CANADIAN NURSES ASSOCIATION

Optimizing the Role of Nurses in Primary Care in Canada

Final Report

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KEY MESSAGES

The literature on primary care delivery models and frameworks reveals that there is innovation in model development and emphasis on the following: achievement of the Institute for Healthcare Improvement's Triple Aim approach; the patient's medical home; team-based care; integration between primary and community care and primary and secondary care; performance measurement.

The roles and activities of nurses are infrequently reported in articles that describe or evaluate models of primary care.

No physician funding model is consistently superior or inferior and the evidence related to the effects of incentives is unclear.

Innovative primary care models that incorporate collaboration across the home and community sectors and with Aboriginal community members are developing.

Nurses providing primary care make up a small proportion of nurses in Canada.

There is a lack of information about the number of nurses required to meet the increasing demands for primary care services in Canada.

There is a need for current, detailed workforce planning information with clear and consistent definitions to identify, describe, monitor and compare the demographic characteristics, practice patterns and trends of nurses working in primary care for each province/territory.

Nurses in primary care provide specialized generalist care.

There is a need to establish national consensus on the dimensions and competencies of the role of registered nurses working in primary care.

EXECUTIVE SUMMARY

This research project was undertaken for the Canadian Nurses Association (CNA) by the Canadian Centre for Advanced Practice Nursing Research. This report summarizes the issues and policy options and will inform CNA's future role and strategies for advancing a pan-Canadian primary care framework that optimizes the role of registered nurses (RNs) and advanced practice nurses in primary care interprofessional teams. Research, practice, education and policy information and input from key stakeholders relevant to nursing roles in the delivery of primary care services from national, provincial and territorial perspectives were synthesized to provide policy guidance and actionable recommendations. The key components of this project included a scoping literature review and key informant interviews with nurses and other stakeholders.

Scoping Literature Review

More than half of the papers that were reviewed describe or evaluate models of care in Ontario, Quebec and Alberta. In these provinces there are provincially defined models of care based on physician remuneration, governance, patient rostering and hours of service. In addition, grassroots-defined models of care are emerging to meet the needs of local populations and specific contexts.

Primary care delivery frameworks included the Institute for Healthcare Improvement's Triple Aim approach of better health, better care and better value as the desired outcomes of primary care (Kates et al., 2012; Levitt et al., 2013). One paper conceptualizes a results-based logic model of primary health care to form the basis of population-based information systems (Watson et al., 2009). Hogg et al. (2008b) describe a framework to identify the structural domains of primary care that are likely to influence performance of primary care organizations. Another paper describes key dimensions of equity-oriented services to guide primary health care organizations (Browne et al., 2012).

Typically, the descriptions of nursing roles and activities were brief and described activities about providing primary care clinical services. Two papers reported outcomes associated with having a nurse in four primary care models: community health centres, fee-for-service practices, family health networks and health service organizations. Hogg et al. (2009a) found that the number of nurses in the practice was independently and positively associated with health promotion. Russell et al. (2009) reported that the presence of a nurse practitioner (NP) improved chronic disease management in all four models.

The following physician funding models were identified: incentives, capitation, fee-for-service, salaried, blended models, and models in which bonuses were offered for services to enrolled patients. No funding model was consistently superior or inferior and the evidence on the effects of incentives was unclear.

Tarlier and Browne (2011) describe the remote nursing certified practice (RNCP) model implemented in remote First Nations communities. They argue that such a model may promote continuation of inequities in primary care delivered to First Nations communities because RNCP-

certified nurses have a narrow scope of practice and the needs of remote First Nations communities are more aligned with the scope of practice of NPs.

There were few published articles and no recent studies that provided an up-to-date and comprehensive description of the number, characteristics or practice patterns of Canadian nurses in primary care. The literature illustrated the very broad nature of nursing roles in primary care. In a study of exemplary family practice nursing, registered nurses (RNs), were described as having specialized generalist knowledge (Oandasan et al., 2010).

The literature revealed a wide range of barriers and facilitators for role optimization that apply at the levels of the individual RN, the organization and the health system. Individual factors included an RN's knowledge, skills, experience and understanding of their scope of practice; organizational factors included role clarity, team collaboration and the physical and governance structures that create space and opportunity for nurses; lastly, health-care system factors included role clarity and stakeholder understanding of nursing competencies and scope of practice (Akeroyd et al., 2009; Besner et al., 2011; Moaveni et al., 2010). Process barriers and facilitators, meanwhile, were also found. They related to nurses' role confidence, education and preparation, care delivery factors, and systematic planning and preparation for role implementation.

This report puts forth recommendations for optimizing nursing roles in primary care. The recommendations focus on continuity of care, staff mix, professional development, quality practice environments, intra and interprofessional collaboration, use of technology and enhanced scope of practice.

A consistent theme was support for nursing roles within interprofessional team-based models of primary care. Virani (2012) identified five potential interprofessional collaborative care models that involve a substantive role for nurses: interprofessional team, nurse-led, case management, patient navigation and shared care. There is insufficient evidence to determine which is the best model; model selection should be dependent on various patient, provider and practice setting contexts.

Another major theme was the enhanced role nurses could play in improving access to and the delivery of chronic disease management care. Models of care must also position nurses to have stronger leadership and more proactive roles in providing chronic disease management care (Browne et al., 2012; Health Council of Canada, 2012; New Brunswick Health Council, 2010; Registered Nurses' Association of Ontario [RNAO], 2012a, 2012b).

Key Informant Interviews

The purpose of the key informant interviews was to further explore and build on scoping review findings, identify priority issues and to generate recommendations for policy, practice, education, research and future consultation processes.

Several participants talked about the importance of ongoing education and training for primary care RNs as well as transitional supports for RNs entering primary care after having worked mainly in acute care.

A structured approach to care and team development facilitated nursing roles in primary care because there was a focus on developing and articulating the role of each team member.

Many participants indicated that nursing roles in primary care were poorly understood by physicians, NPs and the public.

The lack of funding models for nursing roles in primary care was identified as a major barrier. Some participants perceived a lack of interest on the part of health-care decision-makers to fund RN roles, and that funding constraints were leading employers to hire licensed or registered practical nurses rather than RNs.

The lack of role clarity was a recurrent theme in the literature and interviews**.** Primary care nurses who participated in the interviews placed a high value on their generalist expertise and their ability to provide "cradle to grave" care as opposed to providing specialized care or focusing their role on specific patient populations.

Participants talked about the importance of developing role descriptions, a competency framework or national certification for nurses in primary care. Participants identified the need for supportive legislation and regulation that would enable RNs to work optimally to provide patient care.

Participants talked about the importance of building a better understanding of collaborative competencies and developing an understanding of the scope of services that a team offers and how teams can work more collaboratively.

Many participants talked about the importance of research related to RN roles in primary care and about the need for implementation research, knowledge translation and research to determine the value added of RN roles.

Recommendations and Conclusion

Based on our analysis and synthesis of the scoping literature review and key informant interviews we offer the following recommendations to CNA:

1. Conduct a national survey of nurses in primary care.
2. Consult with key stakeholders using a variety of strategies.
3. Develop a competency framework for primary care RNs. This was a helpful strategy for moving forward the NP and clinical nurse specialist (CNS) roles in Canada because it started to address the issues of role clarity and invisibility.

4. Develop a toolkit to enable managers and others in leadership positions to implement nursing roles more effectively.
5. Develop a certification process for RN primary care providers.

A wave of momentum is building to improve Canada's primary health-care delivery systems. With CNA's continued leadership, now is the time for nursing to catch that wave so that someday soon every Canadian, coast to coast to coast, can benefit from having a nurse on their primary care team.

1.0 BACKGROUND

This project was undertaken for the Canadian Nurses Association (CNA) by the Canadian Centre for Advanced Practice Nursing Research. The purpose of this project was to summarize the issues and policy options that will inform CNA's future role and strategies for advancing a pan-Canadian primary care framework that optimizes the role of registered nurses (RNs) and advanced practice nurses in primary care interprofessional teams. Research, practice, education and policy information and input from key stakeholders relevant to nursing roles in the delivery of primary care services from national, provincial and territorial perspectives were synthesized to provide policy guidance and actionable recommendations.

A progressive definition of primary care integrating the concepts of person-centred care, population health, primary health care (PHC) and community-based care guided this work. Primary care was defined as the spectrum of first-contact health-care models that incorporate health promotion, community development and intersectoral collaboration to address the social determinants of health (Aggarwal & Hutchison, 2012).

This project had four interrelated objectives:

1. Synthesize and analyze the following four topics from provincial, territorial and national perspectives: (a) current and proposed primary care delivery models and primary care delivery frameworks, (b) primary care funding agreements for physicians and other providers, (c) structural and process barriers to nurses working to their optimal scope of practice in primary care settings, and (d) strategies and recommendations for optimizing the role of nurses in the delivery of primary care services in Canada.
2. Conduct 10 to 15 key informant interviews with nurses and other stakeholders to further examine facilitators, barriers and recommendations for optimizing nursing roles and scopes of practice in varied primary care models and settings.
3. Propose methods and develop a draft questionnaire for a national survey to examine the fit of nursing roles, practice patterns and scope of practice with patient and health service delivery needs in varied primary care models and settings.
4. Develop a consultation framework that will engage key informants to generate recommendations and policy directions for CNA.

This report summarizes the methods, findings and recommendations of our: (1) comprehensive scoping review and (2) key informant interviews.

2.0 METHODS

2.1 Scoping Literature Review

To address Objective 1, we conducted a comprehensive scoping literature review of Canadian published and grey literature from January 2008 to October 2013. The focus of the scoping review was on RNs. When relevant to providing context about nursing roles in primary care, information about other types of nursing roles, such as licensed practical nurses (LPNs), registered practical nurses (RPNs), CNSs and NPs, was captured. Our methods followed those described by Arksey and O'Malley (2005) and Valaitis et al. (2012).

The inclusion criteria for the review were as follows:

- was published in English or French
- was published between 2008 and 2013
- is Canadian
- is a formal paper
- has a focus on primary care (first contact, comprehensive, longitudinal care)
- describes or evaluates a primary care delivery model or framework AND OR provider funding agreements AND OR structural and process barriers to role optimization of nurses (includes specialized nursing roles that are part of a primary care model)
- describes or evaluates primary care frameworks and frameworks relevant to primary care
- describes or evaluates Aboriginal health care
- describes or evaluates nursing roles in primary care
- describes or evaluates models of primary care
- describes or evaluates NP-led clinics as a model of primary care
- provides an in-depth examination of primary health care reform

The exclusion criteria for the review were as follows:

- was published in a language other than English or French
- was published before 2008
- is not Canadian
- is not a formal paper (e.g., opinion pieces, editorials, commentaries)
- does not focus on primary care (first contact, comprehensive, longitudinal care)

- does not describe or evaluate a primary care delivery model or framework AND OR provider funding agreements AND OR structural and process barriers to role optimization of nurses
- provides only a study protocol
- describes or evaluates a specialized nursing role that is NOT part of a primary care model
- describes or evaluates shared-care models
- describes or evaluates quality improvement initiatives or interventions to improve primary care such as electronic medical records, education and practice facilitators
- describes or evaluates school-based care models
- describes or evaluates specialty services parachuted into primary care
- titles with no abstract or author
- primary care is not identified in the title or abstract
- focuses on NPs, except for studies specific to a model of primary care delivery (e.g., NP-led clinics)
- focuses on describing physicians without describing or evaluating a model of care

The search strategy is available from the Canadian Nurses Association. We used the software program Distiller to manage the screening and data extraction process for this review. After duplicates were removed, the database search yielded a total of 3,652 articles, which were uploaded into the Distiller software. Working in pairs, four team members screened titles and abstracts (level 1 screening). Each pair reviewed the titles and abstracts of the same set of articles independently. Articles were excluded if both people in the pair were in agreement. During level 1 screening, 3,363 articles were excluded, leaving 169 for full-text review. To facilitate the data extraction and analysis process, we separated the relevant articles into six categorical buckets on the basis of their subject matter: primary care models, primary care frameworks, nursing roles, health-care reform, Aboriginal innovations and physician funding. Sixty studies were excluded during the full-text review process, leaving 109 published papers in the review. Figure 1 depicts the results of the search strategy.

A data extraction form was developed and entered into Distiller. Seven data extractors were trained to use Distiller and to apply common data extraction guidelines. The extraction form and guidelines are available from the authors. After the initial training, a pilot test was done to evaluate consistency of extraction. Extractors extracted data from the same two articles (a nursing role article and a primary care model article). Two teleconferences were held to discuss areas of inconsistency and corrective strategies. A second pilot test was completed using these revised guidelines followed by a third teleconference at which time a few more extraction guidelines were added. Data were extracted from all included articles.

The website search yielded 157 links to documents. Two reviewers reviewed the executive summaries of these documents for relevance using the inclusion and exclusion criteria listed above. Documents that did not include an executive summary were excluded. Thirty documents were included.

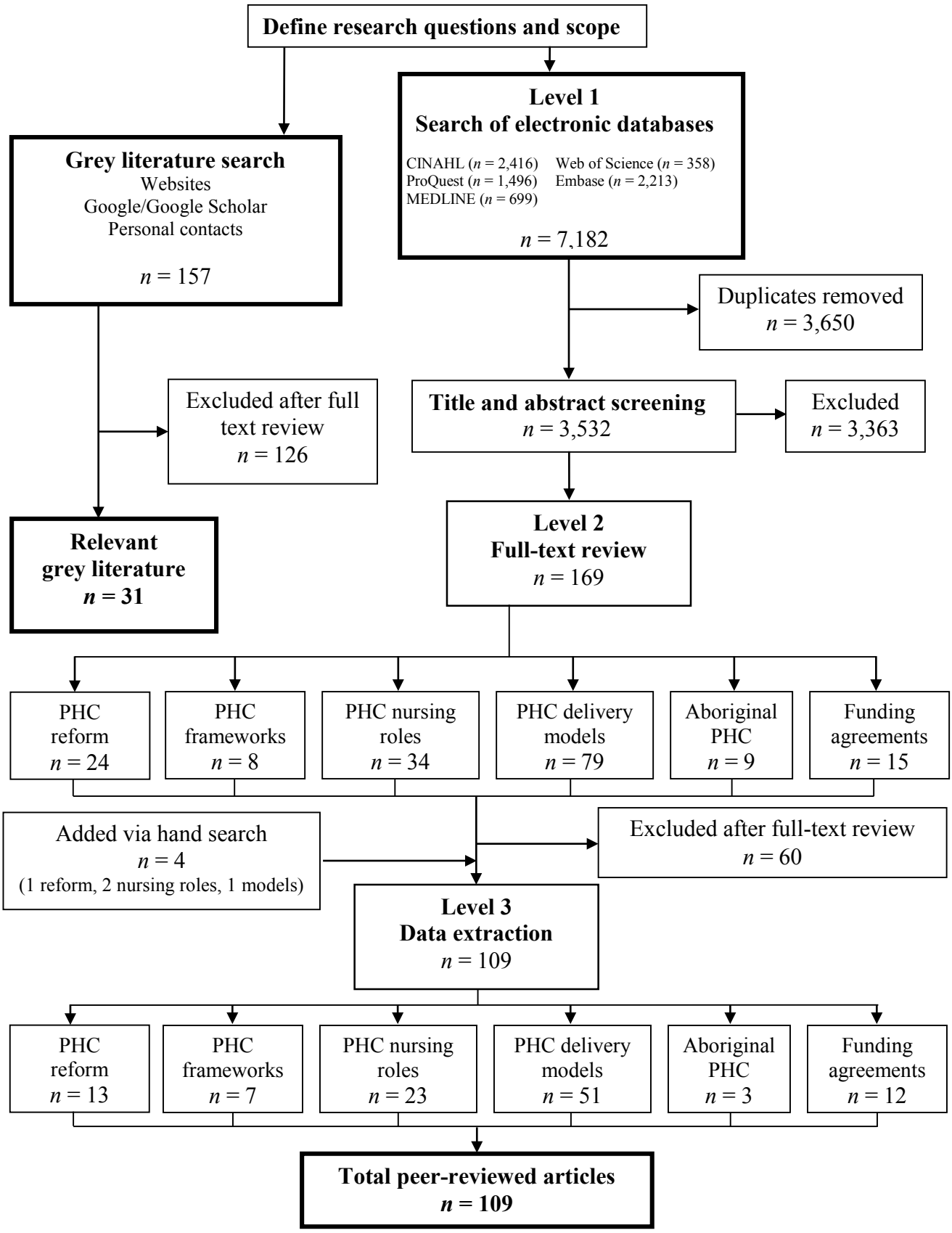
2.2 Key Informant Interviews

Ethics approval was received from research ethics boards at Dalhousie, McMaster and Queen's universities. Interview participants from different jurisdictions and stakeholder groups with varied roles and responsibilities for improving primary care were purposively selected. In particular, we sought participation from nurses, other health professionals, educators, researchers and decision- and policy-makers knowledgeable about nursing roles and the primary care models and frameworks identified in our scoping review. A priori we estimated the number of participants needed for saturation to be 10 to 15.

