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CHSRF Synthesis: Interprofessional Collaboration and Quality Primary Healthcare

Juanita Barrett
(Ideal Health Solutions Inc.)
Dr. Vernon Curran
Lindsay Glynn
Dr. Marshall Godwin

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1565 Carling Avenue, Suite 700, Ottawa, Ontario K1Z 8R1
Tel: 613-728-2238 • Fax: 613-728-3527

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For more information on the Canadian Health Services Research Foundation, contact the Foundation at:

1565 Carling Avenue, Suite 700
Ottawa, Ontario
K1Z 8R1

E-mail: communications@chrsf.ca
Telephone: 613-728-2238
Fax: 613-728-3527

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KEY MESSAGES

- There is high-quality evidence supporting positive outcomes for patients/clients, providers and the system in specialized areas such as interprofessional collaboration in mental health care, and chronic disease prevention and management.
- There are findings in the literature, and in some jurisdictions, which support positive outcomes for patients/clients, providers and the system when interprofessional collaboration (for example, physicians/nurses, physicians/pharmacists, physicians/dietitians in partnerships) is fostered and supported on the basis of servicing geographic populations or population health models. These outcomes include enhanced patient/client self-care, knowledge and outcomes; enhanced provider satisfaction, knowledge, skills and practice behaviors; and system enhancements such as the provision of a broader range of services, better access, shorter wait times and more effective resource utilization.
- There are findings of cost benefits of interprofessional collaboration in some primary healthcare settings (for example, decreased average provider and patient costs for blood pressure control, and lower readmission rates and costs for team-managed, home-based primary care).
- Although findings in the literature and in jurisdictions demonstrate the positive outcomes of interprofessional collaboration, they do not identify how variation among interprofessional collaborative models affect outcomes.
- A variety of processes and tools (including definitions, principles, frameworks, barriers and facilitators) have been developed to support the planning, implementation and evaluation of effective interprofessional collaborative partnerships which can be used for future planning, implementation, evaluation and research.
- Knowledge transfer from syntheses such as this one is necessary to utilize current studies in future planning, implementation research and evaluation.
- There is a need for greater regulatory and legislative support to foster and promote the consistency and clarity of interprofessional collaborative partnerships (for example, physician/nurse, physician/pharmacist, physician/dietitian) and scope of practice, as well as the availability of physician (and other professional) remuneration models.
- There is a need for more rigorous research in order to clarify definitions for interprofessional collaboration (especially clarification of the patient/client and family roles in the process), teams and shared care; to gather higher-quality evidence regarding interprofessional collaboration and outcomes for servicing geographic populations or population health models; and to gather evidence associating variations in models to outcomes.

EXECUTIVE SUMMARY

Within Canada, it is widely recognized that a strong primary healthcare system is needed to address the challenges of an aging population, and to meet the needs of the increasing number of people who experience chronic disease, complex morbidity and/or functional disability. In spite of a variety of national and provincial supports for primary health care since 2000, the adoption of a team-based, interprofessional collaborative model of care and delivery remains in its infancy.

This synthesis was initiated to help the Canadian Health Services Research Foundation and the Health Council of Canada gain a better understanding of the evidence surrounding interprofessional collaboration in Canadian primary healthcare, and the potential benefits for patients and healthcare providers. It focuses on existing evaluations of interprofessional collaboration initiatives in the literature and projects funded through the Primary Health Care Transition Fund. The synthesis report incorporates:

- findings from initiatives or projects that involved primary healthcare provision;
- a systematic review of peer-reviewed literature regarding outcomes of interprofessional collaboration in primary healthcare; and
- a Canadian environmental scan to obtain stakeholder feedback.

The process used to assess the quality of initiatives and projects included:

- examination of the qualitative and quantitative characteristics of the study design, and the nature of the health services intervention;
- rating of the study design characteristics based on level of evidence criteria; and
- grading of each study by an expert in primary healthcare research.

The synthesis review suggests positive provider, system and patient outcomes as a result of enhanced interprofessional collaboration (see Appendix I for a table of the included reviews; other included reviews will be available on the Ontario Ministry of Health and Long-Term Care web site in the spring of 2008). This finding is particularly pronounced for chronic-disease or special-needs populations. A large number of the reports uncovered in the grey literature provide useful information on the definitions, principles, frameworks, barriers and facilitators of collaboration. Strategies are identified to address the challenges associated with collaboration. The necessity for clarification of professional legislation and regulation in facilitating collaboration is also recognized.

Both the excluded literature and feedback through the environmental scan echo the evidence regarding the determinants of effective collaboration and the outcome measures associated with it. A number of evaluation and research processes were identified that have been utilized successfully for planning, implementing and evaluating collaborative practice. Researchers, managers, policy makers and clinicians should work together to create, share and use all forms of evidence to support and evaluate interprofessional collaboration, using baseline information that has already been identified.

Using the Joint Evaluation Team framework classification as a guide, a review of the quality of evidence across the peer-reviewed and grey literature, as well as the environmental scan, identified commonalities in these areas:

- There was modification in patient/client and provider attitudes and perception of interprofessional collaborative practice at all levels of evidence for the included peer-reviewed and grey literature, and the scan confirmed changes in patient/client and provider perception or attitudes toward the value of teams.

- There was change in organizational interprofessional practice across all included peer-reviewed and grey literature reflecting high- and moderate-quality evidence, and the environmental scan confirmed increased use of the team approach in patient/client care across different jurisdictions in Canada.
- There were identified benefits to patients/clients across all review areas, reflecting high- and moderate-quality evidence, and the environmental scan confirmed increases in client satisfaction with care, and increases in access to service across Canadian jurisdictions.

Based on the review of peer-reviewed and grey literature, and the environmental scan, there is increasing good evidence (high or moderate grade), with large quantities of low- and very low-level evidence, that:

- healthcare providers working in an interprofessional collaborative manner are more satisfied and have a more positive experience, when compared to primary healthcare providers working in a uni-professional model (single practitioner providing client care and accessing other services for the client through a referral system);
- primary healthcare providers who experience working in an interprofessional collaborative manner develop a positive perception of working collaboratively with other professionals;
- primary healthcare providers who work in an interprofessional collaborative manner develop enhanced knowledge and skills;
- primary healthcare providers working in a uni-professional model have different practice behaviors (for example, referral patterns, follow-up, preventive care) than those working in an interprofessional collaborative manner;
- interprofessional collaboration models can provide a broader range of services, more efficient resource utilization, better access to services, shorter wait times, better coordination of care, and more comprehensive care, compared to a uni-professional model of primary healthcare delivery;
- patients/clients expressed more satisfaction and identified a more positive experience with interprofessional collaboration, when compared to patients/clients cared for by primary healthcare providers working in a uni-professional model;
- patients/clients receiving services from primary healthcare providers through an interprofessional collaborative approach develop enhanced self-care and health condition knowledge and skills;
- patients/clients receiving health services through an interprofessional collaborative approach report different health practices (for example, improved self-care, lifestyle and preventive service access) compared to patients/clients receiving health services from a primary healthcare provider working in a uni-professional model; and
- interprofessional collaborative models can provide better health outcomes for patients/clients (for example, blood pressure control, diabetes control, health status, quality of life), when compared to a uni-professional model of primary healthcare delivery.

