domains); it then surveyed experts to research best practices and existing health measures associated with the domains identified. The 3,000 measures of quality generated will be available in a public, searchable database. Finally, it surveyed 270 stakeholders from every province and territory to identify an essential and smaller set of consensus primary mental health care quality measures (20–40) that could be used at various system levels to support quality improvement in primary mental health care. The findings are intended to help policy-makers make evidence-based decisions as to what their priorities should be in reforming the health care system, and to help clinicians, mental health advocates/users and academics by giving them better knowledge about quality care (e.g., what it is, how we can measure it). The initiative also produced a “next steps” document to foster the implementation of measures into current and future data systems.

Health Care Interpreter Services: Strengthening Access to Primary Health Care

Lead and Partner Organization(s): **Access Alliance Multicultural Community Health Centre;** with Agence de développement de réseaux locaux de services de santé et de services sociaux de Montréal; Critical Link Canada; Healthcare Interpretation Network; Ontario Ministry of Citizenship and Immigration; Provincial Language Service, Provincial Health Services Authority of British Columbia; Université du Québec en Outaouais

Approved Contribution: \$471,900

The Health Care Interpreter Services: Strengthening Access to Primary Health Care (SAPHC) initiative was founded on the principle that effective communication is crucial to ensuring quality and access to primary health care (PHC), and that appropriate interpreter services in the delivery of health care are needed. The aim was to identify approaches that build on and are best suited to the delivery of PHC services in Montréal, Toronto and Vancouver—where most immigrants choose to live—and also to create and pilot-test models/tools that could be used across the country to improve linguistic access to services. Between November 2003 and June 2006, the SAPHC initiative marshalled the expertise, experience and efforts of a broad range of health care and interpreter services organizations, providers and other stakeholders. It undertook research and held a national symposium. Building on recommendations that arose from these activities, the initiative's organizers developed and implemented various pilot projects and tools at the three core sites. In Montréal, a French video was developed to help train health care providers to work with interpreters and bridge the communication gap. In Toronto, a pilot project set out to implement and evaluate a centralized model for providing health care interpreters for medical appointments. It demonstrated that the services of a professional interpreter improved the quality of the encounter and the satisfaction of both the patient and service provider. Also in Toronto, a Primary Health Care Orientation Module was developed and tested with the aim of creating a template for orienting interpreters who will be working in PHC settings. In Vancouver, a risk management matrix and tool was developed to allow those using it to determine areas in their health organization or program in need of attention and action. It was pilot-tested and well received. The SAPHC initiative offered several recommendations in the areas of service delivery, training, standards and policy to guide future work.

National Home Care and Primary Health Care Partnership Initiative

Lead and Partner Organization(s): **Canadian Home Care Association;** with Calgary Health Region; Ontario Community Care Access Centres (Halton and Peel); Primary Health Care Providers; Workflow Integrity Network; IBM Business Consulting Services

Approved Contribution: \$2,682,100

This initiative arose from the Canadian Home Care Association's belief that home care has a key role to play in primary health care (PHC) renewal. The initiative's purpose was to demonstrate the effect of an augmented home care case management role in collaboration with the family physician on the care of persons with chronic disease. Individuals with diabetes were targeted. Generally, case managers and physicians work separately. The initiative's goal was to foster greater collaboration and partnership between the two in order to achieve more effective use of appropriate health care personnel and more proactive patient care with an emphasis on prevention and patient empowerment. Other objectives included achieving improved health outcomes, better use of health care services and heightened patient/client satisfaction. In addition, the initiative set out to promote greater use of information technology systems to support communications, care and record-keeping. The evaluation covered the period between October 2004 and September 2005, with 942 patients enrolled in two locations: Calgary, Alberta, and Halton and Peel, Ontario. The initiative demonstrated that partnering a case manager with a family physician in the care of

chronic disease patients benefits the patient, the physician and the health system. Benefits realized included: increased client access; improved collaboration between clients and providers and among providers; improved health outcomes; and increased client satisfaction. For providers, there was improved partnership; enhanced collaborative care; greater use of tools and evidence-based guidelines; increased electronic connectivity; more information sharing; better coordination of services; and a higher level of provider satisfaction. From a system perspective, participants saw improved efficiency of service delivery; greater ability to evaluate health outcomes; and more appropriate use of health care services. In communicating its findings, the initiative noted that it had achieved increased public and stakeholder awareness of PHC services. Approximately 25 practical tools used and/or developed during the initiative have been posted with instructions on the website www.cdnhomecare.ca.