An information letter from CNA and a consent form were e-mailed to each key informant. A research coordinator followed up by e-mail to schedule a 45 to 60 minute interview. Signed consent forms were returned by scan or fax. Interviews were conducted by telephone in English by members of our team using a semi-structured interview guide developed by our team and informed by the scoping literature review. At the time of the interview, participants completed a brief demographic survey to describe their role and primary care expertise. Interviews were audio-recorded and transcribed by a trained transcriptionist.

Content analysis of transcribed interviews was conducted concurrently with data collection. Inductive coding approaches were used to identify relevant themes using NVivo 10 software (Corbin & Strauss, 2008). Methods to ensure trustworthiness of results were used (Corbin & Strauss, 2008; Sandelowski, 2010).

Figure 1 Stages of the Scoping Literature Review Methods and Results (PHC = primary health care)



3.0 RESULTS FOR OBJECTIVE 1: SCOPING LITERATURE REVIEW

In this section, details of the scoping review findings will be presented in relation to two over-arching themes: (1) models of care delivery and frameworks in primary care and (2) nursing roles in primary care. The specific questions addressed in the scoping review will be discussed within each of these themes.

The aim of the scoping review was to synthesize and analyze from provincial, territorial and national perspectives the available literature on the following topics: (a) current and proposed primary care delivery models and primary care delivery frameworks, (b) primary care funding agreements for physicians and other providers, (c) structural and process barriers to nurses working to their optimal scope of practice in primary care settings, and (d) strategies and recommendations for optimizing the role of nurses in the delivery of primary care services in Canada. The specific questions for each of these topic areas are outlined below.

Models of care delivery and frameworks in primary care

- What models of care delivery for primary care are being proposed or currently implemented in Canadian provinces and territories?
- What primary care delivery frameworks are being proposed or currently implemented in Canadian provinces and territories?
- How are nursing roles described and used within these primary care delivery models and frameworks?
- What are the various funding models for physicians and other health providers within these primary care delivery models and frameworks?
- What models of care delivery and frameworks for primary care are being proposed or implemented to promote care coordination and innovation for Aboriginal and rural/remote communities?

Nursing roles in primary care in Canada

- What are the characteristics and practice patterns of nursing roles in primary care in Canada as described?
- What are the structural and process barriers to optimal utilization of nursing roles and scope of practice in primary care?
- What are strategies and recommendations for optimizing the role of nurses in the delivery of primary care services in Canada?

A total of 140 papers were included in the scoping review. Of these, 109 were from peer-reviewed journals and 31 from grey literature sources.

Results for Models of Care Delivery and Frameworks in Primary Care

3.1 What models of care delivery for primary care are being proposed or currently implemented in Canadian provinces and territories?

This section addresses the models of care delivery for primary care that are being proposed or currently implemented in Canadian provinces and territories. Models of care delivery and frameworks are situated in an environment of health reform, and during our scoping review we identified papers that discussed primary care reform in Canada. We included selected papers that were relevant to our review to provide additional context for examining models of care and frameworks. These published and grey literature papers are briefly summarized in Tables A1 and A2 in Appendix A. They point to the high level of attention focused on primary care and the foundational place of primary care in a high-performing healthcare system (Hutchison, 2013). Several policy analyses identify the poor performance of Canada's primary care in international comparisons and identify strategies for improvement. Increasing attention is being paid to the organization and quality of primary care, the integration of primary care with other sectors and the need for performance measurement. The improvement-focused context of primary care has given rise to a number of different models of primary care.

Fifty-one published and six grey literature papers addressed models of care delivery in primary care. Details of the study characteristics of all papers are found in Tables A3 and A4 in Appendix A. Of the published papers, almost half used quantitative observational methods. More than half of the papers described or evaluated models of care in the province of Ontario (30); the next most frequently examined provinces were Quebec (12) and Alberta (10). British Columbia had two papers, Nova Scotia had one, and three papers were national in scope. A single model was described or evaluated in 24 of the published papers and multiple models in the remainder (Table A5 in Appendix A). Our review identified 26 primary care delivery models (Table 1). In some provinces, such as Ontario, Alberta and Quebec, there are provincially defined models of care based on physician remuneration, governance, patient rostering and hours of service. Other grassroots-defined models of care are emerging to meet the needs of local populations and specific contexts. Team-based care is a component of many of the provincially defined and grassroots-defined models. Some models are designed to connect physicians in groups or networks and do not have an interprofessional team focus. Fee-for-service physician models are the oldest primary care models and continue to be common throughout most of the country.

It is beyond the scope of this report to describe each model in detail. Glazier et al. (2012, p. iv) provide a comprehensive description of four models used in Ontario, including community health centres (CHCs, a salaried model), family health groups (FHGs, a blended fee-for-service model), family health networks (FHNs, a blended capitation model), family health organizations (FHOs, a blended capitation model) and family health teams (FHTs, an interprofessional team model composed of FHNs and FHOs). Scott et al. (2012) provide an in-depth description of Alberta's primary care networks, and Tourigny et al. (2010), Gaumer and Fleury (2008) and Breton et al. (2013) describe

the family medicine groups, CLSCs (centres de santé et de services sociaux, or community health centres) and network clinics and private medical clinics in Quebec.

Table 1 Models of Care Identified in Published and Grey Literature Papers

Community health centre/community service centres (19)	Nurse-practitioner/paramedic/family physician rural model (1)
Family health network (17)	
Fee-for-service solo or group practice (5)	Family health organization (1)
Family practice (3)	Community care access centre (1)
Family health team (8)	Family medicine unit (2)
Family health group (6)	Family practice unit (1)
Health services organization (12)	Group medical visit (1)
Primary care network (9)	Private medical clinics (1)
Family medicine group (8)	Network clinics (1)
NP-led clinic (2)	Centralized teledermatology clinic (1)
Canadian/patient medical home (1)	Integrated family medicine group and network clinic (1)
Responsive interdisciplinary child-community health education and research (RICHER) (1)	Home is best model (1)
	Integrated care management model (1)
Integrated model of primary and community care (1)	Family care clinic (1)

3.2 What primary care delivery frameworks are being proposed or currently implemented in Canadian provinces and territories?

Seven published and two grey literature papers focused on primary care delivery frameworks. Their characteristics are described in Tables A6 and A7 in Appendix A. Two papers incorporate the Institute for Healthcare Improvement's Triple Aim of better health, better care and better value as the desired outcomes of primary care (Kates et al., 2012; Levitt et al., 2013). The attributes that will enable primary care practices/organizations to reach these aims are as follows: population focus, patient engagement, partnerships with health and community services, innovation, performance measurement and quality improvement and team-based care (Kates et al., 2012). One paper conceptualizes a results-based logic model of PHC to form the basis of population-based information systems (Watson et al., 2009). Hogg et al. (2008b) describe a framework to identify the structural domains of primary care that are likely to influence performance of primary care organizations. Another paper describes key dimensions of equity-oriented services to guide primary health care organizations (Browne et al., 2012). Several other papers use frameworks focused on primary care quality, service delivery and sustainability.

Of the 57 papers included in the review of primary care delivery models, four used a framework. Dahrouge et al. (2009) used the Hogg et al. (2008b) framework described above. The other three papers used frameworks not identified in our review. Breton et al. (2011) used a World Health Organization framework for assessing the performance of health systems (Murray & Frenk, 2000). Breton et al. (2013) used an integrated health-care model developed by Shortell et al. (1994), and Rondeau and Bell (2009) used Wagner's chronic care model (1996).

3.3 How are nursing roles described and utilized within these primary care delivery models and frameworks?

Of the 57 papers describing primary care delivery models and the nine papers describing primary care frameworks, 11 papers specifically described nursing roles (Tables A8 and A9 in Appendix A). Typically the descriptions of nursing roles and activities in these papers are brief and are almost always about clinical services. One paper described the clinical role of nurses in more detail and indicated that nurses provide patient followup, health promotion and preventive care to patients 24 hours a day, 7 days a week, through regular appointments, walk-in clinics, home visits and telephone hotlines; disease prevention care; followup of chronic health problems; and triage or pre-visit activities before physician appointments (Tourigny et al., 2010). Two papers reported on outcomes associated with having a nurse in four primary care models: community health centres, fee-for-service practices, family health networks and health service organizations. Hogg et al. (2009) reported that the number of nurses in the practice was independently and positively associated with health promotion. Russell et al. (2009) reported that the presence of a NP improved chronic disease management in all four models.

In the framework papers, Dufour and Lucy (2010) indicate that a guiding principle of family health teams is that they have interdisciplinary teams of providers including physicians, nurses, NPs and other health-care professionals. Delon et al. (2009) describe how nurses are co-located in family physician practices and provide chronic disease management support by: working with patients to identify real and potential risks at bio-psycho-social-cultural-spiritual levels; supporting behaviour change; providing knowledge, tools and skills; and facilitating referrals to the multidisciplinary team, services and programs. The Saskatchewan Ministry of Health (2012) specifies that the role of nurses and NPs in primary care includes long-term relationship building with patients, cultural competence, working collaboratively, engaging the community, increasing accessibility, using technology to improve communication, supporting patient feedback and incorporating evidence into practice.

3.4 What are the various funding models for physicians and other health providers within these primary care delivery models and frameworks?

Thirteen published and two grey literature papers were identified that focus on funding for physicians. The study characteristics are presented in Tables A10 and A11 in Appendix A. All were primary studies except one grey literature paper, a literature review (Milicic et al., 2013). No papers were identified that focused on funding for other health-care providers in primary care. The following physician funding models were identified: incentives, capitation, fee-for-service, salaried, blended models, and bonuses for services to enrolled patients. Table A12 in Appendix A summarizes each of the funding papers in relation to the negotiations (when recorded) of the funding model, as well as the positive, negative and unintended impacts of the model. Of note, for every paper there were positive, negative and unintended impacts. No funding model was consistently superior or inferior and the evidence related to the effects of incentives was unclear. The literature revealed little about how physician models are negotiated other than stating that the negotiation process occurs between

provincial/territorial governments and their respective medical associations. No data were presented about the impact of various funding models on the optimization of nursing roles.

3.5 What models of care delivery and frameworks for primary care are being proposed or implemented to promote care coordination and innovation for Aboriginal and rural/remote communities?

Three published papers and two grey literature papers were included in the review. The study characteristics of these papers and their coordination features are found in Tables A13, A14, and A15 in Appendix A. Tarlier and Browne (2011) describe the remote nursing certified practice (RNCP) model implemented in remote First Nations communities. They argue that such a model may promote continuation of inequities in primary care delivered to First Nations communities because RNCP-certified nurses have a narrow scope of practice and the needs of remote First Nations communities are more aligned with the scope of practice of NPs. In the home and community care model discussed by Pylypchuk et al. (2008), home and community care teams working together with primary care physicians and specialists in First Nations communities can help prevent the complications of diabetes. Lavoie et al. (2010) explored the relationship between local access to PHC, measures of community control and the rates of hospitalization for ambulatory care sensitive conditions (ACSC) in First Nations living on reserve in Manitoba. They found that using nurses promoted care coordination. Nurses with an expanded scope of practice increased access to primary care and were effective in meeting community health care needs. Rates of hospitalization were also lower in communities served by a nursing station. Macdonald (2012) described three community-based programs that aim to promote the health of First Nations in British Columbia: (1) an Aboriginal doula training program that is a culture-based prenatal outreach and support program aimed at overcoming barriers that pregnant mothers may experience, (2) the BC School Fruit and Vegetable Nutrition Program and (3) a traditional, spiritual and community-driven approach to mental illness. Another paper describes a project that aims to create a respectful and collaborative approach to addressing the mental health needs of the Maliseet Nation in New Brunswick (Personal communication from L. Ashley, 2014).

Results for Nursing Roles in Primary Care in Canada

Twenty-three papers focusing on nursing roles in primary care were identified for review. Table A16 in Appendix A provides a summary of paper characteristics. Most of the papers (13) were research studies; the others were scholarly papers or essays (6) and literature reviews (4). Eight of the research studies employed qualitative and case study designs and collected data through interviews, focus groups or a Delphi panel. The five quantitative studies used observational designs: three were cross-sectional surveys, one was an analysis of an existing administrative data set and one was a retrospective cohort study. Study participants were mostly nurses (8 studies) followed by patients or patient medical records (3), physicians (2), interdisciplinary team members including students and volunteers (2) and primary care stakeholders such as representatives from professional associations (1). Types of reviews included one scoping review, one systematic review and two literature reviews. Five papers, mostly reviews, were international in scope; the remaining papers examined nursing roles in primary care from national (8) or provincial perspectives from British Columbia (1), Quebec (3),

Ontario (2), Alberta (2) and New Brunswick (2). Nineteen of the papers were written in English and four were written in French. Table A17 in Appendix A summarizes the purpose or major focus of the papers related to nursing roles in primary care. Eleven of the papers discussed the characteristics, development and use of nursing roles, six focused on nursing roles for Aboriginal and rural/remote communities, four discussed nurse-led care and two focused on scope of practice.

In terms of the grey literature, nine eligible papers were identified and are summarized in Table A18 in Appendix A. Six of these papers were published in 2012. CNA and/or the Canadian Health Services Research Foundation, now the Canadian Foundation for Health Innovation, were the source and funder of four papers. Two papers were produced by provincial government agencies, two by a provincial professional nursing association and one by the Health Council of Canada. Five papers were national in geographic scope and four were provincial. They included four funded or commissioned research reports, four policy reports and one synthesis report. Four reports were specific to nursing roles in primary care (Besner et al. 2011; Jacobson & HDR Inc., 2012; RNAO, 2012b; Virani, 2012), of which two focused on nursing roles in interprofessional teams (Besner et al., 2011, Virani, 2012). One paper examined nursing roles for enhancing community care (RNAO, 2012a) and two other papers examined nurses (Browne) and advanced practice nurses (DiCenso & Bryant-Lukosius, 2010) working in various settings including primary care. The remaining reports focused on provincial health-care redesign (New Brunswick Health Council (NBHC), 2010) and primary care strategies for optimizing self-management support for patients with chronic conditions (Health Council of Canada, 2012).