I. CONTEXT

A. BACKGROUND INFORMATION

Primary healthcare has been described as “the foundation of the health care system, and is the first point of contact people have with the health care system. It could be through a doctor, nurse, another health professional, or phone or computer-based services. Primary health care provides services through teams of health professionals to individuals, families and communities. It is a proactive approach to preventing health problems and ensuring better management and follow-up once a health problem has occurred.”¹ Primary care is the element within primary healthcare that focuses on healthcare services, including health promotion, illness and injury prevention, and the diagnosis and treatment of illness and injury.² For the purposes of this synthesis, primary healthcare will be used for discussion and review purposes.

Within Canada, it is widely recognized that a strong primary healthcare system is needed to address the challenges of an aging population, and to meet the needs of the increasing number of people who experience chronic disease, complex co-morbidity and functional disability. The September 2000 first ministers’ meeting resulted in agreement that “improvements to primary health care are crucial to the renewal of health services”³ and, in 2002, the Government of Canada established the \$800-million Primary Health Care Transition Fund (PHCTF)⁴ to support primary healthcare changes. In addition, the 2003 Health Accord⁵ and the 2004 10-Year Plan⁶ reaffirmed the first ministers’ commitment to primary healthcare renewal and support for interprofessional teams as a central component of renewal. In 2004, the commitment to interprofessional teams was reiterated with the statement that “significant progress is underway in all jurisdictions to meet the objective of 50% of Canadians having 24/7 access to multidisciplinary teams by 2011.”⁷

Collaborative practice has been described as “patient-centered. It involves the continuous interaction of two or more professionals or disciplines, organized into a common effort to solve or explore common issues, with the best possible participation of the patient. It is designed to promote the active participation of each discipline in patient care. It enhances patient- and family-centered goals and values, provides mechanisms for continuous communication among caregivers, optimizes staff participation in clinical decision making within and across disciplines, and fosters respect for disciplinary contributions of all professionals.”⁸ For the purposes of this synthesis, the term “interprofessional collaboration” and the Health Canada description will be used to discuss the literature. Other terms, including “interdisciplinary” and “multidisciplinary,” are used as part of the search strategy to ensure that any relevant literature is included in the analysis phase of the synthesis project (see Appendix A for other approved definitions).

The current support for implementing interprofessional collaboration in Canada is based on the assumption that it will improve community-based primary healthcare. However, the adoption of a team-based, interprofessional collaborative model of care and delivery in primary healthcare settings remains in its infancy in most of Canada. More knowledge regarding the effectiveness and value of interprofessional collaboration in primary healthcare could promote the creation and implementation of interprofessional collaboration by health delivery providers in the Canadian setting.

According to the initiative Enhancing Interdisciplinary Collaboration in Primary Health Care (EICP),⁹ there have been a significant number of positive studies in specific areas of care, like mental health and chronic disease management. However, there is little research clearly indicating the impact of interprofessional teams on general primary healthcare delivery.

Both the Canadian Health Services Research Foundation (www.chsrf.ca) and the Health Council of Canada (www.healthcouncilcanada.ca) are interested in gaining a better understanding of the evidence surrounding interprofessional collaboration in primary healthcare in Canada, and the potential benefits for both patients and healthcare providers.

To highlight the Canadian context of primary healthcare delivery, this synthesis focuses on existing evaluations of interprofessional collaboration initiatives in the literature and projects funded through the PHCTF. It incorporates:

- findings from initiatives or projects that involved primary healthcare provision;
- a systematic review of peer-reviewed literature regarding outcomes of interprofessional collaboration in primary healthcare; and
- a Canadian environmental scan to obtain stakeholder feedback.

B. SYNTHESIS OBJECTIVES AND REVIEW QUESTIONS

The primary objectives of this synthesis are to assess and synthesize Canadian and international research on interprofessional collaboration effects on health system, patient/client and provider outcomes.

The synthesis review questions include:

1. How does interprofessional collaboration affect the health system (for example, range of services offered, capacity to offer care, efficiency, resource use, adverse events, recruitment and retention, professional training, system integration, access, waiting times, comprehensiveness, co-ordination, quality/processes of care)?
2. How does interprofessional collaboration affect patients (for example, health outcomes, experiences/satisfaction, self-management)?
3. How does interprofessional collaboration affect providers (for example, types of services they provide, quality of worklife, professional satisfaction)?
4. How do variations among interprofessional teams (context, target populations, size, composition, scopes of practice, roles, relationships, organizational processes, etc.) affect outcomes (system, patient and provider)?
5. What are the priority areas for future research? Where are there gaps in the research?

C. IMPLICATIONS OF CURRENT RESEARCH AND SYNTHESIS REVIEW

As noted in the EICP initiative, better outcomes for patients/clients can be achieved in specific areas such as chronic disease management. This synthesis report examines specific outcomes emerging from the peer-reviewed and grey literature, as well as an environmental scan pertaining to interprofessional collaboration across a variety of different types of collaboration models specific to primary healthcare (for example, chronic disease collaboratives/shared care, health promotion and illness prevention, physician/nurse, physician/dietitian, physician/pharmacist). The findings from this synthesis report have implications for various stakeholder groups:

- Policy makers and regional health authorities can use the findings to inform good decision-making concerning health services planning and policy-making nationally and in specific jurisdictions. The findings can inform key strategic decisions concerning centralized funding to support the complex and expensive activities required for interprofessional collaboration, such as legislative changes, information management systems, human resources, and payment or funding models.
- Professional associations, educational institutions and regulatory bodies for health professionals can use the findings to inform the planning and implementation of professional and educational programs, legislation/regulation and payment methodologies to meet the ongoing and future needs of their professional groups.
- Providers can use the findings to inform new ways of working more efficiently and effectively with partners (for example, intersectoral groups that impact health services, associations, community groups and social services), and provide information to colleagues and patients/clients who may be hesitant to adopt models of collaborative practice.

- Patients/clients and advocacy/advisory groups can use the findings to inform advocacy initiatives, promote models of collaborative practice, and ensure that the provided services are safe and of high quality.
- Researchers can use the report and associated research processes and tools to develop more appropriate studies of interprofessional collaboration and health outcomes, such as studies to identify research gaps and further research questions, and to support the timely applicability of research findings.

II. APPROACH

A. METHODOLOGY

The methodology (see Appendix B) included a systematic search and analysis of Canadian and international peer-reviewed and grey literature, as well as specific technical and policy reports identified by the Canadian Health Services Research Foundation and Health Council of Canada (see Appendix C for reviewed documents). The Joint Evaluation Team classification of interprofessional collaboration outcomes¹⁰ was used as a framework to classify findings into five interprofessional collaboration outcome categories: reaction to collaboration; modification of attitudes or perceptions; acquisition of knowledge or skills; behavioral or organizational practice changes; and identified benefits for patients/clients.