Rainbow Health—Improving Access to Care

Lead and Partner Organization(s): Canadian Rainbow Health Coalition; with Gay and Lesbian Health Services of Saskatoon; Nova Scotia Rainbow Action Program; Gris Quebec; La Coalition d'aide aux lesbiennes, gais et bisexuels-les de l'Abitibi-Temiscamingue; 2-Spirit People of the 1st Nation; Rainbow Health Network/Coalition for Lesbian and Gay Rights in Ontario; Gay and Lesbian Health Services of Saskatoon (Avenue Community Centre for Gender and Sexual Diversity); The Centre, Vancouver; Transcend Transgender Support and Education Society/ Transgender Health Program

Approved Contribution: \$2,307,000

Research indicates that gay, lesbian, bisexual and transgender (GLBT) people's health status is substantially poorer than that of the average Canadian, with higher rates of suicide, depression, mental illness, substance abuse and HIV/AIDS. This initiative therefore aimed to:

- Raise awareness of this fact among health care providers and within the GLBT communities across the country;
- Encourage GLBT individuals to become active partners in their own health care; and
- Increase emphasis on health promotion, disease and injury prevention, and management of chronic disease.

This 29-month initiative undertook two main activities: education and partnership building, the latter focusing on schools of medicine, nursing and social work. It held two national conferences, which brought together hundreds of health care professionals, health care students and members of the community to discuss issues and share information and resources. The initiative focused attention on the special health needs of GLBT people. It located numerous relevant health care resources, and made them more accessible by placing them on one website, which now contains the largest body of information, educational tools, research studies and other materials related to GLBT health and wellness.

Official Languages Minority Communities Envelope

Improving Access to Primary Health Care Services for English-Speaking Persons in Quebec

Lead and Partner Organization(s): Community Health and Social Services Network (CHSSN); with Saint-Brigid's Home Inc.

Approved Contribution: 10,000,000

This initiative Improving Access to Primary Health Care Services for English-Speaking Persons in Quebec sought to improve access to English-language primary health care services for Quebec's anglophone community, and to strengthen ties between the community and the province's health and social services institutions. To meet its objectives, the initiative funded 37 projects in 14 Quebec administrative regions, in three separate categories: Info-Santé for the anglophone population; needs-specific services; and special needs living environments. These projects helped meet certain needs among anglophones, and increased, adapted and improved services offered to the anglophone community. The initiative also developed various communication resources. A newsletter and an Internet site served as public enquiry points, and an Intranet site for sponsors contained news on initiative-related activities as well as a Virtual Library with more than 300 English-language virtual reference documents and tools.

Résautage Santé en français [Francophone Health Networks]

Lead and Partner Organization(s): Société Santé en français; with health institution managers; health professionals; representatives of educational institutions; government officials

Approved Contribution: \$1,900,000

Across the country are a wide range of French-speaking minority communities, and providing French-language health services is a challenge that will require a strategy. For the Consultative Committee for French-Speaking Minority Communities, networking is the cornerstone of the strategies implemented in provinces and territories wishing to improve French-language health services for their francophone populations. In 2002, only one network existed. The goal of the initiative was to increase this number, and its approach has been to work with groups across the country to improve access to French-language health services. Groups of promoters have also conducted activities, such as: building a profile of the francophone community to be served; drawing a profile of health services in the region concerned; starting or continuing to promote awareness among partners; developing a business plan; defining and implementing the appropriate governance structure; initiating strategic and operational planning; and preparing an evaluation plan. The initiative has successfully established 17 networks in all provinces and territories, which are in various stages of development. However, while work remains to be done and some networks do not yet have formal structures, it is clear that each region has begun networking with partners and that the stakeholders can now work together in planning and implementing French-language health services.