3.6 What are the characteristics and practice patterns of nursing roles in primary care in Canada as described?

Workforce Trends

Obtaining accurate information about the numbers and characteristics of nurses providing primary care services in Canada is a challenge. Some information can be gleaned from data collected annually from nurses by provincial/territorial nurse regulators to maintain registration as a practical nurse, nurse, psychiatric nurse or NP. In 2012 there were 292,883 RNs (includes NPs) in Canada working mostly in hospitals (57.2 per cent) compared to 15.4 per cent of RNs worked in the community health care sector (Canadian Institute for Health Information [CIHI], 2012). This sector includes nurses working in community health centres, home care agencies, nursing stations (outposts or clinics), public health departments and physicians or family practice offices. Therefore, not all of these nurses may fit our definition of working in primary care (first-contact health-care models). In addition, these data do not distinguish the number of RNs from NPs. According to CIHI (2013), in 2012, the Territories had the greatest proportion of nurses working in the community health sector (41.8 per cent) but the report did not provide more detailed information about the national geographic distribution of nurses working in primary care. An earlier analysis of CIHI's RN workforce data for 2010 indicated that 5,473 or two per cent of Canadian nurses worked in physician's offices or family practice units, where much of primary care takes place (CNA, 2012). This number would not include nurses who provide primary care in nursing stations or community health centres. This same data set

indicates that a greater number (22,139 or 8.2 per cent) of nurses worked in community health centres but the characteristics of nursing roles in these centres were not defined. On the basis of this information, a broad and imprecise estimate is that nurses working in primary care make up between 2 per cent and 8.2 per cent of the Canadian nursing workforce (CNA, 2012). Other workforce information, which is either absent or not readily available but is essential for health human resource planning to ensure an adequate supply qualified nurses for primary care, includes current status and trends related to age, education, type of role (practical nurse, RN, CNS, NP, registered psychiatric nurse), nationality, geographic distribution, place of employment and mobility.

Wong et al. (2009) conducted a workforce analysis of primary health-care nurses in British Columbia for the year 2000. Similar to the national data discussed above (CNA, 2012), more nurses worked in community health centres (1,395) than in physician's offices (13). This information from 2000 is now outdated as recent shifts toward primary care/family practice teams and networks may have led to changes in where nurses practise. However, these results raised important concerns that many nurses may provide primary care services in practice settings where physicians often do not work. This may make it more challenging for nurses to engage in collaborative interprofessional practices and for patients to receive timely access to comprehensive and coordinated care, especially in practice settings with limited access to electronic health records or other types of information and communication technology.

RNAO (2012b) used self-reported membership data from the College of Nurses of Ontario to conduct a high-level human resource analysis. Between 2005 and 2010 the number of RNs, registered practical nurses and NPs working in primary care rose by 16.7 per cent, 17.3 per cent and 94.5 per cent respectively. Using a combined NP and family physician to population ratio of 1:1150 as a target, the RNAO (2012b) estimated that an additional 3,700 nurses for primary care would be required in Ontario by 2016. Assessment of the accuracy or appropriateness of this analysis is beyond the scope of this review. However, it draws attention to the need for a standardized framework and methodology for similar and more comprehensive workforce analyses to assess, predict, compare and plan for the numbers and complement of nurses required from national and provincial/territorial perspectives.

We did not identify recent or comprehensive provincial or national surveys of Canadian nurses working in primary care. A cluster of papers identified in our review provide secondary quantitative analyses (Kulig et al., 2009; Stewart et al., 2011) and qualitative examinations (MacLeod et al., 2008; Martin-Misener et al., 2008) of nurses working in rural and remote communities from a larger study. The larger study included a national cross-sectional survey completed between 2000 and 2001 of nurses working in various rural and remote practice areas including primary care (Stewart et al., 2005). Most nurses worked in hospitals or acute care settings (39 per cent); 13.5 per cent worked in outpost or nursing stations and 1.7 per cent worked in physician's offices or family practice units. The largest proportion of nurses working in outpost or nursing stations was in the Territories (25.6 per cent), Quebec (24.7 per cent) and Ontario (22.3 per cent). More nurses worked in physician's offices or family practice units in Ontario (5 per cent), the Territories (2 per cent) and the Atlantic provinces (2 per cent) than elsewhere in Canada. Allard et al. (2010) surveyed nurses in Canadian family practice medicine programs. Limited demographic information is provided, but of 202 eligible nurses, 127 participated in the study including 13 licensed practical nurses, 94 RNs and

17 NPs. Most of the participants were women between the ages of 31 and 50 years and worked full time.

Role Goals and Activities

From the published and grey literature, 16 papers commented on role goals for nurses in primary care (Akeroyd et al., 2009; Banner et al., 2010; Benhaberou-Brun, 2012; Besner et al., 2011; Browne et al., 2012; DiCenso & Bryant-Lukosius et al., 2010; Forchuk & Kohr, 2009; Jacobson & HDR Inc., 2012; Jaimet, 2012; Keleher et al., 2009; Leahey & Svavarsdottir, 2009; Levine et al., 2012; Moaveni et al., 2010; Paterson et al., 2009; RNAO 2012a, 2012b). Reported role goals included improving health promotion and supporting healthy lifestyle behaviours (10 papers), improving timely access to primary care (9), improving resource use and reducing costs (8), improving chronic disease management (7), promoting continuity and coordination of care (6), improving the quality of care (4) and promoting access to two or more health-care providers with complementary expertise (4).

Data were also extracted from published and grey literature papers to identify reported characteristics of nursing activities in primary care related to direct care, indirect care, education, administrative and research activities. The most frequently reported activities focused on direct and indirect care. Direct care activities related to chronic disease monitoring and management (14 papers); health assessment (12); health-care management and therapeutic interventions (11); health education (11); health promotion and prevention of injury, illness and complications (10); and telephone or web-based care (3). Indirect care activities included triage (6), collaboration with other health-care providers and organizations (4), preparation of patients for the physician (4), patient navigation (4), case management (1) and patient advocacy (1). Education role activities involved supervising and teaching students and medical residents (4), coaching and mentoring other nurses (2) and participating in continuing education (12). Administrative role activities included program development (1), scheduling (1) and clerical work (1). Research activities were reported as involvement in quality improvement or program evaluation (3).

The goals and activities highlighted above reflect the broad nature and expectations of nursing roles in primary care. In a study of exemplary family practice nursing, RNs were described as having specialized generalist knowledge (Oandasan et al., 2010). Exemplary practice was characterized by establishing deep levels of patient trust; fostering effective relationships; providing holistic care that recognizes the patient's complex medical, social and emotional needs; and balancing multiple priorities in the provision of coordinated care. Family practice nursing was also defined as being distinct from acute care nursing because of the greater unpredictability of patient needs, the extent of triage and coordination of patient flow, the lack of regimented orders with a greater focus on addressing what patients need rather than providing care that has been ordered, and the need to care for the family as a whole (Oandasan et al., 2010).

The diversity in nursing practice in primary care is also described in several papers (D'Amour et al., 2008; Allard et al., 2010; MacLeod et al., 2008). Individual nurse and practice setting characteristics and policies contribute to role diversity. For example, Besner et al. (2011) found that nurses working in offices spent more time on administrative and routine clinical activities than nurses working in primary care networks who focused more on assessment and care provision, particularly related to

chronic disease management. More than 50 per cent of RNs working in family practice residency training programs reported performing non-nursing activities on a regular basis (Allard et al., 2010). Varied provincial nursing regulations and the ways in which individual nurses and their supervisors interpreted and understood these regulations influenced role activities related to scope of practice (Allard et al., 2010). Nursing roles in primary care were also found to evolve in response to dynamic political, social and economic factors in the communities they served (Paterson et al., 2009). The need to gain better consensus among primary care stakeholders and to more clearly define and articulate the RN role in primary care was a frequently reported (Akeryod et al., 2009; Allard et al., 2010; Banner et al., 2010; Besner et al., 2011; Oandasan et al., 2010; RNAO, 2012b).

Table A19 in Appendix A provides three examples of different ways the job descriptions and role competencies of primary care RNs have been depicted and illustrates the need for further role delineation and national consensus. The Canadian Family Practice Nurses Association (CFPNA) (n.d.) offers a sample role description defining five role dimensions (health assessment, health-care management, health education, health promotion, and professional role and responsibility) to provide guidance for practice settings. RNAO (2012b) noted that many job descriptions they reviewed from across Ontario had used or adapted this role description. RNAO (2012b) recently proposed an enhanced job description for Ontario RNs in primary care involving 13 role dimensions. While there is considerable overlap with the CFPNA document, the Ontario role description places greater emphasis on nursing leadership in all role dimensions, provision of complex care, mental health assessment, health screening, community and population health, advocacy, evidence-based practice, program development and evaluation, and medication prescribing. In contrast, the competency framework for Ontario family practice RNs, developed from a Delphi process, presents a unique vision of the role (Moaveni et al., 2010). Using a less prescriptive and less task-oriented approach, the framework outlines a holistic series of six role dimensions (professional, expert, communicator, synergistic, health educator, lifelong learner) of which the communicator role was identified as primary. The competency framework (Moaveni et al., 2010) and RNAO (2012b) job description were heavily shaped by the contexts of primary care in Ontario and may not be entirely relevant to other jurisdictions. Further work to clarify and validate the role dimensions and competencies of primary care RNs across Canada is required.

3.7 What are the structural and process barriers to optimal utilization of nursing roles and scope of practice in primary care?

Structures are factors that influence what and how nursing and health-care services are organized and delivered (Bryant-Lukosius & DiCenso, 2004; Donabedian, 1966). Structures include physical, practical and human resources, education and training, policies, funding, and characteristics of patients, providers and organizations. Processes include how nursing roles are implemented in the health-care system and what nurses do in their role such as role activities and scope of practice. The combination of structures and processes affect the quality of care and the outcomes of nursing roles in primary care settings. We examined structures and processes from individual (patient, nurse, provider), organization and health-care system perspectives (Tables A20 and A21 in Appendix A).

Since the absence of a facilitator often results in a barrier and vice versa, these elements will be discussed in tandem for each perspective (DiCenso & Bryant-Lukosius, 2010).

Structures

Individual barriers and facilitators to role optimization

Individual barriers relate to primary care nurses' knowledge, skills and experience, and understanding of their scope of practice. Benhaberou-Brun (2012) reported that it was often difficult for nurses to fully implement the breadth of the primary care nurse role. Physicians also perceived that nurses needed further education to support broader roles and their role as nurse clinicians (Akeryod et al., 2009). Some nurses working in academic family practice residency programs were not working to optimal scope of practice, in part because they were unclear about which activities fell within regulated scope (Allard et al., 2010). Conversely, nurse education, training and experience were identified as role facilitators. A review of the quality of nurse-led and allied-health-provider-led primary clinics found that teams often required the expertise of nurses with specialized training (e.g., mental health, wound management) (Chin et al., 2011). Nurses in outpost settings described the importance of adequate education and experience as essential for providing high-quality care and for personal enjoyment in the role (Martin-Misener et al., 2008). The delivery of nursing care using telehealth requires nurses' knowledge and application of relevant frameworks, ethical principles and evidence-based practices (Sevean et al., 2008). Personal qualities and attributes of the nurse were also identified as being important for effective outpost nursing including lifestyle preferences, willingness to work weekends, ability to recognize personal limitations, motivation to further learn and develop the role, a passion for healthy living and perseverance in meeting patient health needs (Martin-Misener et al., 2008). Family physicians trusted, and thus collaborated with, and delegated responsibilities to, nurses they perceived to be competent and responsible in patient care (Akeroyd et al., 2009).

Organizational barriers and facilitators to role optimization

Collaborative interdisciplinary teamwork is a hallmark of effective primary care and is essential for maximizing the use of team expertise (Browne et al., 2012, Jacobson & HDR Inc., 2012; Virani, 2012). However, team collaboration can become complicated when nurses are employed by physicians in the team (Banner et al., 2010). The employee-employer relationship changes the dynamic of the team relationship and can lead to feelings of uncertainty and constrain the scope of nursing practice. Lack of role clarity is consistently reported as a major barrier to the integration of nursing roles and can be a source of role blurring and role conflict when there is overlap with other nursing or health provider roles (Banner et al., 2010, DiCenso & Bryant-Lukosius et al., 2010). Employer and organizational policies, or lack thereof, can affect role clarity and hinder nursing scope of practice (Jacobson & HDR Inc., 2012; RNAO, 2012a). Allard et al. (2010) found that over 37 per cent of nurses in academic family practice medicine units did not have a written job description to articulate their role and only 61 per cent felt that they worked to full scope. Some nurses thought their role could be optimized to fuller scope, but this would require trading off current role responsibilities to achieve a manageable workload. Nurses in primary care may work in isolation from nursing peers, which can limit opportunities for role support and development (Allard et al., 2010). The introduction

of new roles require primary care organizations to create space and provide responsive physical and governance structures so that nurses can implement their roles. This includes practical resources such as adequate examination rooms, equipment, clerical support, sufficient orientation, access to continuing education, policies that support professional practice, and relief coverage for holidays (Banner et al., 2010, Chin et al., 2011; MacLeod, et al., 2008; Martin-Misener et al., 2008). Less traditional and more flexible team leadership structures, where teams are not always led by physicians, help to acknowledge and use the expertise of nurses and other team members (Banner et al., 2010). Other organizational factors found to support collaborative interdisciplinary teamwork were policies and procedures, access to interprofessional education, and the location of services and proximity of primary care providers that allows them to work together (Chin et al., 2011; Jacobson & HDR Inc., 2012). Specific funding for nurse-led pilot projects also contributed to role expansion (Jaimet, 2012).

Health systems barriers and facilitators to role optimization

Significant barriers to the optimization of nursing roles in primary care are legislative restrictions and lack of stakeholder understanding about nursing scope of practice. RNAO (2012a) recommends expanding RN scope of practice to include medication prescribing. However, nurses, physicians and other team members disagree about the actual or potential scope of nursing practice (Akeroyd et al., 2009). The inability of nurses to perform certain activities within regulated scope (e.g., Pap tests) was often misinterpreted as a scope of practice restriction rather than a function of knowledge and skill (Akeryod, et al., 2009; Allard et al., 2010). Nurses working in rural and remote settings encourage health planners and policy makers to have a broader vision of their role capabilities (MacLeod et al., 2008). Gaining the respect and acceptance of health-care team providers will require a better understanding about the scope of practice and role competencies required for nurses in primary care (Moaveni et al., 2010). The CFPNA (2014) identifies only two education programs specific to primary care nursing in Canada. Thus it is not surprising that improved access to relevant education to prepare nurses for primary care was frequently reported (Besner et al., 2011; Akeroyd et al., 2009). Lack of funding and funding models were further barriers to nursing role implementation. In particular, physician fee-for-service models, were felt to raise physicians' concerns about loss of income and provide little incentive for them to delegate to or collaborate with nurses (Jacobson & HDR Inc., 2012, Oandasan et al., 2010). In contrast, population health needs and increasing demands for service often create opportunities for nurses to take on new and expanded roles in primary care (Chin et al., 2011; Jaimet, 2012; Kelecher et al., 2009; RNAO, 2012b). Attention to careful role planning and development to support the implementation of these new roles is important for establishing role clarity and putting the appropriate system-wide structures in place such as education, health policies and regulation (Banner et al., 2010; Bryant-Lukosius et al., 2004).