The inclusion criteria (see Appendix D for inclusion and exclusion criteria) for grey and peer-reviewed literature are:

- the intervention is based on interprofessional collaboration;
- the interprofessional collaboration occurred in a primary healthcare setting;
- the outcomes of the interprofessional collaborative intervention appear in one of the five Joint Evaluation Team categories; and
- there are detailed reference lists from reliable sources.

Peer-reviewed and grey literature that met the inclusion criteria was further assessed in the following way:

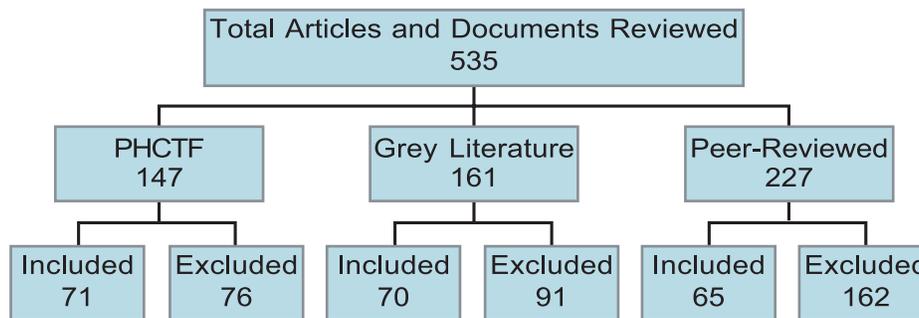
- one of the three synthesis team members completed a data collection sheet which examined the quantitative and qualitative characteristics of the study design and the nature of the health services intervention (see Appendix E for data collection templates), and rated the characteristics of the study design based on level of evidence criteria (see Appendix F for level of evidence tool); and
- each assessed study was then graded by an expert in primary healthcare research (see Appendix G for grading process).

A key informant environmental scan (see Appendix H for environmental scan letter, template and process details) was conducted using an online survey. This scan identified information related to interprofessional collaboration in Canadian primary healthcare that may not have been captured in PHCTF reports and evaluations or peer-reviewed literature.

A limitation to the synthesis review was that searches were completed primarily in English. However, efforts were made through the key informant environmental scan to identify and analyze any available French literature, documentation and/or experiences regarding interprofessional collaboration in each jurisdiction in Canada.

III. GREY AND PEER-REVIEWED LITERATURE

For the purpose of this synthesis, peer-reviewed literature is defined as articles published in peer-reviewed journals. These articles were retrieved from literature searches in specified article indexes. Grey literature is defined as documents and reports not published in peer-reviewed journals. Grey literature was found using a variety of methods, including hand-searches of relevant literature, searches of government and association documents, as well as literature known to the research team. Although PHCTF documents were considered grey literature, it was decided to identify them separately given the sheer number of documents, the lack of confirmation that they had not been peer-reviewed, and the fact that they constituted an important and specific set of information. This section provides an overview of the 161 grey literature reports or PHCTF initiatives, and the 253 articles reviewed, based on themes identified by the reviewers and the synthesis research questions. There is a comprehensive overview of the included literature, in addition to a brief overview of grey literature and peer-reviewed literature that did not meet the inclusion criteria for full review. The overview of excluded evidence provides useful information for establishing primary healthcare teams and informing the future evaluation and research of interprofessional collaboration in primary healthcare settings.



A. GREY AND PEER-REVIEWED LITERATURE MEETING INCLUSION CRITERIA

Seventy-one of the 147 final reports or PHCTF projects reviewed, and 65 articles from the peer-reviewed literature search met inclusion criteria (see Appendices I and J for the Table of Reviews and Numerical Table of Outcomes and Grades, respectively).

Out of 206 reports and articles, 17 were graded at a high level for evidence, and 20 were graded at the medium level. The high grades were based on randomized control trials (RCTs), while the medium grades were either RCTs, pre-post assessments or comparisons to other sites, or had large effect sizes. The remainder of the reports and articles were graded at low or very low levels of evidence, secondary to the nature of the initiatives, timelines, numbers in study, etc. However, they did provide a large amount of qualitative information, and there were outcomes identified across client/patient, provider and organizational outcome areas that were supported by the higher-graded outcomes and the emerging peer-reviewed literature at moderate and high levels of evidence.

The following is an overview of the evidence identified in relation to interprofessional collaboration and associated outcomes.

1. Interprofessional Collaboration and Patient/Client Outcomes

The evidence linking patient outcomes with collaborative care is as convincing in the quality of the evidence as it is in the amount of evidence available. It is arguably the most studied element of interprofessional collaboration in primary healthcare. Many studies reported satisfaction on the part of both patients and caregivers with collaborative interventions, particularly in mental health disorders including depression and dementia. Patients receiving care in an interprofessional environment reported an increase in self-confidence and self-

knowledge, as well as an improvement in role functioning, energy and health distress.¹¹ Patients receiving collaborative care have also reported a greater sense of involvement and more options for treatment.¹² Terminally ill patients receiving team-managed, home-based primary healthcare (TM/HBPC) reported significant improvements in health-related quality of life (HR-QoL) scales of emotional role function, social function, bodily pain, mental health, vitality and general health.¹³ Patient compliance has also improved in some collaborative environments.¹⁴

Aside from quantitative measurements, several clinical outcomes were positively associated with collaborative care. A meta-analysis of collaborative care for depression found that collaborative care had a clearly positive effect on standardized depression outcomes at six months compared to standardized care. This clinical improvement was maintained up to five years; an improvement in mental health scores using various validated measurement tools is widely reported in the literature for patients being treated under an interprofessional model.¹⁵ A vascular intervention program client group experienced greater improvements in blood pressure, nutrition, activity level, physiological and psychological scores.¹⁶ Pediatric asthma patients treated by a collaborative team experienced fewer asthma symptom days per year of intervention compared to children in usual care.¹⁷

Patients being treated for weight loss by a multidisciplinary group were more likely to achieve their weight reduction goals than those in other treatment groups.¹⁸ Alzheimer patients receiving collaborative care were more likely than those receiving non-collaborative care to receive cholinesterase inhibitors and antidepressants, and they had significantly fewer behavior and psychological symptoms of dementia at 12 and 18 months.¹⁹ Diabetes patients receiving care under a nurse-physician model and other models noted a decrease in average fasting blood glucose, mean systolic and diastolic blood pressure, total cholesterol and low density lipoprotein (LDL) and glycosylated hemoglobin (HbA1c).²⁰ Pharmacist assessment resulted in dosage adjustment and addition of medications for hypertension, hyperlipidemia and diabetes, with highly satisfied clients and high levels of empowerment and understanding of medications.²¹ A trend towards fewer doctor, hospital and emergency room visits, as well as a reduction in the number of medications per patient, was observed in a collaborative care model.^{22, 23}