Processes

Individual barriers and facilitators to role optimization

Many nurses felt that their education had not adequately prepared them to work in primary care and this lack of preparation had an impact on their confidence to carry out their role and also to know when activities were out of their scope (Besner et al., 2011; Martin-Misener et al., 2008). Taking the

time to cultivate effective nurse-patient relationships, to avoid unhealthy codependencies and to get outside of the community on a regular basis are important for avoiding burnout in outpost nurses (Martin-Misener, et al., 2008). Through political activism and their ability to access additional resources through the community and through successful grant writing, nurses were able to support the delivery of services to vulnerable patient populations (Paterson et al., 2009).

Organizational barriers and facilitators to role optimization

A noted barrier to the introduction of specialized nursing roles in primary care was the lack of physician support due to their concerns about lost benefits of generalist care and the potential for role confusion and gaps in patient care (Banner et al., 2010). This position contradicts the review by Chin et al. (2011) demonstrating the positive impact of nurses with specialized training, but aligns with Oandasan's (2010) suggestion that primary care nurses adopt generalism as a distinct area of nursing practice. Lack of perceived administrator and physician support for nurse prescribing was identified as a barrier to expanded scope of practice, particularly for advanced practice nurses (Forchuk & Kohr, 2009). Strong clinical leadership from nurses was key to the advancement of nursing roles in primary care in Quebec (Benhaberou-Brun, 2012). Organizational processes found to influence the quality of nurse-led and allied-provider-led clinics included adequate identification and recruitment of eligible or vulnerable patients through screening, service promotion, and facilitated referrals (Chin et al., 2011). Other processes that contributed to nurse job satisfaction included the provision of comprehensive patient care, feeling valued as a team member, a broad scope of clinical practice, role independence and education of residents (Allard et al., 2010). Implementing and sustaining family nursing knowledge required the use of champions, team ownership of the practice framework, vision, continuity of management support and ongoing supervision and consultation (Leahey & Svavarsdottir, 2009). Outpost nurses provided administrators with a number of strategies to ensure the successful recruitment and retention of nurses in rural/remote settings (Martin-Misener et al., 2008). These included the appropriate selection of candidates with qualifications for the role, providing fair remuneration, taking quality of work life into consideration when making policy and resource decisions, and being more available to listen and respond to nurses' concerns.

Health system barriers and facilitators to role optimization

Paterson et al. (2009) provide detailed examples of how social issues such as community concerns about drug addiction and political and economic factors can influence decisions made by municipal, provincial, or federal governments and affect the type of patient populations served and the nature of nurses'work. Optimal utilization of nurses in primary care will require education of the public and other stakeholders to improve their understanding and support of various nursing roles (DiCenso & Bryant-Lukosius et al., 2010; RNAO, 2012b).

Several papers emphasize the need for systematic approaches to optimizing nursing roles in primary care that begin with a comprehensive assessment of population health needs and environmental contexts (Browne et al., 2012; DiCenso & Bryant-Lukosius et al., 2010; RNAO, 2012b; Virani, 2012). Strategic planning to prepare stakeholders and practice environments for role integration is required. Banner et al. (2010) stressed the importance of the multi-dimensional work relationship that rural nurses establish with their patients. Strategies to engage the community, decision-makers and health-

care providers in the role planning and implementation process were deemed essential for ensuring that nursing role activities and services are appropriate and responsive to local health care needs and to identify and address the education, legislative and regulatory issues associated with new roles (Banner et al., 2010).

3.8 What are strategies and recommendations for optimizing the role of nurses in the delivery of primary care services in Canada?

In this section, best-practice criteria for achieving outcomes associated with optimized nursing roles in primary care were used to identify specific recommendations related to continuity of care, staff mix, professional development, quality practice environments, intra- and inter-professional collaboration, use of technology, and enhanced scope of practice. (CNA, 1999 & 2013; RNAO, 2002 & 2007; Royal College of Nursing, 2012; Stanford University Evidence-Based Practice Centre, 2007). See Table A22 in Appendix A for a summary of this analysis.

Continuity of Care

Nurse-led care in primary care, alone or within an interprofessional team, can be effective for improving access and continuity of care, especially for patients with complex chronic conditions and/or social circumstances (Browne et al., 2012; Jacobson & HDR Inc., 2012; RNAO, 2012a, 2012b). For interprofessional teams, formal processes for cross-referral between team members can help to avoid unnecessary duplication of services and improve continuity (Banner et al., 2010). High - quality nurse-led care can be delivered by a small number of nurses working in close collaboration with primary care physicians (Chin et al., 2011). Case management and navigation models may also enhance continuity of care for patients with chronic conditions (Health Council of Canada, 2012; Virani, 2012). Through the consistent and close therapeutic relationships they establish with patients and families over time, and with their strong clinical background and knowledge of the health-care system, primary care nurses are also suited to coordinating patient care across all transitions from womb to tomb (Oandasan et al., 2010; RNAO, 2012b). An adequate supply of nursing staff to address turnovers and to cover holidays and sick time is important for maintaining continuity of care (Martin-Misener et al., 2008). The use of technology such as video-conference consultations with physicians and nurses can facilitate access and continuity of care (Sevean et al., 2008).

Staff Mix

Close attention to skill mix and the balance of generalist and specialized nursing and allied health provider roles within the team is important for achieving continuity of care for patients with complex or specialized needs (Banner et al., 2010; Chin et al, 2011). Population health needs and social circumstances and the availability of resources and health providers can influence decisions about the best combination of provider expertise. In situations where nursing expertise is underutilized, minor adjustments in care delivery processes and skills may achieve better outcomes (Jacobson & HDR Inc., 2012). For example, registered practical nurses with a foot care certificate could facilitate the delivery of evidence-based foot care in primary care (RNAO, 2012b). Barriers to optimal skill mix can occur when current role activities limit the nurse's capacity to take on added responsibilities or

when there are shortages of providers (Allard et al., 2010). In smaller communities with few providers, long-distance teamwork may help to address skill gaps (MacLeod et al., 2008).

Professional Development

A first step to maximizing primary care nurses' continuing competency through professional development is to improve role clarity and establish agreement on required role competencies and the overall purpose of the role (Akeroyd et al., 2009; Moaveni et al., 2010; Oandasan et al., 2010; RNAO, 2012b). Given the limited availability of formal and continuing education programs for primary care nursing across Canada, a variety of learning opportunities and strategies are required. Distance education, in-services, peer mentorship, mandatory paid education sessions, and education leaves to travel to established programs are a few examples. Nurses in new roles should also have access to facilitated mentorship, and ongoing education and support to promote effective role transition (Banner et al., 2010). Nurses must also take responsibility for creating self-directed learning opportunities to optimize their roles (Oandasan et al., 2010). Outpost nurses also called for access to conferences that are more relevant to their expanded scope of practice (Martin-Misener et al., 2008).

Quality Practice Environments

Quality practice environments are those that support implementation of evidence-based roles that maximize scope of practice and optimize nurse well-being, patient outcomes, and organization and system performance. Nurses in rural and remote communities are challenged to provide high-quality care in the face of inadequate funding and resources, staff shortages and outdated or poor function equipment (MacLeod et al., 2008). Nurses' resourcefulness and compassion are important for meeting patient health needs and making them feel well cared for, even in what may be third-world conditions (Paterson et al. 2009). Quality practice environments provide structures that enable a shared vision of the practice framework, continuity in management and ongoing supervision (Leahey & Svavarsdottir, 2009). Supportive practice environments maximize the use of electronic health records, invest in the retention and recruitment of health providers, and facilitate participation in quality improvement and evidence-based practice initiatives (Browne et al., 2012; Chin et al., 2011). Standardized nursing practices facilitate consistency in care delivery and promote optimal utilization of nursing roles and job satisfaction (Allard et al., 2010). In rural and remote settings, nurse involvement in community engagement activities contributes to job satisfaction and overall well-being (Kulig et al., 2009). Similarly, output nurses advise on the importance of listening and understanding the community and its culture (Martin-Misener et al., 2008). In quality practice environments, nurses collaborate with Aboriginal health-care providers and local leaders to solve problems.

Intra- and Inter-Professional Collaboration

A striking feature of the grey literature was the number of recent papers, six in 2012 alone, all emphasizing the importance of, and the need to optimize nursing roles in primary care (Table A23 in Appendix A). A consistent theme across the nine grey literature papers was support for nursing roles within interprofessional team-based models of primary care. Virani (2012) identified five potential interprofessional collaborative care models that involve a substantive role for nurses; interprofessional team, nurse-led, case management, patient navigation and shared care. Virani (2012) noted there is

insufficient evidence to determine which is the best model and that model selection should be dependent on various patient, provider and practice setting contexts. Given that each of the five models show promise for improving patient and health system outcomes, implementation along with rigorous evaluation is encouraged. Continued efforts are required to reform funding models to ensure effective interprofessional collaboration and care delivery (Jacobson & HDR Inc., 2012; RNAO, 2012b).

Use of Technology

Expansion of electronic medical health records is required to organize patients' health information and to share it securely among health professionals (Besner et al., 2011). The use of video telehealth consultations for patients in rural and remote settings increases and enhances communication between nurses and physicians caring for the patient (Sevean et al., 2008). Through the use of technology nurses are also better able to advocate for the patient.

Enhanced Scope of Practice

Another major theme across all nine of the grey literature papers was the enhanced role nurses could play to improve access to and the delivery of chronic disease management care. Besner et al. (2011) found that chronic disease management was a dominant focus of nursing practice in primary care networks in Alberta. The Health Council of Canada (2012) identified a variety of ways that nurses and allied health providers could improve self-management support for patients with chronic conditions, including nurse-led support programs, group visits and patient coaching. The need for nursing and health-care provider education and training and better use of evidence-based tools and resources for providing self-management support was identified. Models of care must also position nurses to have stronger leadership and more proactive roles in providing chronic disease management care through ongoing follow-up to provide patient education, action planning, monitoring, interventions, referrals and support (Browne et al., 2012; Health Council of Canada, 2012, New Brunswick Health Council, 2010; RNAO, 2012a, 2012b). RNAO (2012b) went further to suggest expansion of the scope of practice of registered practical nurses and RNs and in particular the authorization of RNs to prescribe medications. Two final recommendations from the grey literature were to expand the role of nurses beyond the care of individual patients to address population health needs and also to elevate nursing assessments to provide a less disease oriented and more holistic and comprehensive approach (Besner et al., 2011).

4.0 KEY INFORMANT INTERVIEWS WITH NURSES AND OTHER STAKEHOLDERS

The purpose of the key informant interviews was to further explore and build on the scoping review findings, identify priority issues and generate recommendations for policy, practice, education, research and future consultation processes. In this section we report on the themes that arose from these interviews. Thirteen participants were interviewed from seven provinces and one territory. To protect participants' confidentiality, only basic demographic information is presented in Table 2. For the same reason, when quotes are used we do not indicate the discipline or position of the speaker.

Table 2 Demographic Characteristics of Interview Participants

Position/role	No. of participants
Practitioner	3
Administrator	1
Educator	2
Regulator	3
Multiple roles	4
Discipline	
Registered nurse	9
Nurse practitioner	2
Family physician	2
Province/territory	
Alberta	3
British Columbia	1
Manitoba	2
New Brunswick	1
Nova Scotia	1
Northwest Territories	1
Ontario	3
Saskatchewan	1

4.1 Facilitators for Optimizing Nursing Roles and Scopes of Practice

Education and Training

Several participants talked about the importance of ongoing education and training for primary care RNs as well as transitional supports for RNs entering primary care after having worked mainly in acute care. Some talked about the importance of including primary care in undergraduate nursing education. There was recognition that while education was vitally important, it alone was insufficient, and that integration into the practice setting was also important. Participants also spoke about the need for RNs to understand the legislation and regulation supporting and bounding their practice and for practice settings to support RNs to develop the competencies that they might not have. One interview participant commented, "Your nurse needs to learn and understand her legislation and then you need to support her to become competent in the things she doesn't know."

Team-based Care

A structured approach to care and team development facilitates nursing roles in primary care because there is a focus within the team on role development and articulation. When all team members are focused on clarifying their role within the team it facilitates RNs doing the same. RNs who were more isolated and not in a team environment found this harder to do. The synergies created by the team are best articulated by the following interview participant who said: "The scope of the team is more than the sum of its parts; [this] is the best way I might be able to say it."

4.2 Barriers to Optimizing Nursing Roles and Scopes of Practice

Role Confusion and Lack of Role Clarity

Many participants indicated that nursing roles in primary care were poorly understood by physicians, NPs, and the public. They attributed this to role ambiguity, a lack of written formal role descriptions and, in part, the challenges associated with defining primary care. Participants commented that this lack of clarity existed among RNs, among members of the broader nursing community (e.g., licensed practical nurses and NPs), and among other professionals. Participants talked about how "nursing is so blurred with everybody else's roles." For some, this confusion was linked to a lack of common competencies or certification for primary care nurses. Several participants were concerned about what they saw as the erosion of the RN role in primary care. One area of focus was the lack of delineation between the RN, NP, and licensed practical nurse roles in primary care. Along with this was the concern that nurses and others cannot articulate the differences that exist between these roles. When roles are poorly defined, the value of nursing roles is also undefined, and this raised concerns for some participants about the sustainability and viability of the RN role. This dilemma is illustrated in the following quote: "The degree of impact I feel like I've had on the health of our population is amazing but it's also invisible right now. So all the work I do is attributed to the physician in the current model."

Lack of Funding Models

Many participants indicated that the lack of funding models for nursing roles in primary care was a major barrier. Some perceived there was a lack of interest on the part of decision-makers in the health-care system to fund RN roles, and that limited funds were leading employers to hire licensed practical nurses rather than RNs. Some participants indicated that a limitation of having physicians fund RN roles is that the physician gains influence and control over what patients the RN sees and what the RN does. This type of funding arrangement and employer-employee relationship does not optimize what a nurse can contribute to patient populations. On the other hand, another viewpoint was that in fee-for-service models where the physician is the employer of the RN, can serve as a driver for the physician to "pass things over [to the nurse]" that they might otherwise not do. It was suggested that in models where physicians are paid by means other than fee-for-service there is no incentive for the physician to have RNs do the care that is within their scope of practice.

Leadership and Management

Some participants talked about the how the absence of nursing leadership or a new or ineffective leader negatively influences nursing roles. The following quote illustrates this: “There is no governance model for registered nurses. There’s no formal support. There’s no department of nursing for primary care. There’s nobody [for whom it] is their responsibility to promote, support, advance the role of the nurse.”

4.3 Participants’ Priority Recommendations

1. Build primary care nursing capacity, competencies and education.

Participants talked about the importance of developing role descriptions and a competency framework or national certification program for nurses in primary care and about the need to continue to develop RNs for practise in northern communities. Many participants indicated that it was important for primary care RNs to maintain a generalist focus on health and wellness care for patients of all ages, and that RNs had an important contribution to make with patients with chronic diseases. Education was a key component of this recommendation, including efforts to inform and educate others about the role, education supports for nurses transitioning from acute to primary care, and primary care education at the graduate and undergraduate levels.

2. Implement funding models that support RNs in primary care.

Many participants indicated that this was an important priority and that investments are needed to enable more funding for RNs. The following quote summarizes the situation in Canada: “Number 1, [we need to adjust] funding models. [We need to] get that right. And we‘ve not got it right anywhere across the country.”

3. Promote interprofessional team-based care.

Participants talked about the importance of building a better understanding of collaborative competencies and developing an understanding of the scope of services that a team offers and how teams can work more collaboratively. One participant said, “A key recommendation would be that every Canadian would have access to a family health team in which they would have care delivered by both a nurse and a family physician.”

4. Conduct research.

Many participants talked about the importance of conducting research related to RN roles in primary care and about the need for implementation research, knowledge translation and research to determine the value added of RN roles. Some suggested this could be achieved through the development of measurement tools, electronic documentation and the development of indicators. Others talked about how it was important to refocus research on strategies for optimizing patient care rather than optimizing RN roles.

5. Develop legislation and regulation.

Participants identified the need for supportive legislation and regulation that enable RNs to work optimally to provide patient care. As one participant said of RNs, they "should be maximized and not used as an afterthought." Some participants commented on the importance of continuing to advance the RN scope of practice, for example, to include prescribing. Others indicated that what is more important is building and reinforcing the contributions RNs make to holistic wellness care.

5.0 DISCUSSION AND RECOMMENDATIONS

In the past five years a substantial body of Canadian literature has emerged that focuses on primary care reform, primary care delivery models, and primary care frameworks. Most of this literature has come from three provinces: Ontario, Alberta and Quebec. The growth in the number of primary care delivery models is evidence of the innovation that is gripping the country in a quest to improve primary care. This body of literature emphasizes the Institute for Healthcare Improvement's Triple Aim, the patient's medical home, team-based care, integration between primary and community care and primary and secondary care, and performance measurement. Notably, the roles and activities of nurses are infrequently reported in this literature. However, a number of studies identify the important role of nurses in primary care and at least two studies (Hogg et al., 2009a; Russell et al., 2009) have shown that the presence of an NP or nurse improves preventive and chronic disease care. What is particularly interesting is that, at least in these two studies, this effect appears to be independent of the type of primary care delivery model. This is an important finding because it underscores the enduring value of the contribution nurses make to patient care, which is not dependent on specific structural elements.

The value added of nursing roles was also a theme in our key informant interviews. The value is obvious to those in the practice setting but is rendered invisible in information and payment systems. We lack a common, understandable lexicon with which to talk about the role within nursing, within the wider health-care community, and with the public.

The review found a small number of papers that describe or evaluate innovative primary care models in Aboriginal communities that incorporate collaboration across home and community sectors and collaboration with Aboriginal community members. Tarlier et al. (2011) raise important questions about the potential for models of care to perpetuate inequities in Aboriginal and remote communities. Few studies have evaluated the impact of primary care delivery models on equity. This is likely to change as funders like CIHR are calling for equity-focused research.

No studies were found that discussed how physician funding is negotiated. The literature that has evaluated the funding mechanisms used in different primary care models is inconclusive. No physician funding model is consistently superior or inferior, and the evidence related to the effects of incentives is unclear. There were no studies that discussed funding for providers other than physicians. This reflects and is consistent with the interview participants' comments that funding models for nurses are lacking in primary care.

A small number of qualitative and descriptive studies described nursing roles in primary care, and there was a lack of information on workforce trends and statistics. More timely, readily accessible and interpretable information is needed to monitor trends. Clearer definitions are needed to enable documentation of the primary care services nurses are providing in a variety of practice settings. Standardized mechanisms are needed to enable comparable data collection across all provinces and territories. The invisibility of nursing roles in primary care can only be addressed if quality data becomes available.

The lack of role clarity was a recurrent theme in the literature and interviews**.** Interview participants who were primary care nurses placed a high value on their generalist expertise and the fact that they provided "cradle to grave" care rather than specialized care or care focused only on specific patient populations (e.g., infants and children, well women). This contrasts with consistent recommendations from the published and grey literature that the role of nurses in primary care should be optimized to provide care for patients with chronic conditions who often require specialized expertise (e.g., diabetes, cancer, mental health, asthma, arthritis). These contrasting expectations further highlight the lack of role clarity, and the depth and breadth of nursing expertise required for the delivery of comprehensive primary care.

Several recommendations were made in terms of patients with complex care needs and those with multiple chronic conditions at risk for poor outcomes and high health-care service use. In RNAO's (2012a) proposed Enhancing Community Care for Ontarians (ECCO) model, expert case managers from existing community care access centres would be transitioned to primary care teams and become responsible for care coordination and navigation for high-risk and complex patient populations. Nurses already working in primary care settings would continue to provide the same services to patients with less complex needs. Browne et al. (2012) recommends the use of specially trained or advanced practice nurses to deliver complex nurse-led models of care within interdisciplinary teams.

In terms of advanced practice nursing roles, NPs are the most often identified (DiCenso & Bryant-Lukosius, 2010; Browne et al., 2012; Jacobson & HDR, Inc., 2012; Virani, 2012) in relation to primary care. The use of CNSs in primary care, as advanced practice nurses with specialized expertise in the care of patients with chronic conditions, was not reported in either the scoping review or key informant interviews. A challenge in implementing these recommendations related to complex care is that assessment tools and strategies to determine which patient populations are best managed by NPs, as opposed to RNs or practical nurses have not been established. Further, effort is also required to determine the types of specialized training and/or specialist nursing roles required.

The literature and interview findings point to the need for strategies to support team development and the integration of varied nursing roles. The interviews and the published literature highlight the diversity of nursing roles and practices in primary care settings across Canada. This role diversity is due, in part, to a lack of consistent understanding of the legislative scope of practice of nurses and support for them to work to their optimal scope of practice, and this is an area that requires further work and attention. However, given the breadth of primary care expertise required and the increasing demands to provide more autonomous, proactive leadership in the care of patients with chronic conditions, and the varied primary care contexts in which nurses work, diversity in nursing practice roles and expertise is an asset for advancing the delivery of primary care services in Canada.

Numerous provider, organizational and systems barriers are hampering the development and integration of nursing roles in primary care. Strategies are needed to provide more structures, guidance and support for determining the most appropriate model of interprofessional primary care practice and for determining the most appropriate nursing roles and models of care within these practices.

This study has several limitations. Our scoping review was restricted to literature from the past five years. Despite the comprehensive methods used to capture all relevant papers in English and French we may have missed some papers. The number of key informant interviews was small, and while eight of 13 jurisdictions were represented in our data set this means that five jurisdictions were not included.

Recommendations

On the basis of our analysis and synthesis of the scoping literature review and key informant interviews we offer the following recommendations to CNA.

1. Conduct a national survey of nurses in primary care.
2. Consult with key stakeholders using a variety of strategies.
3. Develop a competency framework for primary care RNs. This was a key strategy for moving forward the NP and CNS roles in Canada because it began to address the issues of role clarity and invisibility.
4. Develop a toolkit to enable managers and others in leadership positions to implement nursing roles more effectively.
5. Develop a certification for process for registered nurse primary care providers.

A wave of momentum is building to improve Canada's primary health-care delivery systems. With CNA's continued leadership, now is the time for nursing to catch that wave so that someday soon every Canadian, coast to coast to coast, can benefit from having a nurse on their primary care team.

REFERENCES

Agence de la santé et des services sociaux de Montréal. (2008). *Orientations for the development of integrated family medical groups and network clinics.* Montreal: Author. Retrieved from http://publications.santemontreal.qc.ca/uploads/tx_asssmpublications/pdf/publications/isbn978-2-89510-513-8.pdf

Aggarwal, M., & Hutchison, B. (2012). *Toward a primary care strategy for Canada*. Ottawa: Canadian Foundation for Healthcare Improvement. Retrieved from http://www.cfhi-fcass.ca/Libraries/Reports/Primary-Care-Strategy-EN.sflb.ashx

Akeroyd, J., Oandasan, I., Alsaffar, A., Whitehead, C., & Lingard, L. (2009). Perception of the role of the registered nurse in an urban interprofessional academic family practice setting. *Canadian Journal of Nursing Research*, *22*(2), 73-84.

Allard, M., Frego, A., Katz, A., & Halas, G. (2010). Exploring the role of RNs in family practice residency training programs. *Canadian Nurse, 106*(3), 20-24.

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32.

Banner, D., MacLeod, M., & Johnston, S. (2010). Role transition in rural and remote primary health care nursing: A scoping literature review. *Canadian Journal of Nursing Research*, *42*(4), 40-57.

Basu, K., & Mandelzys, D. (2008). The models of physician remuneration and their effect on direct patient contact. *Cahiers de sociologie et de demographie medicales, 48*(1), 41-59.

Beaulieu, M. D., Haggerty, J., Tousignant, P., Barnsley, J., Hogg, W., Geneau, R., & Dragieva, N. (2013). Characteristics of primary care practices associated with high quality of care. *Canadian Medical Association Journal, 185*(12), e590-e596.

Benhaberou-Brun, D. (2012). An integrated network in which the nurse is the first person to greet the patient. *Perspective Infirmière, 9*(4), 20.

Besner, J., Drummond, J., Oelke, N. D., McKim, R., & Carter, R. (2011). *Optimizing the practice of registered nurses in the context of an interprofessional team in primary care. Final report*. Edmonton: Alberta Health Services. Retrieved from http://www.albertahealthservices.ca/hp/if-hp-optimizing-nursing-roles.pdf

Bourgeois, N., Franke, C., O'Connor, S. A., Shaw, H., Hum, S., & Dunn, S. (2011). Preparing or an influenza pandemic: Model of an immunization clinic in an urban family practice. *Canadian Family Physician, 57*(10), e267-e372.

Bourgueil, Y., Marek, A., & Mousques, J. (2008). [Practice, role and position of nurses in primary care in six European countries, in Ontario and Quebec]. *Recherche en Soins Infirmiers, 93*, 94-105.

Brauer, P. M., Sergeant, L. A., Davidson, B., Goy, R., & Dietrich, L. (2012). Patient reports of: lifestyle advice in primary care. *Canadian Journal of Dietetic Practice and Research, 73*(3), 122-127.

Breton, M., Levesque, J. F., Pineault, R., & Hogg, W. (2011). Primary care reform: Can Quebec's family medicine group model benefit from the experience of Ontario's family health teams? *Healthcare Policy, 7*(2), e122-135.

Breton, M., Pineault, R., Levesque, J. F., Roberge, D., Da Silva, R. B., & Prud'homme, A. (2013). Reforming healthcare systems on a locally integrated basis: Is there a potential for increasing collaborations in primary healthcare? *BMC Health Services Research, 13*, 262.

Brossart, B., & Donnelly, L. (2012). Primary healthcare transformation: Moving from common sense to common practice. *Healthcare Papers, 12*(2), 46-50.

Browne, G., Birch, S., & Thabane, L. (2012). *Better care: An analysis of nursing and healthcare system outcomes*. [The health of our nation – the future of our health system: Paper 2]. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhifcass.ca/Search ResultsNews/12-06-18/df6ad79c-483e-4644-b325-1d737688b167.aspx

Bryant-Lukosius, D. (2009). *Designing innovative cancer services and advanced practice nursing roles: Toolkit*. Toronto: Cancer Care Ontario. Retrieved from http://www.cancerview.ca/idc/ groups/public/documents/webcontent/hhr_apn_roles_toolkit.pdf

Bryant-Lukosius, D., & Dicenso, A. (2004). A framework for the introduction and evaluation of advanced practice nursing roles. *Journal of Advanced Nursing, 48*(5), 530-540.

Bryant-Lukosius, D., Dicenso, A., Browne, G., & Pinelli, J. (2004). Advanced practice nursing roles: Development, implementation and evaluation. *Journal of Advanced Nursing, 48*(5), 519-529.

Bryant-Lukosius, D., Green, E., Fitch, M., Macartney, G., Robb-Blenderman, L., McFarlane, S., Milne, H. (2007). A survey of oncology advanced practice nurses in Ontario: Profile and predictors of job satisfaction. *Canadian Journal of Nursing Leadership 20*(2), 50-68.

Campbell, D. J., Sargious, P., Lewanczuk, R., McBrien, K., Tonelli, M., Hemmelgarn, B., & Manns, B. (2013). Use of chronic disease management programs for diabetes: In Alberta's primary care networks. *Canadian Family Physician, 59*(2), e86-e92.

Canadian Family Practice Nurses Association (CFPNA). (n.d.). *Sample role job description for registered nurse in family practice*. Retrieved from http://www.nurseone.ca/docs/NurseOne/can PrimaryCareToolkit/Sample_Role_Description_e.pdf

Canadian Family Practice Nurses Association (CFPNA). (2014). *Continuing education*. Retrieved from http://www.cfpna.ca/contineducation.cfm

Canadian Food Inspection Agency. (2012). *Consultation and policy framework*. Ottawa: Author. Retrieved from http://www.inspection.gc.ca/about-the-cfia/accountability/consultations/consultation-policy-and-framework/eng/1330978800191/1330978883936#a3_1

Canadian Institute of Health Information (CIHI). (2013). *Regulated nurses 2012: Summary report*. Ottawa: Author.

Canadian Nurses Association. (2012). *RN workforce profile by area of responsibility*. Ottawa: Author.

Cavers, W. J., Tregillus, V. H., Micco, A., & Hollander, M. J. (2010). Transforming family practice in British Columbia: the General Practice Services Committee. *Canadian Family Physician, 56*(12), 1318-1321.

Chin, W. Y., Lam, C. L., & Lo, S. V. (2011). Quality of care of nurse-led and allied health personnel-led primary care clinics. *Hong Kong Medical Journal, 17*(3), 217-230.

College of Family Physicians. (2009). Patient-centred primary care in Canada: Bring it on home [Discussion paper]. Retrieved from http://www.cfpc.ca/uploadedFiles/Resources/Resource_Items/Bring20it20on20Home20FINAL20ENGLISH.pdf

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* (3rd ed.) Los Angeles, CA: Sage Publications.

Courtenay, M., & Carey, N. (2008). The impact and effectiveness of nurse-led care in the management of acute and chronic pain: A review of the literature. *Journal of Clinical Nursing, 17*(5), 2001-2013.

Dahrouge, S., Devlin, R. A., Hogg, B., Russell, G., Coyle, D., & Fergusson, D. (2012). *The economic impact of improvements in primary healthcare performance*. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhifcass.ca/Libraries/Commissioned_ Research_ Reports/Dahrouge-EconImpactPHC-E.sflb.ashx

Dahrouge, S., Hogg, W., Russell, G., Geneau, R., Kristjansson, E., Muldoon, L., & Johnston, S. (2009). The comparison of models of primary care in Ontario (COMP-PC) study: Methodology of a multifaceted cross-sectional practice-based study. *Open Medicine, 3*(3), e149-e164.

Dahrouge, S., Hogg, W., Tuna, M., Russell, G., Devlin, R. A., Tugwell, P., & Kristjansson, E. (2010). An evaluation of gender equity in different models of primary care practices in Ontario. *BMC Public Health, 10*, 151.

Dahrouge, S., Hogg, W., Tuna, M., Russell, G., Devlin, R.A., Tugwell, P., & Kristjansson, E. (2011). Age equity in different models of primary care practice in Ontario. *Canadian Family Physician, 57*(11), 1300-1309.

D'Amour, D., Goudreau, J., Hudon, E., Beaulieu, M. D., Lamothe, L., Jobin, G., & Gilbert, F. (2008). [Development of nursing practice in family medicine groups]. *Revue Perspective infirmière, 5*(7), 4-11.

Delon, S., Mackinnon, B., & Alberta Health CDM Advisory Committee. (2009). Alberta's systems approach to chronic disease management and prevention utilizing the expanded chronic care model. *Healthcare Quarterly,* Spec No, 98-104.

DiCenso, A., & Bryant-Lukosius, D. (2010). *Clinical nurse specialists and nurse practitioners in Canada: A decision support synthesis*. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhi-fcass.ca/sf-docs/default-source/commissioned-research-reports/Dicenso_EN_Final.pdf?sfvrsn=0

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: Wiley.

Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly, 44*(3), Suppl, 166-206.

Donald, F., Martin-Misener, R., Ploeg, J., DiCenso, A., Brazil, K., Kaasalainen, S., Dobbins, M. (2011). *Understanding the individual, organizational, and system factors influencing the integration of the nurse practitioner role in long-term care settings in Canada*. Final report to Canadian Institutes of Health Research. Ottawa: Canadian Institutes of Health Research.