There were a variety of positive patient/client outcomes in relation to interprofessional collaboration through the PHCTF initiatives, although primarily at the low- or very low-quality level. These included:

- a number of positive patient/client outcomes in areas where collaboration focused on chronic disease management (for example, decreases in blood glucose and cholesterol, early detection arthritis,²⁴ increased access to specialty care, improvement in mental health and/or decreased deterioration,²⁵ hypertension lower extremity ulcers,²⁶ nutritional services,²⁷ and chiropractic services);²⁸
- improved access to various services;²⁹
- increased homecare and physician collaboration, and decreased emergency room and hospital visits for clients with diabetes;³⁰
- more timely referrals among different professional groups (for example, from physicians to dietitians, or physicians to pharmacists);³¹
- increased client satisfaction with services (as identified by patients/clients in most reports);
- self-reported improvement in health in a number of studies;
- improvement in client self-management of care;^{32, 33} and
- adoption of healthier lifestyles and reductions in utilization of health services among residents in a long-term care setting.³⁴

It appears, however, that the degree of collaboration itself does not predict clinical outcomes. In some mental health studies, the pairing of collaboration with treatment guidelines appears

to offer important benefits over either the use of guidelines or collaborative practice alone. These studies note that in previous trials of clinical guidelines, treatment protocols or algorithms without collaborative interventions have not shown improvement in patient level outcomes. As well, it was identified that collaborative relationships between primary healthcare physicians and other mental healthcare providers do not happen instantly or without work; they require preparation, time and support structures. In one study of preventive outreach for high-risk older persons, there was no significant difference between the intervention and the control groups in health-related quality of life scores.

2. Interprofessional Collaboration and Health System Outcomes

Several high- and moderate-quality studies identified outcomes directly related to health systems. Primary healthcare practices with collaborative care elements were shown to be effective in mental healthcare delivery, particularly depression. One study showed that the utilization of case managers with a specific mental health background, for example, was associated with more positive standardized depression outcomes. A randomized trial of telemedicine-based collaborative care for depression suggested that outcomes are modestly improved by implementing a nurse care management model to provide collaborative care in a virtual environment.³⁵ A 7.9% relative reduction in admission rates and lower readmission costs for elderly patients with daily living impairments or chronic illness were observed in a home-based primary healthcare program at Veterans Affairs medical centres.³⁶ Another study determined that, compared with controls, chronically ill seniors receiving collaborative care had a lower proportion of admissions for illness exacerbation and a stable hospital admission rate.³⁷

A randomized trial of interdisciplinary collaboration and team education identified significantly fewer planned hospital days.³⁸ Collaborative care interventions were also shown to increase the number of requests for screening tests for hemoglobin disorders by 99%, and increase the number of diabetes patients attending annual reviews.³⁹ When nurse practitioners worked with general practitioners, the number of contacts during clinic hours increased, yet the decline in the number of consultations out of hours was not statistically significant.⁴⁰ There were limited, if any, cost analyses associated with these studies; however, some studies identified positive cost outcomes for clients and providers,^{41, 42} without an analysis regarding any associated efficiencies.

There was moderate-quality evidence identified in the reports of the PHCTF projects regarding positive health system outcomes. The PHCTF projects had a principal focus on primary healthcare service delivery at the population level, and supported collaboration among many different provider groups (for example, physician/nurses, physician/pharmacist and sometimes all professional groups). Several provinces concurrently supported chronic disease management models. In spite of the complexity of size and mixed team structures, positive system outcomes were observed, including decreased appointment wait times, fewer emergency room visits and increased ease of access to primary healthcare services.⁴³

For a number of the PHCTF projects, the outcomes were very explicit, including initiation of a specific number of primary healthcare teams or clinics; development of evaluation frameworks; development of raw demographic and health-related data, with analysis, for First Nations partners; implementation of information systems (such as electronic medical records, telehealth enhancements or nurse phone lines); and alternate payment models for physicians.

In spite of grading at the low to very low level for this review, there were notable health system outcomes identified in both the PHCTF and peer-reviewed literature, including the following:

- an increased percentage of physicians registered in programs supporting primary healthcare teams,^{44, 45}
- changes in scope of practice for some providers (for example, midwives,⁴⁶ licensed practical nurses⁴⁷);

- an interdisciplinary approach to service delivery in some community health centres that were previously acute centres;⁴⁸
- increased after-hours accessibility in a number of initiative areas;
- improved facilities utilization in some areas (such as reduced rates of emergency room use);^{49, 50, 51}
- greater shifts in providers' thinking, perceptions and attitudes towards teamwork and partnerships in the Atlantic jurisdictions;⁵²
- development of toolkits that were practical and helpful in planning, implementing and evaluating primary healthcare changes and interprofessional collaboration;
- better relationships among leaders, especially across the boundaries of First Nations and provincial/regional/district health authorities;⁵³
- enhanced capacity building for the collection, interpretation and manipulation of health information for First Nations;⁵⁴
- joint immunization programs and pandemic plans;⁵⁵
- standard provincial frameworks and core services for community health services, with associated evaluation frameworks;⁵⁶
- an increased number of appropriate referrals (for example, affective and neurological disorders,⁵⁷ and chiropractic care⁵⁸);
- a significant increase in diabetes patients' visits to their providers. This same study also observed that the care provided adhered much more closely to process guidelines in relation to foot, weight and micro-albumin examinations;⁵⁹
- increased incorporation of a pharmacist's suggestions for medication changes by primary healthcare physicians;
- a stronger sense of leadership in an environment of interorganizational collaboration;⁶⁰
- increased likelihood to recommend collaborative practice models to colleagues as a result of increased communication between general practitioners and mental health services;⁶¹
- better coordination of mental healthcare when facilitated by the formalization of collaborative procedures⁶² and filling of service delivery gaps in family medicine with care navigators for family practice;
- reduced multiple intake assessments, improved efficiencies, and better access to service and cost savings;⁶³
- enhanced recruitment of family physicians and nurse practitioners in some jurisdictions;⁶⁴
- improved integration, communication and more efficient regional care with regional healthcare delivery teams and a satellite clinic;⁶⁵
- improved cost-effectiveness of collaborative care models in relation to the utilization of managed care clinical pharmacists (in the United States), with a reduction in average prescription costs per month, lowering of costs per claim, and increase in drug utilization;⁶⁶
- a trend towards fewer doctor, hospital and emergency room visits, as well as a reduction in the number of medications per patient, was observed in a collaborative care model;^{67, 68} and
- lower labor costs per primary healthcare visit, resulting from an increased use of physician assistants and nurse practitioners in the United States.⁶⁹

Some challenges were also identified regarding interprofessional collaboration within health systems, including the need for good planning for service reorganization and time to make the

changes. One report, in which an intervention had been ongoing for just over a year, noted that wait times for some professionals and a lack of other professionals continued to be barriers, and very minimal change in general health status occurred between baseline and follow-up.⁷⁰ In another study, preliminary information on practice sites suggests a variation in costs across and within models, with the suggestion from a preliminary efficiency analysis that the three types of physician-related practices (including fee-for-service) reviewed were comparable.⁷¹

3. Interprofessional Collaboration and Provider Outcomes

Positive provider outcomes from the PHCTF documentation were identified across all initiatives and included such elements as:

- significant improvements in service providers' awareness and understanding of roles and scope of practice;⁷²
- improvements in provider satisfaction;⁷³
- improved systematic follow-up leading to better outcomes in mental health;⁷⁴
- increased provider confidence in client examination in areas such as mental health, diabetes, seniors' care and homecare;⁷⁵
- significantly greater confidence in competencies related to team development modules;⁷⁶
- improved provider comfort levels after education sessions about chronic diseases (for example, diabetes, arthritis) and coordination of care;⁷⁷
- increased information-sharing between physicians and among different providers;⁷⁸ and
- enhanced communication and relationship-building among many providers.⁷⁹

On the other side, some healthcare professionals expressed that they were working harder and had not had the lifestyle gains that were originally anticipated when they initiated collaborative practice changes.⁸⁰

Similar findings were echoed in research studies meeting inclusion criteria. Provider satisfaction with collaborative models was widely reported, as well as an increased understanding of various provider roles and scopes of practice. Specific examples include:

- General practitioners and practice nurses reported increased confidence in providing diabetes care in the general practice arena.⁸¹
- The development of team spirit and an atmosphere of mutual respect were noted in a shared mental healthcare initiative involving caseload workers, community health workers and physicians.⁸²
- The physical location of team members proved not to be a barrier in collaborative community-based care for high-risk community dwelling patients.⁸³ Farris et al. noted that all members of three care teams, each consisting of a family physician, office nurse, pharmacist and homecare case manager, developed a greater understanding of one another's roles.
- Physicians and residents working with nurse practitioners reported differing opinions regarding their perception of the role of the nurse practitioner.⁸⁴ While physicians saw the nurse practitioner's role as potentially unlimited and complementary to their own, residents viewed them as assistants to physicians and more restricted to remote northern areas.
- Knowledge and skills gained from training sessions in a joint general practice surgery were well received, and participating personnel were extremely satisfied with their expanded educational role.⁸⁵ Participants also noted that newly acquired skills and knowledge could be applied to day-to-day practice and at multiple points of patient care.
- An increase in the ability to handle nutritional issues was seen in a dietician/physician collaboration.⁸⁶

Although most of the studies evaluated reported positive outcomes, various members of interprofessional groups identified concerns. Following the introduction of an integrated model of care involving general practitioners, practice nurses and diabetes specialist nurses, concerns about the impact of workload and job satisfaction were expressed in spite of all personnel supporting the overall aims of the initiative.⁸⁷ Concerns included training and workload, sharing information across boundaries, changing professional roles, and the impact on professional relationships and workload. Team members (general practitioners, social welfare officers and nurses) caring for elderly patients expressed similar concerns and also noted contentious issues such as patient confidentiality, organizational cultural differences, a lack of shared vision and local knowledge, as well as a slow and frustrating process of establishment.⁸⁸

4. Variations in Interprofessional Collaboration and Outcomes

There was a great deal of variation among interprofessional collaborative activities that made it difficult to associate particular outcomes with the differences in initiatives. However, it appeared that overall collaboration, regardless of the specific structure, provided positive client, provider and system outcomes. No literature was found that compared the effect of different collaborative groups on specific outcomes. Rather, comparisons were based on interprofessional collaboration versus no collaboration.

Some of the factors that appeared to support or facilitate collaborative practice included system support (such as leadership and funding) for changes; some form of team development or formal support for facilitation; availability of information management systems to facilitate the changes; and different remuneration systems for fee-for-service participants to support participation in collaboration. These facilitators are very much in line with the facilitators already identified by a number of reviews in Chapter III-A.

B. GREY AND PEER-REVIEWED LITERATURE NOT MEETING INCLUSION CRITERIA

Of the 161 grey literature reports or initiatives reviewed, 90 did not meet the inclusion criteria. The majority of the excluded reports were descriptions of interprofessional collaboration initiatives, general reports discussing factors related to interprofessional collaboration (for example, determinants of effectiveness, liability issues), and initiatives in the early stages of evaluation.

Of the 253 peer-reviewed and grey literature reports that did not meet the inclusion criteria, 164 were related to in-patient interprofessional collaboration or family physician/specialist (for example gerontologist, psychiatrist) intra-professional collaboration. Also included in these articles was information about the determinants of effective team functioning, team composition, how teams work together and the range of outcome measures of effective teams.

1. Interprofessional Collaboration: Chronic Disease Management

There has been significant information provided through the International Health Institute in the United States regarding the effectiveness of interprofessional collaboration in the prevention and management of chronic diseases such as diabetes, coronary artery disease and depression. Numerous Canadian jurisdictions (such as British Columbia, Alberta, Saskatchewan, and Newfoundland and Labrador) have implemented expanded collaboratives in their primary health systems.⁸⁹ In April 2006, a chronic disease management conference was held in Ontario with experts from Canada, the United Kingdom and the United States. The resulting book of proceedings captures the breadth of chronic disease management initiatives underway in Canada, showcases several exemplary international programs, and summarizes lessons learned at this critical juncture in Canadian healthcare.⁹⁰ A number of jurisdictions demonstrate positive outcomes for patients/clients and providers from these collaboratives, as is shown in preliminary data from British Columbia and the Saskatchewan Quality Council reports.⁹¹

2. Interprofessional Collaboration: Principles, Definitions, Frameworks, Barriers and Facilitators

A 2007 Canadian review (external to Ontario)⁹² highlights the following jurisdictional directions regarding primary healthcare and interprofessional collaboration:

- Whatever the provincial direction, interprofessional teams (with a minimum of two different professional groups, one of which was a family physician) were supported to provide services to defined populations, whether it was a geographic population, a specific physician population or a special needs population.
- Partnerships were developed with provincial associations (especially medical associations), departments or ministries of health, non-governmental organizations, and the private sector (such as fee-for-service physicians, pharmacists).
- There has been leadership to introduce change, including frameworks, in some jurisdictions, and some form of provincial plan in place in all jurisdictions (with provincial ministry offices providing policy direction and implementation), and there were health councils or some form of provincial advisory committee in most jurisdictions.
- There were family physician leaders at the provincial and regional primary healthcare team levels, and both regional and primary healthcare team level administrative leaders (e.g. directors at the regional level, and coordinators or facilitators at the primary healthcare team level) were evident in a number of jurisdictions.
- In all jurisdictions, there were identified leaders who facilitated the various changes that occurred.

In 2000, a primary healthcare teamwork forum was held in England.⁹³ The forum was to “examine the practical aspects of teamworking in primary health care (PHC) and to bring forward proposals by which national organizations representing PHC professionals could support and promote this concept.”⁹⁴ There was recognition that much of the research was “soft” compared with published clinical data, and it was qualitative rather than quantitative data with few randomized controlled trials. The Health Policy and Economic Research Unit of the British Medical Association reviewed the published research literature and identified the benefits of teamwork in primary healthcare.