Dufour, S. P., & Lucy, S. D. (2010). Situating primary health care within the international classification of functioning, disability and health: Enabling the Canadian Family Health Team Initiative. *Journal of Interprofessional Care, 24*(6), 666-677.

Forchuk, C., & Kohr, R. (2009). Prescriptive authority for nurses: The Canadian perspective. *Perspectives in Psychiatric Care, 45*(1), 308.

Fry, M. (2009). Barriers and facilitators for successful after hours care model implementation: Reducing ED utilisation. *Australasian Emergency Nursing Journal, 12*, 137-144.

Gaumer, B., & Fleury, M. J. (2008). CLSCs in Quebec: Thirty years of community action. *Social Work in Public Health, 23*(4), 89-106.

Glazier, R. H., Klein-Geltink, J., Kopp, A., & Sibley, L.M. (2009). Capitation and enhanced fee-for-service models for primary care reform: A population-based evaluation. *Canadian Medical Association Journal, 180*(11), E72-E81.

Glazier, R. H., Zagorski, B. M., & Rayner, J. (2012). *Comparison of primary care models in Ontario by demographics, case mix and emergency department use, 2008/09 to 2009/10*. ICES investigative report. Toronto: Institute for Clinical Evaluative Sciences. Retrieved from http://www.ices.on.ca/~/media/Files/Atlases-Reports/2012/Comparison-of-primary-care-models-in-Ontario/Full%20report.ashx

Goldman, J., Meuser, J., Rogers, J., Lawrie, L., & Reeves, S. (2010). Interprofessional collaboration in family health teams: An Ontario-based study. *Canadian Family Physician, 56*(10), e368-e374.

Guillemin, F., Bombardier, C., & Beaton, D. (1993). Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. *Journal of Clinical Epidemiology, 46*(12), 1417-1432.

Guise, J., O'Haire, C., McPheeters, M., Most, C., LaBrant, L., Lee, K., Graham, E. (2013). A practice-based tool for engaging stakeholders in future research: A synthesis of current practices. *Journal of Clinical Epidemiology*, *66*, 666-674.

Heale, R. (2012). Overcoming barriers to practice: A nurse practitioner-led model. *Journal of the American Association of Nurse Practitioners, 24*(6), 358-363.

Heale, R., & Pilon, R. (2012). An exploration of patient satisfaction in a nurse practitioner-led clinic. *Nurse Leadership, 25*(3), 43-55.

Health Council of Canada. (2013). *Better health, better care, better value for all: Refocusing health care reform in Canada*. Toronto: Author.

Health Council of Canada. (2008). *Fixing the foundation: An update on primary health care and home care renewal in Canada*. Toronto: Author. Retrieved from http://www.healthcouncilcanada.ca/rpt det.php?id=146

Health Council of Canada. (2012). *Self-management support for Canadians with chronic health conditions: A focus for primary health care*. Toronto: Author. Retrieved from http://healthcouncil canada.ca/rpt_det.php?id=372

Hogg, W., Dahrouge, S., Russell, G., Tuna, M., Geneau, R., Muldoon, L., Kristjansson, E., & Johnston, S. (2009a). Health promotion activity in primary care: Performance of models and associated factors. *Open Medicine, 3*(3), e165-e173.

Hogg, W., Lemelin, J., Dahrouge, S., Liddy, C., Armstrong, C. D., Legault, F., Dalziel, B., & Zhang, W. (2009b). Randomized controlled trial of anticipatory and preventive multidisciplinary team care: For complex patients in a community-based primary care setting. *Canadian Family Physician, 55*(12), e76-e85.

Hogg, W., Lemelin, J., Moroz, I., Soto, E., & Russell, G. (2008a). Improving prevention in primary care: Evaluating the sustainability of outreach facilitation. *Canadian Family Physician, 54*(5), 712-720.

Hogg, W., Rowan, M., Russell, G., Geneau, R., & Muldoon, L. (2008b). Framework for primary care organizations: the importance of a structural domain. *International Journal of Quality in Health Care, 20*(5), 308-313.

Howard, M., Brazil, K., Akhtar-Danesh, N., & Agarwal, G. (2011). Self-reported teamwork in family health team practices in Ontario: organizational and cultural predictors of team climate. *Canadian Family Physician, 57*(5), e185-e191.

Howard, M., Goertzen, J., Kaczorowski, J., Hutchison, B., Morris, K., Thabane, L., & Papaioannou, A. (2008). Emergency department and walk-in clinic use in models of primary care practice with different after-hours accessibility in Ontario. *Healthcare Policy*, *4*(1), 73-88.

Hurley, J., DeCicca, P., Jinhu L., & Buckley, G. (2011). *The response of Ontario primary care physicians to pay-for-performance incentives* (Working Paper Series: Paper 11-02). Hamilton: Centre for Health Economics and Policy Analysis, McMaster University. Retrieved from http://www.chepa.org/docs/working-papers/11-02.pdf?sfvrsn=2

Hutchison, B. (2008). A long time coming: primary healthcare renewal in Canada. *Healthcare Papers, 8*(2), 10-24.

Hutchison, B. (2013). Reforming Canadian primary care — don't stop half-way. *Healthcare Policy, 9*(1), 12-25.

Hutchison, B., & Glazier, R. (2013). Ontario's primary care reforms have transformed the local care landscape, but a plan is needed for ongoing improvement. *Health Affairs, 32*(4), 695-703.

Hutchison, B., Levesque, J. F., Strumpf, E., & Coyle, N. (2011). Primary health care in Canada: Systems in motion. *Milbank Quarterly, 89*(2), 256-288.

Jaakkimainen, R. L., Barnsley, J., Klein-Geltink, J., Kopp, A., & Glazier, R. H. (2011). Did changing primary care delivery models change performance? A population based study using health administrative data. *BMC Family Practice, 12*, 44.

Jacobson, P. M., & HDR Inc. (2012). *Evidence synthesis for the effectiveness of interprofessional teams in primary care*. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhi-fcass.ca/sf-docs/default-source/commissioned-research-reports/Jacobson-Interprofessional-EN.pdf?sfvrsn=0

Jaimet, K. (2012). Nursing in New Brunswick: On the cusp of change. *Canadian Nurse, 108*(6), 28-33.

Jansen, L. (2008). Collaborative and interdisciplinary health care teams: Ready or not? *Journal of Professional Nursing, 24*(4), 218-227.

Jesmin, S., Thind, A., & Sarma, S. (2012). Does team-based primary health care improve patients' perception of outcomes? Evidence from the 2007-08 Canadian Survey of Experiences with Primary Health. *Health Policy, 105*(1), 71-83.

Jiwani, I., & Fleury, M. J. (2011). Divergent modes of integration: The Canadian way. *International Journal of Integrated Care,* Spec 10th Anniversary Ed, e018.

Kaczorowski, J., Hearpes, S. J., Lohfeld, L., Goeree, R., Donald, E., Burgess, K., & Sebaldt, R. J. (2013). Effect of provider and patient reminders, deployment of nurse practitioners, and financial incentives on cervical and breast cancer screening rates. *Canadian Family Physician, 59*(6), e282-e289.

Kantarevic, J., Krali, B., & Weinkauf, D. (2011). Enhanced fee-for-service model and physician productivity: Evidence from Family Health Groups in Ontario. *Journal of Health Economics, 30*(1), 99-111.

Kates, N., Hutchison, B., O'Brien, P., Fraser, B., Wheeler, S., & Chapman, C. (2012). Framework for advancing improvement in primary care. *Healthcare Papers, 12*(2), 8-21.

Katz, A., Glazier, R. H., & Vijayaraghavan, J. (2009). The health and economic consequences of achieving a high-quality primary healthcare system in Canada. "Applying what works in Canada: Closing the gap." Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhi-fcass.ca/Libraries/Primary_Healthcare/11498_PHC_Katz_ENG_FINAL.sflb.ashx

Keleher, H., Parker, R., Abdulwadud, O., & Francis, K. (2009). Systematic review of the effectiveness of primary care nursing. *International Journal of Nurse Practitioners, 15*(1), 16-24.

Kilpatrick, K., DiCenso, A., Bryant-Lukosius, D., Ritchie, J. A., Martin-Misener, R., & Carter, N. (2013). Practice patterns and perceived impact of clinical nurse specialist roles in Canada: Results of a national survey. *International Journal of Nursing Studies*, *50*(11), 1524-1536. http://dxdoi.org/10.1016/j.ijnurstu2013.03.005

Kiran, T., Victor, J. C., Koop, A., Shah, B. R., & Glazier, R. H. (2012). The relationship between financial incentives and quality of diabetes care in Ontario, Canada. *Diabetes Care, 35*(5), 1038-1046.

Kristjansson, E., Hogg, W., Dahrouge, S., Tuna, M., Mayo-Bruinsma, L., & Gebremichael, G. (2013). Predictors of relational continuity in primary care: patient, provider and practice factors. *BMC Family Practice, 14*, 72.

Kroth, P. J., McPherson, L., Leverence, R., Pace, W., Daniels, E., Rhyne, R. L., & Williams, R. L. 2009. Combining web-based and mail surveys improves response rates: A PBRN study from PRIME Net. *Annals of Family Medicine, 7*, 245-248.

Kulig, J. C., Stewart, N., Penz, K., Forbes, D., Morgan, D., & Emerson, P. (2009). Work setting, community attachment, and satisfaction among rural and remote nurses. *Public Health Nurse, 26*(5), 430-439.

Laflamme, F. (2010). [The contribution of nurses: roles of the nurse and nurse clinician specialized in mental health of a multidisciplinary primary care team]. *Revue Perspective infirmière, 7*(3), 29-32.

Lavoie, J. G., Forget, E. L., Prakash, T., Dahl, M., Martens, P., & O'Neil, J. D. (2010). Have investments in on-reserve health services and initiatives promoting community control improved First Nations' health in Manitoba? *Social Science Medicine, 71*(4), 717-724.

Lavoie, J. G., Wong, S. T., Chongo, M., Browne, A. J., MacLeod, M. L., & Ulrich, C. (2013). Group medical visits can deliver on patient-centred care objectives: Results from a qualitative study. *BMC Health Services Research, 13*, 155.

Leahey, M., & Svavarsdottir, E. K. (2009). Implementing family nursing: How do we translate knowledge into clinical practice? *Journal of Family Nursing, 15*(4), 445-460.

Lee, L., Hillier, L. M., Stolee, P., Heckman, G., Gagnon, M., McAiney, C. A., & Harvey, D. (2010). Enhancing dementia care: A primary care-based memory clinic. *Journal of the American Geriatrics Society, 58*(11), 2197-2204.

Lefebvre, L., Midmer, D., Boyd, J. A., Ordean, A., Graves, L., Kahan, M., & Pantea, L. (2010). Participant perception of an integrated program for substance abuse in pregnancy. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 39*(1), 46-52.

Levesque, J. F., Haggerty, J. L., Burge, F., Beaulieu, M. D., Gass, D., Pineault, R., & Santor, D. A. (2011). Canadian experts' views on the importance of attributes within professional and community-oriented primary healthcare models. *Healthcare Policy, 7*(Spec Issue), 21-30.

Levine, M. A., Shao, W., & Klein, D. (2012). Monitoring of international normalized ratios: Comparison of community nurses with family physicians. *Canadian Family Physician, 58*(8), e465-e471.

Levitt, C., Xingchen, C., Hiltz, L., Dolovich, L., Price, D., & Kalpana, N. (2013). Developing an Institute of Medicine aligned framework for categorizing primary care indicators for quality assessment. *Healthcare Quarterly, 16*(1), 39-46.

Liddy, C., Singh, J., Hogg, W., Dahrouge, S., & Taliaard, M. (2011). Comparison of primary care models in the prevention of cardiovascular disease: A cross sectional study. *BMC Family Practice, 12*, 144.

Ludwick, D. A., Lortie, C., Doucette, J., Rao, J., & Samoil-Schelstraete, C. (2010). Evaluation of a telehealth clinic as a means to facilitate dermatologic consultation: Pilot project to assess the efficiency and experience of teledermatology used in a primary care network. *Journal of Cutaneous Medicine and Surgery, 14*(1), 7-12.

Mable, A. L., Marriott, J., & Marriott Mable, E. (2012). *Canadian primary healthcare policy: The evolving status of reform*. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhi-fcass.ca/sf-docs/default-source/commissioned-research-reports/MariottMable-Jan2012-E.pdf?sfvrsn=0

Macdonald, S. (2012). *Best practice models: Aboriginal health in BC*. B.C. Ministry. Retrieved from http://www.fnhc.ca/pdf/60797_FNHA_AR12_V2R15(ff)_(web).pdf

MacLeod, A. M., Gollish, J., Kennedy, D., McGlasson, R., & Waddell, J. (2009). Toward a joint health and disease management program — Toronto hospitals partner to provide system leadership. *Healthcare Quarterly, 12*(2), 56-65.

Malatest, R. A., & Associates. *Primary Care Initiative evaluation summary report*. (2011). Edmonton: Alberta Health Services. Retrieved from http://www.health.alberta.ca/documents/PHC-PrimaryCareInitiative-Evaluation2011.pdf

Manns, B. J., Tonelli, M., Zhang, J., Campbell, D. J., Sargious, P., Ayyalasomayajula, B., & Hemmelgarn, B. R. (2012). Enrolment in primary care networks: Impact on outcomes and processes of care for patients with diabetes. *Canadian Medical Association Journal, 184*(2), e144-e152.

Martin-Misener, R., Downe-Wamboldt, B., Cain, E., & Girouard, M. (2009). Cost effectiveness and outcomes of a nurse practitioner- paramedic-family physician model of care: The Long and Brier Islands Study. *Primary Health Care Research and Development, 10*(1), 14-25.

Martin-Misener, R., MacLeod, M. L., Banks, K., Morton, A. M., Vogt, C., & Bentham, D. (2008). "There's rural, and then there's rural": Advice from nurses providing primary healthcare in northern remote communities. *Nursing Leadership (Toronto, Ont.), 21*(3), 54-63.

Mallery, C., Ganachari, D., Fernandez, J., Smeeding, L., Robinson, S., Moon, M., Siegel, J. (2012, May). *Innovative methods in stakeholder engagement: An environmental scan.* AHRQ Publication No. 12-EHC097-EF. Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from http://www.effectivehealthcare.ahrq.gov/index.cfm/toolsand-resources/how-to-get-involved-in-the-effective-health-care-program/

Mazowita, G., & Cavers, W. (2011). Reviving full-service family practice in British Columbia. *Commonwealth Fund Issue Briefs, 19*, 1-20.

McCusker, J., Roberge, D., Ciampi, A., Lévesque, J. F., Pineault, R., Belzile, E., Larouche, D. (2009). Primary care organization and outcomes of an emergency visit among seniors. *Healthcare Policy*, *5*(1), e115-e131.

McMurchy, D. (2009). *What are the critical attributes and benefits of a high-quality primary healthcare system?* Submitted to the Canadian Working Group On Primary Healthcare Improvement, Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhifcass.ca/Libraries/Primary_Healthcare/11498_PHC_McMurchy_ENG_FINAL.sflb.ashx

Merriam-Webster. Stakeholder definition. Springfield, MA: Author. Retrieved from http://www.merriamwebster.com/dictionary/stakeholder

Milicic, S., Mulvale, G., & Peterson, S. (2013). *Accelerating healthcare improvement in Canada: A review of policy options to sustain, improve and transform healthcare*. Ottawa: Canadian Foundation for Healthcare Improvement. Retrieved from http://www.cfhi-fcass.ca/sf-docs/default-source/reports/Review-Policy-Options-Milicic-E.pdf?sfvrsn=0

Milliken, O., Devlin, R. A., Barham, V., Hogg, W., Dahrouge, S., & Russell, G. (2011). Comparative efficiency assessment of primary care service delivery models using data envelopment analysis. *Canadian Public Policy, 31*(1), 85-109.