In Canada, there have been a number of reports and papers commissioned to summarize the benefits, challenges, determinants and characteristics of effective interprofessional collaboration in primary healthcare, including reports published under the auspices of the EICP initiative (www.eicp.ca),⁹⁵ the Canadian Collaborative Mental Health Initiative,⁹⁶ and the Canadian Health Services Research Foundation’s Teamwork in Healthcare in Canada, Policy Synthesis and Recommendations Report.⁹⁷

The following sections provide an overview of the identified definitions, principles, frameworks, facilitators and barriers.

Definitions

In these reports and papers, definitions of primary healthcare and interprofessional collaboration are discussed. An important drawback to all proposed definitions of collaboration is the absence of the patient’s perspective, reflecting a poor conceptualization of the role of the patient/client/family in the collaborative process, despite the fact that clients are recognized as the ultimate justification for collaborative care. To date, the terminology surrounding collaborative care has not been standardized, nor does one accepted definition of collaboration exist.

Principles or Characteristics

Findings suggest that collaboration is a complex, voluntary and dynamic process involving several skills, including leadership, communication and relationship-building. A 2004 Canadian community-based participatory action research project demonstrated that, although

multidisciplinary teams are widely lauded, collaborative team approaches are difficult to achieve and require changes to underlying structures, values, power relations and roles.⁹⁸ Several strategies have been proposed to address the challenges of collaborative working arrangements, including exposure to systematic methods of education and the teaching of interprofessional collaboration at pre- and post-licensure education levels, joint curricula and clinical placements in team settings.

Principles for effective teamwork, whether for primary healthcare in general or specific disease areas such as mental health, have been identified. They include the following: patient/client engagement; a population health approach; a focus on the best possible care and services, using research to set quality standards and make decisions about management of health problems; access to “the right service, provided at the right time, in the right place and by the right health professional”;⁹⁹ trust and respect; and effective communication. A collaborative interprofessional approach is a key principle of primary healthcare and its reform, and collaboration has been identified as a better practice in mental healthcare. Cohesive teams have been described as having five characteristics: clear goals with measurable outcomes; clinical and administrative systems; division of labor; training of all staff members; and effective communication.¹⁰⁰ Determinants of effective team functioning include team processes (such as objectives, participation, quality emphasis, and support for innovation), with clarity of and commitment to team objectives being key in predicting the overall effectiveness of the team.¹⁰¹ Measurements of the benefits of effective teams should include the following:

- health system benefits such as reduced hospitalization time and costs, reduced unanticipated admission, better accessibility for patients and improved coordination of care;
- patient/client-reported benefits of enhanced satisfaction, acceptance of treatment and improved health outcomes;
- provider benefits such as efficient use of healthcare services and enhanced communication; and
- enhanced job satisfaction, greater role clarity, enhanced well-being and professional diversity.¹⁰²

Frameworks

Framework elements perceived as key to sustaining interprofessional collaboration in primary healthcare include the following: health human resources collaborating in planning, delivering and evaluating primary health services; funding models for professional groups as positive incentives; addressing liability concerns; changing regulatory practices and associated legislation to support and foster interprofessional collaborative approaches; having information and communications technology to support essential team members in information-sharing and collaborating; management and leadership commitment; and using frameworks and tools for planning and evaluation when evaluating teams and organizational outcomes.

Facilitators

A number of reviews and documents identified factors that advance collaboration at the individual and organizational levels. Experienced collaborative practice providers noted the following common observations: personal motivation and commitment; trust and work satisfaction; professional autonomy in all disciplines; electronic health records; and the importance of accountability mechanisms which measure collaboration.¹⁰³

Based on a literature review identifying criteria thought to promote best practices in collaborative primary healthcare, one report provides an inventory of six Canadian sites and 16 international sites identified as potential centres of excellence in collaborative care. The report¹⁰⁴ describes the population size, range of services provided and the team membership, and provides an overview of responses to team surveys and questionnaires, which generally reflect positive feelings by teams working in collaborative practices. These were preliminary findings, and the processes can be used for more extensive evaluation of the highlighted team.

Barriers

Liability and regulatory issues have been considered barriers to interprofessional collaboration. However, the Canadian Medical Protection Association¹⁰⁵ suggests that the same medico-legal liability system that currently protects patient and provider interests can also support collaborative practices. Both the Association and the Conference Board of Canada¹⁰⁶ indicate that procedural frameworks describing the collaborative team function are essential to patient safety and medico-legal risk reduction. There must also be agreement among team members regarding roles, responsibilities and accountabilities that are within the profession-defined scope of practice for each team member. Health professionals' vulnerability to liability depends less on whether they work in collaborative practices than on three other major factors: their own competency, system problems and other work factors (such as area of specialization, geographic location).

While current legislation and regulation are not barriers, they do not significantly facilitate collaboration. This is partially due to unclear and inconsistent legislation and regulation across the country. Regulators have unique skills and talents that enable them to fulfil leadership roles in their respective jurisdictions and professions, and they should have an important role in supporting collaboration through appropriate legislation. The recent reports by the Canadian Medical Protection Association and the Conference Board make recommendations on managing the associated challenges.

3. Interprofessional Collaboration: Tools, Evaluation and Research

A number of PHCTF projects resulted in the development of toolkits to support collaboration, such as the project Enhancing PHC: Learning and Applying Facilitation within a Systems Model¹⁰⁷ and the Primary Health Care Toolkit for Family Physicians.¹⁰⁸ Through these projects, a variety of tools, resources and support for collaboration were developed (for example, team development, interprofessional chronic disease management, facilitation, planning and evaluation).

A collaborative toolkit has been developed based on visits to five selected interprofessional healthcare organizations across Canada that have had successful collaborative experiences.¹⁰⁹ It describes the organizations through case studies, based on previously noted principles and framework concepts. The following information is provided for each organization: the nature of the organization; the development history of its interdisciplinary practice; the population it serves; the type of health professionals it employs and how they are paid; how it is funded; and how the professionals work together.

Generally, the PHCTF project reports did not describe systematic processes to evaluate the impact of interprofessional collaboration and associated outcomes. Several jurisdictions developed their formalized evaluation processes and associated tools throughout the funding period and have just now initiated evaluation and/or research. The Inventory of Research and Evaluation Projects on PHC Renewal (available for use at www.chsrf.ca) highlights a number of the jurisdictional research and evaluation processes that have been established.