Moaveni, A., Gallinaro, A., Conn, L. G., Callahan, S., Hammond, M., & Oandasan, I. (2010). A Delphi approach to developing a core competency framework for family practice registered nurses in Ontario. *Nursing Leadership (Toronto, Ont.), 23*(4), 45-60.

Moe, J. S., Bailey, A. L., Kroeker, S., & Moe, G. (2010). An interprofessional collaborative practice model: Primary-care clinical associates at the family practice setting. *Healthcare Management Forum, 23*(4), 159-163.

Moore, A., Patterson, C., White, J., House, S. T., Riva, J. J., Nair, K., & McCann, D. (2012). Interprofessional and integrated care of the elderly in a family health team. *Canadian Family Physician,* 58(8), e436-e441.

Muggah, E., Dahrouge, S., & Hogg, W. (2012). Access to primary health care for immigrants: Results of a patient survey conducted in 137 primary practices in Ontario, Canada. *BMC Family Practice, 13*, 128.

Muldoon, L., Dahrouge, S., Hogg, W., Geneau, R., Russell, G., & Shortt, M. (2010). Community orientation in primary practices: Results from the Comparison of Models of Primary Health Care in Ontario Study. *Canadian Family Physician, 56*(7), 676-683.

Murray, C. J., & Frenk, J. (2000). A framework for assessing the performance of health systems. *Bulletin of the World Health Organization, 78*(6), 717-731.

Murray, S., Silver, I., Patel, D., Dupuis, M., Hayes, S. M., & Davis, D. (2008). Community group practices in Canada: Are they ready to reform their practice? *Journal of Continuing Education in the Health Professions, 28*(2), 73-78.

National Co-ordinating Centre for Public Engagement (NCCPC). (2013). *Public engagement*. Retrieved from http://www.publicengagement.ac.uk/what

New Brunswick Health Council. (2010). *Our health. Our perspectives. Our solutions. Results of our first engagement initiative with New Brunswick citizens*. Moncton: Author. Retrieved from http://www.nbhc.ca/sites/default/files/Our%20Health%20Our%20Perspectives%20Our%20Solutions%20-%20Results%20EN%20VF%20041110.pdf

Oandasan, I. F., Hammond, M., Conn, L. G., Callahan, S., Gallinaro, A., & Moaveni, A. (2010). Family practice registered nurses: The time has come. *Canadian Family Physician, 56*(10), e375-e382.

Oelke, N. D., Cunning, L., Andrews, K., Martin, D., MacKay, A., Kuschminder, K., & Congdon, V. (2009). Organizing care across the continuum: Primary care, specialty services, acute and long-term care. *Healthcare Quarterly*, *13* (Spec No), 75-79.

Paterson, B. L., Duffett-Leger, L., & Cruttenden, K. (2009). Contextual factors influencing the evolution of nurses' roles in a primary health care clinic. *Public Health Nursing, 26*(5), 421-429.

Pineault, R., Provost, S., Hamel, M., Couture, A., & Levesque, J. F. (2011). The influence of primary health care organization models on patients' experiences of care in different chronic disease situations. *Chronic Diseases and Injuries in Canada, 31*(3), 109-120.

Provost, S., Pineault, R., Levesque, J. F., Groulx, S., Baron, G., Roberge, D., & Hamel, M. (2010). Does receiving clinical preventive services vary across different types of primary healthcare organizations? Evidence from a population-based survey. *Healthcare Policy, 6*(2), 67-84.

Pylypchuk, G., Vincent, L., Wentworth, J., Kiss, A., Perkins, N., Harman, S., Ironstand, L., Hoppe, J., & Tobe, S. W. (2008). Diabetes risk evaluation and microalbuminuria (DREAM) studies: Ten years of participatory research with a First Nation's home and community model for type 2 diabetes care in Northern Saskatchewan. *International Journal of Circumpolar Health, 67*(2-3), 190-202.

Regan, S., Wong, S. T., & Watson, D. E. (2010). Public perspectives on health human resources in primary healthcare: Context, choices and change. *Healthcare Policy, 5*(3), e162-e172.

Registered Nurses' Association of Ontario (RNAO). (2002). *Client centred care*. Toronto: Author. Retrieved from http://rnao.ca/sites/rnaoca/files/Client_ Centred_Care_0.pdf

Registered Nurses' Association of Ontario (RNAO). (2007). *Developing and sustaining effective staffing and workload practice*. Toronto: Author. Retrieved from http://rnao.ca/sites/rnaoca/files/Developing_and_Sustaining_Effective_Staffing_and_Workload_Practices.pdf

Registered Nurses' Association of Ontario (RNAO). (2012a). *ECCO: Enhancing community care for Ontarians — A three year plan* [White paper]. Toronto: Author. Retrieved from http://rnao.ca/sites/rnao-ca/files/RNAO_ECCO_WHITE _PAPER_FINAL.pdf

Registered Nurses' Association of Ontario (RNAO). (2012b). *Primary solutions for primary care: Maximizing and expanding the role of the primary care nurse in Ontario*. Toronto: Author. Retrieved from http://rnao.ca/sites/rnao-ca/files/Primary__Care_Report_2012.pdf

Rodriguez, C., & Pozzebon, M. (2010). The implementation evaluation of primary care groups of practice: A focus on organizational identity. *BMC Family Practice, 11*, 15.

Rondeau, K. V., & Bell, N. R. (2009). The chronic care model: Which physician practice organizations adapt best? *Healthcare Management Forum, 22*(4), 31-39.

Rosser, W. W., Colwill, J. M., Kasperski, J., & Wilson, L. (2011). Progress of Ontario's family health team model: A patient-centered medical home. *Annals of Family Medicine, 9*(2), 165-171.

Russell, G. M., Dahrouge, S., Hogg, W., Geneau, R., Muldoon, L., & Tuna, M. (2009). Managing chronic disease in Ontario primary care: The impact of organizational factors. *Annals of Family Medicine, 7*(4), 309-318.

Russell, G., Dahrouge, S., Tuna, M., Hogg, W., Geneau, R., & Gebrremichael, G. (2010). Getting it all done: Organizational factors linked with comprehensive primary care. *Family Practice, 27*(5), 535-541.

Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing and Health, 33*(1), 77-84.

Saskatchewan Ministry of Health. (2012). *Patient centred, community designed, team delivered: A framework for achieving a high performing primary health care system in Saskatchewan.* Saskatchewan framework for primary health care report. Regina: Author.

Schoen, C., Osborn, R., Squires, D., Doty, M., Pierson, R., & Applebaum, S. (2011). New 2011 survey of patients with complex care needs in eleven countries finds that care is often poorly coordinated. *Health Affairs (Millwood), 30*(12), 2437-2448.

Scott, C., & Lagendyk, L. (2012). Contexts and models in primary healthcare and their impact on interprofessional relationships. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www.cfhifcass.ca/Libraries/Commissioned_Research_Reports/ScottLgendyk-April2012-E.sflb.ashx

Sevean, P., Dampier, S., Spadoni, M., Strickland, S., & Pilatzke, S. (2008). Patients and families experiences with video telehealth in rural/remote communities in Northern Canada. *Journal of Clinical Nursing, 18*(18), 2573-2579.

Shortell, S. M., Gillies, R. R., & Anderson, D. A. (1994). The new world of managed care: Creating organized delivery systems. *Health Affairs, 13*(5), 46.

Sibley, L. M., & Glazier, R. H. (2012). Evaluation of the equity of age-sex adjusted primary care capitation payments in Ontario, Canada. *Health Policy, 104*(2), 186-192.

Spenceley, S. M., Andres, C., Lapins, J., Wedel, R., Gelber, T., & Halma, L.M. (2013). Accountability by design: Moving primary care reform ahead in Alberta. *School of Public Policy, 6*(28).

Steele, L. S., Durbin, A., Sibley, L. M., & Glazier, R. (2013). Inclusion of persons with mental illness in patient-centred medical homes: Cross-sectional findings from Ontario, Canada. *Open Medicine, 7*(1), e9-e20.

Stewart, N. J., D'Arcy, C., Pitblado, J. R., Morgan, D. G., Forbes, D., Remus, G., MacLeod, M. L. P. (2005). A profile of registered nurses in rural and remote Canada. *Canadian Journal of Nursing Research*, *37*(1), 122-145.

Strumpf, E., Levesque, J. F., Coyle, N., Hutchison, B., Barnes, M., & Wedel, R. J. (2012). Innovative and diverse strategies toward primary health care reform: Lessons learned from the Canadian experience. *Journal of the American Board of Family Medicine, 25* Suppl 1, S27-S33.

Tarlier, D. S., & Browne, A. J. (2011). Remote nursing certified practice: Viewing nursing and nurse practitioner practice through a social justice lens. *Canadian Journal of Nursing Research, 43*(2), 38-61.

Thind, A., Feightner, J., Stewart, M., Thrope, C., & Burt, A. (2008). Who delivers preventive care as recommended? Analysis of physician and practice characteristics. *Canadian Family Physician, 54*(11), 574-575.

Tholl, B., & Grimes, K. (2012). Strengthening primary health care in Alberta through family care clinics: From concept to reality. *FFC Report,* ii-25.

Tourigny, A., Abin, M., Haggerty, J., Bonin, L., Morin, D., Reinharz, D., . . . Carmichael, P. H. (2010). Patients' perceptions of the quality of care after primary care reform: Family medicine groups in Quebec. *Canadian Family Physician, 56*(7), e273-e282.

Tracy, C. S., Bell, S. H., Nikkell, L. A., Charles, J., & Upshur, R. E. (2013). The IMPACT clinic: Innovative model of interprofessional primary care for elderly patients with complex health needs. *Canadian Family Physician, 59*(3), e148-155.

Tu, K., Cauch-Dudek, K., & Chen, Z. (2009). Comparison of primary care physician payment models in the management of hypertension. *Canadian Family Physician, 55*(7), 719-727.

Valaitis, R., Martin-Misener, R., Wong, S. T., MacDonald, M., Meagher-Stewart, D., Austin, P., . . . the Strengthening Primary Care through Public Health and Primary Care Collaboration Team. (2012). Methods, strategies and technologies used to conduct a scoping literature review of collaboration between primary care and public health. *Primary Health Care Research and Development, 13*, 219-236.

Vedel, I., Monette, M., Beland, F., Monette, J., & Bergman, H. (2011). Ten years of integrated care: Backwards and forwards. The case of the province of Quebec, Canada. *International Journal of Integrated Care,* Spec. Ed., e004.

Virani, T. (2012). *Interprofessional collaborative teams*. Ottawa: Canadian Health Services Research Foundation. Retrieved from http://www. cfhi-fcass.ca/sf-docs/default-source/commissioned-research-reports/ViraniInterprofessiona l-EN.pdf?sfvrsn=0

Wagner, E. H., Austin, B. T., & Von Korff, M. (1996). Organizing care for patients with chronic illness. *Milbank Quarterly, 74*(4), 511-544.

Watson, D. E., Broemeling, A. M., & Wong, S. T. (2009). A results-based logic model for primary healthcare: A conceptual foundation for population-based information systems. *Healthcare Policy, 5*(Spec No), 33-46.

Wong, S. T., Lynam, M. J., Khan, K. B., Scott, L., & Loock, C. (2012). The social paediatrics initiative: A RICHER model of primary health care for at risk children and their families. *BMC Pediatrics, 12*, 158.

Wong, S. T., Watson, D. E., & Young, E. (2009). Supply and distribution of primary healthcare registered nurses in British Columbia. *Healthcare Policy*, *5*(Special issue), 91-104.

Wranik, D., & Durier-Copp, M. (2011). Framework for the design of physician remuneration methods in primary health care. *Social Work in Public Health, 26*(3), 231-259.

Wranik, D. W., & Durier-Copp, M. (2010). Physician remuneration methods for family physicians in Canada: Expected outcomes and lessons learned. *Health Care Analysis, 18*(1), 35-59.

APPENDIX A

Scoping Review Tables A1-A23

Table A1. Study characteristics of primary care published health reform papers

Author	Type of paper	Purpose/focus of paper	Geographic scope	Language
Brossart & Donnelly, 2012	Report	This report highlights Saskatchewan's unfolding efforts to their primary healthcare system for Saskatchewan residents.	SK	English
Cavers et al., 2010	Review of 2008-2009 fiscal year report of the GPSC	To describe a new approach to primary care reform developed in British Columbia under the leadership of the General Practice Services Committee (GPSC).	BC	English
Hutchison, 2013	Policy analysis	This paper argues that strong primary care is a fundamental underpinning of high-performing health systems. It describes how continued investment in primary care infrastructure and performance in Canada is needed and affordable. These investments are determined largely by the ongoing clash between communitarian and libertarian values.	CA	English
Hutchison, 2008	Invited essay	This essay describes Canada's poor primary healthcare performance relative to other wealthy industrialized countries. It suggests process that are needed at the regional and provincial levels to collectively engage the full range of key stakeholders in providing policy advice and informing the articulation of clear policy direction for primary healthcare.	CA	English
Hutchison & Glazier, 2013	Literature review	This paper highlights key features of Ontario's reforms which include patient enrollment with a primary care provider, funding for interprofessional primary care organizations, and physician reimbursement based on varying blends of fee-for-service, capitation and pay-for-performance.	ON	English
Hutchison et al., 2011	Policy analysis	This policy analysis examines primary healthcare reform efforts in Canada during the last decade, drawing on descriptive information from published and grey literature and from a series of semi-structured interviews with informed observers of primary health care in Canada.	CA	English
Janson, 2008	Literature review	This article provides a critical analysis of the multiple historical, political, economic and social professionalization challenges associated with the achievement of collaborative team-based practice. The author argues that it is not feasible to implement broad-based team structures at the present time.	CA	English

Author	Type of paper	Purpose/focus of paper	Geographic scope	Language
Mazowita & Cavers, 2011	Literature synthesis	This paper uses British Columbia as an example to argue that coordinated, operational reform of full-service family practice can improve care and reduce costs without radical restructuring of the primary care system.	BC	English
Murray et al., 2008	Mixed-methods research design	This study provides in-depth insight regarding primary healthcare providers' beliefs and attitudes in regard to their current group practice, what changes they believe are occurring and those necessary to reform group practice settings, their willingness to embrace changes, and the challenges they face to realize the proposed reform.	CA	English
Regan et al., 2010	Focus groups conducted	The purpose of this study is to examine factors identified by patients are relevant to health human resources (HHR) planning for primary healthcare (PHC).	BC	English
Rosser et al., 2011	Literature review and family health team (FHT) model analysis	This paper describes the development, implementation, reimbursement plan, and current status of the multidisciplinary model, Ontario Family Health Team (FHT) model, relating it to the principles of the patient-centred medical home. In addition, this paper identifies the FHT model's potential to provide and understanding of many aspects of primary care.	ON	English
Spenceley et al., 2013	Literature review	This paper outlines a plan for integrated team-based primary care, designed to be accountable to meet the needs of the populations. This will require governance that makes primary care the hub of the system, and brings together government and health-services leadership to support the integration of primary and specialty care.	AB	English
Strumpf et al., 2012	Literature synthesis	This paper describes Canadian primary care reform efforts incorporating interprofessional team-based care, multicomponent funding and payment arrangements, patient enrollment, ongoing performance measurement and quality improvement processes.	CA	English

CA= Canada; AB= Alberta; ON= Ontario; BC= British Columbia; SK= Saskatchewan.