A common theme among most reports is that research evidence regarding interprofessional collaboration can be an influential catalyst for change, but efforts to make this information more robust are necessary. The empirical evidence from high-risk work environments (such as commercial aviation, military, firefighting and rapid response police activities) suggests that collaboration and teamwork produce high-quality results, including flexibility, adaptability, resistance to stress, cohesion, retention and morale associated with effective team performance. In the health workplace, the evidence for interprofessional collaboration and effective teamwork continues to grow.¹¹⁰ One of the most critical tasks facing researchers, managers, policy makers and clinicians will be to work together to create, share and use all forms of evidence, including effective and ineffective methods and techniques for implementation. The path toward effective teamwork in Canadian healthcare will be bumpy and winding, but it is one that all stakeholders, especially patients, are likely to demand more frequently and vocally.

IV. ENVIRONMENTAL SCAN

The environmental scan survey was distributed via e-mail, with follow-up reminders at weeks three, four and five, to 148 stakeholders in jurisdictions across the country, with respondents from all jurisdictions.

A. OVERVIEW SCAN RESULTS

Of the 51 respondents, 46 completed the survey, most of whom were involved in successful interprofessional primary healthcare collaborations, primarily associated with the PHCTF. Respondents were a combination of healthcare leaders and decision or policy makers, with almost one-quarter identifying that they were also involved in research.

Over half of the respondents noted that their initiative or project was evaluated, or that they had participated in some sort of research, with some noting that evaluation was in the early stages and evaluation frameworks were currently being developed. A wide variety of evaluation and research methods were identified, including qualitative evaluation (such as case studies, key informant interviews); before, during and after methodology; and logic models. Only two groups used randomized trial or cohort studies, and few had large sample sizes (see Appendix H for an overview of the scan results).

Reports collected through the scan are included in the section on grey and peer-reviewed literature. Although it did not identify new evidence in interprofessional collaboration outcomes, the survey confirmed the early stages of evaluation within jurisdictions, clarified the variety of collaborative initiatives with similar outcomes across the country, identified the types of research and evaluation being done, and confirmed the need for further evaluation and research.

1. Interprofessional Collaboration and Health System Outcomes

Respondents stated that the impetus for moving to interprofessional teams was the desire to enhance access to primary healthcare services, quality improvement and the availability of a funding opportunity to do so. Organizational assessment sought to measure improvement in accessibility and/or continuity of care, and wider changes in the organization of care such as role clarification and shifts in scope of practice. Early information, as noted in the PHCTF evaluations, demonstrates positive shifts in access to primary healthcare services, as well as a need to support role clarification of interprofessional team members. A major change in organizational practice was the large increase in the use of the team approach in caring for patients/clients, whether the collaboration was based on population or special needs.

2. Interprofessional Collaboration and Patient/Client Outcomes

Patient/client outcomes identified large increases in satisfaction with care/service, increased feelings of well-being, and improved self-management knowledge or skills. Behavioral change was also noted, with an increase in patient's self-identified self-management skills, especially in areas of chronic disease management. Other benefits to patients/clients included increased access to a range of services secondary to collaborative efforts, especially within the chronic disease collaborative or shared care models.

3. Interprofessional Collaboration and Provider Outcomes

A number of respondents identified positive changes in provider attitudes toward the value and use of team care approaches for specific patient/client groups (for example, diabetes, mental health and arthritis). Outcome assessment for service providers included professional satisfaction, changes in professional practice, and changes in attitudes, perceptions, relationships, trust and knowledge.

4. Interprofessional Collaboration Model Variations and Outcomes

The interprofessional collaborative initiatives described in the survey were primarily in regional health authorities and community health centres, with only a small number in

hospital or private clinic settings. Almost all teams included physicians and nurses, with greater than half of them having social workers, dieticians and pharmacists. The size of the teams varied from small ones where there was collaboration between two professionals (3-10 providers) to large teams (several had greater than 100 providers) that included all the providers working in a geographic area. Almost half of these teams provided service to a general population, with about a quarter of them providing services for special needs such as mental illness or chronic disease. The majority had been in place for two or more years, and more than one-third had been in place for four years or more, with supportive funding for most. Team structure was varied and at an early to intermediate level of development.

The types of interprofessional models were extremely broad and included the following: governance partnerships between the health authority, physicians and other providers; family health teams or primary healthcare networks; population-specific teams (for example, infant/child, youth and women, and men); provincial primary healthcare frameworks; shared care (such as mental health); chronic disease collaboratives; family physician and various partnerships (nurse, dietitian or pharmacist); community health centres; and entire health system change. In a number of initiatives, facilitators were used to support team development.

A variety of processes and tools were developed through the interprofessional collaboration, including clinical tools to share information, protocols and workshops/learning sessions. As well, a variety of collaborative interprofessional opportunities other than service delivery were created from the teams' collaboration, including collaboration with others external to the team (such as the education system and other intersectoral partners), interprofessional committees (such as nurse and physician professional associations) and interprofessional on-the-job training. Interventions initiated with the interprofessional teams were broad, and most respondents identified such interventions as team development, professional development, changes in organization and delivery of care, and clinical practice tools and guidelines. Patients were involved with most teams in roles such as advisory committees (including planning and evaluation), mutual goal-setting, resident councils, and case conference participation.

Similar outcomes were identified for patients/clients, providers and organizations across most initiatives despite the variations in team size, numbers of professional groups involved, and the type of interprofessional model used. These factors did not appear to directly impact outcomes. However, given the small number of initiatives evaluated, the significant focus on chronic diseases and the low quality of evidence, higher quality evidence and larger studies are required to validate these findings.

V. RESEARCH GAPS AND PRIORITIES

There is evidence suggesting that better outcomes for patients/clients can be achieved in specific areas such as chronic disease management and among special needs populations such as the elderly. Syntheses of peer-reviewed and grey literature highlight areas (for example, large professional groups serving general populations, and private physician practices with collaborative nurse/dietician/pharmacist partnerships) where there is emerging evidence that collaboration is achieving positive outcomes. Although some of this evidence is at the moderate and high levels, the bulk of it is at the low or very low level of evidence.

The grey and peer-reviewed literature illustrate positive outcomes of interprofessional collaboration, including modification of provider and patient attitudes and perceptions, as well as changes in organizational practice. This is consistent despite practice variation. Again, this is primarily at the low and very low levels of evidence, with some evaluation and research in the past several years demonstrating evidence at the moderate and high levels. Although there are no notable differences in outcomes in the large variety of collaborative initiatives through the PHCTF, there is no good quality evidence as to whether the variations among the different forms of collaboration (for example, target populations, size of collaboration groups, composition) affect any particular organization, patient/client or provider outcome.

The grade of evidence was divided between moderate to high and very low to low. Forty-two percent of the evidence was of high and moderate quality, with 58% at low and very low levels. Although the environmental scan did not allow for grading of the quality of evaluation or research, it identified high usage of non-experimental designs and key informants, and small sample sizes. This identifies a need for higher quality studies in relation to interprofessional collaboration within primary healthcare.

There are several gaps in primary healthcare research:

- limited moderate- to high-quality evidence in relation to interprofessional collaboration and quality primary healthcare outcomes for general populations;
- a dearth of moderate- to high-level evidence on the effects of interprofessional collaboration model variation on primary healthcare outcomes;
- little emphasis on provider and system level outcomes, especially costing; and
- limited information regarding the best models for primary healthcare collaboration, and how these models impact the different categories of outcomes for patients/clients, providers and the system.

VI. SUMMARY AND CONCLUSIONS

The synthesis review suggests there is evidence to support positive provider, system and patient outcomes as a result of enhanced interprofessional collaboration (see Appendix I for table with included reviews; other included reviews will be available on the Ontario Ministry of Health and Long-Term Care web site in the spring of 2008). This is particularly pronounced for chronic disease or special needs populations. A large number of the reports uncovered in the grey literature provide useful information on the definitions, principles, frameworks, barriers and facilitators of collaboration. Strategies are identified to address the challenges associated with fostering greater collaboration, including clarification that professional legislation and regulation need to play a part in facilitating that collaboration.

A number of tools, evaluation and research processes have been utilized successfully for the planning, implementation and evaluation of collaborative practice. Researchers, managers, policy makers and clinicians should work together to create, share and use all forms of this evidence. Both the excluded literature and the feedback through the environmental scan echo the evidence regarding the determinants of, and outcome measures associated with, effective collaboration. These outcomes are difficult to achieve, and there are a substantial number of tools and processes to support and evaluate interprofessional collaboration, with baseline information in some jurisdictions.

A review of the quality of the evidence (see Appendix J, Numerical Table of Outcomes and Grades, and Appendix K, Table of High- and Moderate-Quality Evidence) across the peer-reviewed and grey literature and the environmental scan, based on the classification of the Joint Evaluation Team framework, identifies commonalities in these areas:

- there was modification in patient/client and provider attitudes and perception of interprofessional collaborative practice at all levels of evidence for the included peer-reviewed and grey literature, and the scan confirmed changes in patient/client and provider perception or attitudes toward the value of teams;
- there was change in organizational interprofessional collaborative practice across all included peer-reviewed and grey literature reflecting high- and moderate-quality evidence, and the environmental scan confirmed increased use of the team approach in patient/client care across different jurisdictions in Canada; and
- there were identified benefits to patients/clients across all review areas, reflecting high- and moderate-quality evidence, and the environmental scan confirmed increases in client satisfaction with care, and increases in access to service across Canadian jurisdictions.

Based on the review of peer-reviewed and grey literature, and the environmental scan, there is increasing good evidence (high or moderate grade), with large quantities of low- and very low-level evidence, to indicate that:

- healthcare providers working in an interprofessional collaborative manner are more satisfied and have a more positive experience compared to primary healthcare providers working in a uni-professional model (single practitioner providing client care and accessing other services for the client through a referral system);
- primary healthcare providers who experience working in an interprofessional collaborative manner develop a positive perception of working collaboratively with other professionals;
- primary healthcare providers who work in an interprofessional collaborative manner develop enhanced knowledge and skills;
- primary healthcare providers working in a uni-professional model and healthcare providers working in an interprofessional collaborative manner have different practice behaviors (for example, referral patterns, follow-up, preventive care);
- interprofessional collaboration models can provide a broader range of services, more efficient resource utilization, better access to services, shorter wait times, better coordination of care and more comprehensive care, compared to a uni-professional model of primary healthcare delivery;
- patients/clients expressed more satisfaction and identified a more positive experience with interprofessional collaboration compared to patients/clients cared for by primary healthcare providers working in a uni-professional model;
- patients/clients who receive healthcare services in an interprofessional collaborative approach report a more positive perception of receiving healthcare services than those in a uni-professional approach;
- patients/clients receiving services from primary healthcare providers through an interprofessional collaborative approach develop enhanced self-care and health condition knowledge and skills;
- patients/clients receiving health services through an interprofessional collaborative approach report different health practices (for example, improved self-care, lifestyle and preventive service access) compared to patients/clients receiving health services from a primary healthcare provider working in a uni-professional model; and
- interprofessional collaborative models can provide better health outcomes for patients/clients (for example, blood pressure control, diabetes control, health status, quality of life) compared to a uni-professional model of primary health care delivery.

Overall, it is concluded that:

- There is high-quality evidence supporting positive outcomes for patients/clients, providers and the system in specialized areas such as interprofessional collaboration in mental healthcare, and chronic disease prevention and management.
- There are findings in the literature, and some jurisdictions, which support positive outcomes for patients/clients, providers and the system when interprofessional collaboration (for example, physicians/nurses, physicians/pharmacists, physicians/dietitians in partnerships) is fostered and supported on the basis of servicing geographic populations or population health models. These outcomes include such things as enhanced patient/client self-care, knowledge and outcomes; enhanced provider satisfaction, knowledge, skills and practice behaviors; and system enhancements such as provision of a broader range of services, better access, shorter wait times and more effective resource utilization.
- There are findings of interprofessional collaboration cost benefits in some primary healthcare settings (such as decreased average provider and patient costs for blood

- pressure control, lower readmission rates and costs for team-managed, home-based primary care).
- Although there are findings related to positive outcomes of interprofessional collaboration emerging through the literature and within jurisdictions, they do not identify how variation among interprofessional collaborative models affect outcomes.
 - A variety of processes and tools (including definitions, principles, frameworks, barriers and facilitators) have been developed to support the planning, implementation and evaluation of effective interprofessional collaborative partnerships which can be used for future planning, implementation, evaluation and research.
 - Knowledge transfer from syntheses such as this one is necessary to utilize current studies in further planning, implementation research and evaluation.
 - There is a need for greater regulatory and legislative support to foster and promote consistency and clarity of interprofessional collaborative partnerships (for example, physician/nurse, physician/pharmacist, physician/dietitian) and scope of practice, as well as the availability of physician (and other professional) remuneration models.
 - There is a need for more rigorous research in order to clarify definitions for interprofessional collaboration (especially clarification of the patient/client and family roles in the process), teams and shared care; to gather higher quality evidence regarding interprofessional collaboration and outcomes for servicing geographic populations or population health models; and to gather evidence associating variations in models to outcomes.

To provide policy and decision makers with a higher quality of evidence that will support them in informed and evidence-based decision-making, more rigorous evaluation and research is needed which can be generalized and contextualized within the Canadian health system. It is therefore recommended that:

1. **A plan for rigorous and quality primary healthcare evaluation and research concerning interprofessional collaboration be developed and implemented.**

Given the increasing amount of information supporting the positive outcomes in specific areas concerning interprofessional collaboration, and the potential positive outcomes for patients/clients, providers and the primary healthcare system, it is recommended that:

2. **The evaluation and research plan developed and implemented build upon validation of the areas already showing early positive results (for example, change in organizational practice and benefits to the patients).**

The availability of processes and tools that have been tested and have served as baselines within the primary healthcare system can minimize delays in moving forward with evaluation and research, and can support the emerging evidence. It is therefore recommended that:

3. **Primary healthcare evaluation and research regarding interprofessional collaboration should utilize and build upon the various processes and tools that have already been developed to support primary healthcare evaluation and research.**

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