Table A2. Study characteristics of health reform grey literature papers

Author	Source	Geographic scope	Type of paper	Methods	Topic
Dahrouge et al., 2012	CHSRF	CA	Report	Systematic review	The objective of this report is to illustrate the economic impact of enhancements to the primary healthcare system.
Health Council of Canada, 2008	Health Council of Canada	CA	Report update	Interviews with senior officials from the governments who participate in the Health Council and with Canadians (for their experience with the healthcare system)	To learn what progress has been made in Canada's healthcare system, specifically with primary care and home care.
Health Council of Canada 2013,	Health Council of Canada	CA	Summary report	Retrospective review	This report looks back on the last decade of health care reform, identifies what worked and what didn't, and outlines a better path to achieve a high-performing health system for Canada into the future.
Katz et al., 2009	CHSRF	CA	Report	International and national literature search; comparative study	This report offers an analysis of the health and economic consequences of closing the gap in access and quality between evidence-based practice and current PHC performance in Canada and provides a better understanding of the opportunities for improvement in Canada.
Mable et al., 2012	CHSRF	CA	Report	Used a targeted, expeditious process to access, synthesize and summarize readily available information and input.	This report summarizes the current status of F/P/T policy intentions, applications and outcomes related to advancing PHC improvement in Canada, and gathers information and feedback on the status of PHC reform in Canada from senior decision-makers and academics.
McMurchy, 2008	CHSRF	CA	Report	Scoping review	In this report, literature pertaining to the attributes and benefits of a high-quality primary healthcare system in terms of the system's orientation and design, organizational and process factors, physician supply, and the critical features unique to primary care delivery (such as comprehensiveness and coordination of care) is summarized.

CA= Canada; PHC= Primary Health Car

Table A3. Study characteristics of PHC delivery models in published articles

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Beaulieu et al., 2013	Research	Quantitative observational	This paper aims to identify the organizational characteristics of primary care practices that provide high-quality primary care.	QC	English	Three primary care organizational models in urban, sub-urban and rural communities.
Bourgeois et al., 2011	Published other	Quality improvement	To facilitate timely delivery of the 2009 H1N1 influenza vaccine to a family practice population while preserving regular clinic function and to create a model of effective vaccination delivery for future outbreaks.	ON	English	Patients in the Women's College Hospital Family Practice Health Centre (FPHC) in Toronto, ON.
Brauer et al., 2012	Research	Quantitative observational	This study examines patients' perceptions of preventive lifestyle counseling in their primary care practices, shortly after the dietitians joined the family health networks and about one year later.	ON	English	Three family health networks (Perry Sound, Kingston and Stratford).
Breton et al., 2013	Research	Quantitative observational	This paper analyzes the impact of these reforms (FMSs and LHNs) on the development of collaborations among primary healthcare practices.	QC	English	FMGs, network clinics and private medical clinics.
Breton et al., 2011	Published policy analysis paper	Policy analysis	This paper analyzes the family medicine group (FMG) model's potential as a lever for improving healthcare system performance and discusses how it could be improved. Possible ways of advancing primary care reform through the family health team (FHT) model in Ontario was examined.	ON & QC	English	N/A; FMG model examined.
Campbell et al., 2013	Research	Quantitative observational	To determine what types of chronic disease management programs were offered in PCN and to determine their resource intensity and effectiveness.	AB	English	Chronic disease management programs in Alberta.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Dahrouge et al., 2011	Research	Mixed methods	To assess whether the model of service delivery affects the equity of the care provided across age groups.	ON	English	Patient surveys were completed by patients in FFS (including family health groups), CHC, HSO, and FHN practices.
Dahrouge et al., 2010	Research	Quantitative observational	This study evaluates whether gender differences in the primary care experience in each model (FFS, CHCs, HSOs and FGNs) exist and whether the extent of gender differences between models differs.	ON	English	Patients in varying primary care model practices.
Dahrouge et al., 2009	Research	Mixed methods	This study describes 4 funding models (FFS, HSOs, CHCs and FHNs), measures and compares the quality of primary care delivery to better understand aspects of practice organization that may influence the health care experience of patients and the quality of care they receive.	ON	English	The study involved primary care practices, their providers and patients. Key informants and policymakers who had in-depth knowledge of each model were also interviewed.
Fry, 2009	Research	Systematic review of literature for effectiveness	A systematic review examined the barriers and facilitators influencing the success and sustainability of after-hours care models on acute care utilization.	International	English	Databases accessed included Medline, CINAHL, EMBASE, Cochrane, PubMed, MIDIRS, Science Direct and Proquest. The review was supplemented with a manual search of grey literature.
Gaumer & Fleury, 2008	Research	Policy analysis	This paper examines the first years of the CLSCs' existence through their functions and mandates, the role of community organizers, the key roles played by the CLSCs in the emergence of community organizations, in home support services, and in mental health, and the CLSCs' prospects for the future.	QC	English	Local community service centres (CLSC) in QC.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Glazier et al., 2012	Research	Quantitative observational	The goal of the article is to examine measures of access to primary care in relation to the investments made in Ontario's patient enrolment models, with a view to deriving lessons that may apply to Ontario and other jurisdictions.	ON	English	Databases used in this report included physician claims from the Ontario Health Insurance Plan, Alternate Payment Plan and Architected Payments. Additionally, Client Agency Program Enrolment tables, Corporate Physician Database, Registered Persons Database, National Ambulatory Care Reporting System and Primary Care Access Survey was consulted.
Goldman et al., 2010	Research	Qualitative descriptive	This study examines family health team (FHT) members' perspectives and experiences of interprofessional collaboration and perceived benefits.	ON	English	The sample consisted of representatives from FHTs and team-based primary care practices in rural and urban Ontario.
Heale, 2012	Published other	None specified	To describe a NP-led clinic model in Canada, including overcoming barriers.	ON	English	N/A; legislative and regulatory documents from the government of ON were reviewed.
Heale & Pilon, 2012	Research	Quantitative observational	To explore the experience of patients who received healthcare services from the Sudbury district NP clinics with a focus on determining the level of patient satisfaction with accessibility to clinic services and healthcare received.	ON	English	The experience of 682 patients was explored for this paper.
Hogg et al., 2009	Research	RCT	To examine whether quality of care (QOC) improves when nurse practitioners and pharmacists work with family physicians in community practice and focus their work on patients who are 50 years of age and older and considered to be at risk of experiencing adverse health outcomes.	ON	English	A family health network with family physicians, nurses, and administrative personnel serving 10,000 patients in a rural area near Ottawa, Ont.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Hogg et al., 2009	Research	Mixed methods	This article compares the performance of primary care models of service delivery in Ontario in providing health promotion activities and determines what practice factors are associated with the delivery of health promotion. 7 health promotion items were evaluated: healthy food, home safety, family conflict, exercise, smoking, alcohol consumption and fall prevention.	ON	English	Patients 65 years and older from FFS, FHN, CHC and HSO practices were recruited and examined. In-depth interviews were conducted with family physicians, nurse practitioners and patients.
Hogg et al., 2008	Research	Before-and-after study	To assess the extent to which advances in preventive care delivery, achieved in primary care practices through outreach facilitation, could be sustained over time after purposefully redirecting the focus of practice physicians and staff away from prevention and toward a new content area in need of improvement chronic illness management.	ON	English	Primary care practices in ON.
Howard et al., 2011	Research	Quantitative observational	To determine organizational predictors of higher scores on team climate measures as an indicator of the functioning of a family health team.	ON	English	FHT physicians, “other” health care professionals and managers.
Howard et al., 2009	Research	Quantitative observational	This paper describes patient satisfaction with access in interprofessional family practices and examines predictors of being less than satisfied with access.	ON	English	Patients in the family health team
Howard et al., 2008	Research	Quantitative observational	This study examined whether the six-month prevalence of emergency department and walk-in clinic use differed among patients of family health network (FHN), family health group (FHG) and fee-for-service (FFS) physicians in one city.	ON	English	Patients over 1 year of age who had visited their family doctor in the previous 12 months were randomly selected from computerized records. A mailed survey asked about urgent health problems in the previous 6 months and use of health services for those problems.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Jaakkimainen et al., 2011	Research	Quantitative observational	The purpose of this study was to evaluate differences in performance between FHNs and FHGs and to compare performance before and after physicians joined these new primary care groups.	ON	English	FHG and FHN physicians and groups were examined.
Jesmin et al., 2012	Research	Quantitative	The main objective of this paper is to evaluate the impact of team-based PHC on available process and outcome indicators of primary care from Canadian patients' perspective.	CA	English	Micro data from Canadian Survey of Experiences with Primary Health Care (CSEPHC) conducted by Statistics Canada.
Kristjansson et al., 2013	Research	Quantitative observational	The purpose of this paper is to assess predictors of continuity of care within a large sample of primary care practices in ON, CA. A secondary question assessed whether there was a difference between organizational models of primary care in the continuity of care provided.	ON	English	Patients in 137 practices comprising of FFS, FHN, CHC and HSO were surveyed.
Lavoie et al., 2013	Research	Qualitative Descriptive	The purpose of this article is to identify and describe key format and process elements used in GMVs as identified by providers and patients engaged in GMVs, and explain how these key elements link to improved health outcomes.	BC	English	Family physicians, nurses, nurse practitioners, PHC coordinators, other allied health professionals (such as nutritionist and social workers) and supportive personnel (such as medical office assistants and community health representatives) who were involved in delivering a variety of GMVs were interviewed in-depth.
Lee et al., 2010	Research	Evaluation research	This article describes the implementation of a memory clinic operated within a primary care setting.	ON	English	Centre for Family Medicine (CFFM) Family Health Team (FHT), in Kitchener, Ontario.
Lefebvre et al., 2010	Research	Qualitative descriptive	To assess participant perception of an integrated model of care for substance abuse in pregnancy.	ON & QC	English	Toronto Centre for Substance Use in Pregnancy (TCUP) in the Family Medicine Clinic and The Herzl Methadone Clinic in a family medicine clinic in Montreal.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Levesque et al., 2011	Research	Qualitative descriptive	The aim of this study was to rate the importance of primary healthcare (PHC) attributes in evaluations of PHC organizational models in CA.	CA	English	Canadian PHC experts. These were persons identified by at least two persons as having accumulated significant knowledge about PHC through clinical, managerial or academic activities. We identified 26 such experts, equally balanced among clinicians, academics and decision-makers from all regions in the country,
Liddy et al., 2011	Research	RCT	This study compared the quality of preventive cardiovascular care delivery amongst different primary care models.	ON	English	Patient chart audits in primary care practices from three delivery models (fee-for-service, blended-capitation and salary-based physicians).
Ludwick et al., 2010	Research	Qualitative descriptive	To determine if telehealth combined with interdisciplinary team-based care can reduce wait times for dermatologic consultation while making the consultation process easier for physicians.	AB	English	1 centralized teledermatology clinic.
Manns et al., 2012	Research	Quantitative observational	This study examines the association between enrolment in primary care networks and the outcome and care of patients with diabetes, using administrative data.	AB	English	Patients with and without diabetes enrolled and not enrolled in primary care networks.
Martin-Misener et al., 2009	Research	Qualitative	This study addresses four research questions and tests the hypothesis that adults living in a rural community receiving primary health care and emergency services from a team that included an on-site nurse practitioner (NP) and paramedics and an off-site family physician would, over time, demonstrate evidence of improved psychosocial adjustment and less expenditure of health care resources.	NS	English	Core health team members, administrators and community leaders, community resident groups and multidisciplinary service provider groups.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
McCusker et al., 2009	Research	Quantitative observational	This study explores whether organizational characteristics of primary care services provided in the patients' area of residence were related to outcomes of an ED visit (death, hospitalization, return ED visit without hospitalization, visit to the primary physician) among seniors discharged home.	QC	English	Residents aged 65 and over, and primary care clinic directors.
Milliken et al., 2011	Research	Quantitative observational	This paper compares the relative productive efficiencies of four models of primary care service delivery using the data envelopment analysis method on 130 primary care practices in ON.	ON	English	130 primary care practices in Ontario, Canada (CHCs, FFS, FHN and HSO).
Moe et al., 2010	Research	Qualitative descriptive	The objective of this article is to describe in detail the design of the WPCN CA program including its conceptual framework and operational strategies and to share program implementation learning.	AB	English	N/A; this paper describes the design of the CA program.
Moore et al., 2012	Research	Evaluation research	This paper describes an interprofessional, integrated geriatric program within a family health team and includes a preliminary evaluation from the perspective of primary care providers and patients. To improve the quality, efficiency, and coordination of care for the frail elderly living in the community and to enhance geriatric and interprofessional skills for providers and learners.	ON	English	Seniors older than 75 years of age.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Muggah et al., 2012	Research	Quantitative observational	The goal of this research was first to determine the patient reported access to primary health care services by immigrants who were current users of the primary care system and compare how this differed from the Canadian-born population. The second objective was to explore how the organizational model of primary care might impact access to care for immigrants.	ON	English	There were 5,361 patients included in this study, 5,269 (98.3%) reported country of birth and of these 1,099 (20.8%) were immigrants.
Muldoon et al., 2010	Research	Mixed methods	This paper determines which of 4 organizational models of primary care in Ontario were more community oriented. (Community orientation was assessed from the perspectives of the practices and the providers working in them).	ON	English	Data was collected from practices and providers including FPs, NPs and nurses (includes registered practical nurses, nurses, and nursing assistants).
Oelke et al., 2009	Research	Case study	To describe the planning and implementation of a community-based model of primary care.	AB	English	Local primary care team members across communities were interviewed.
Pineault et al., 2011	Research	Quantitative observational	To examine the extent to which experience of care varies across chronic diseases, and to analyze the relationship of primary health care (PHC) organizational models with the experience of care reported by patients in different chronic disease situations.	QC	English	Telephone survey, involved respondents from PHC organizations.
Provost et al., 2010	Research	Quantitative observational	To measure the association between primary healthcare (PHC) organizational types and patient coverage for clinical preventive services (CPS).	QC	English	Patients in PHC clinics in Monteregie region in Quebec.
Rodriguez & Pozzebon, 2010	Research	Qualitative descriptive	To describe the 1st year of implementation of family medicine group with a focus on emergence of organizational identity.	QC	English	Physicians, nurses and administrative staff.
Rondeau & Bell, 2009	Research	Quantitative observational	To examine how well primary care networks are succeeding at implementing the components of the chronic care model.	AB	English	Physicians.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Russell et al., 2010	Research	Mixed methods	This paper describes the extent of comprehensive care between 4 models and examines what practice-level organizational factors are associated with the provision of comprehensive care in PC.	ON	English	PC practices (FFS, HSO, FHN and CHC) and providers.
Russell et al., 2009	Research	Quantitative observational	To assess whether chronic disease management differs between 4 models of primary care in Ontario and what practice-based organizational factors are associated with high-quality chronic disease management.	ON	English	Randomly assigned practices that were one of the 4 models compared.
Schoen et al., 2011	Research	Quantitative observational	This study describes areas of shared concern and opportunities to improve primary care, care coordination, and communication through surveying patients with complex care needs in 11 countries	International	English	Patients with serious illnesses, serious injuries, or chronic diseases in: Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States.
Thind et al., 2008	Research	Quantitative observational	To determine which physician and practice setting is associated with self-reported provision of preventive care.	ON	English	Physicians.
Tourigny et al., 2010	Research	Quantitative observational	To evaluate how a primary care reform, which aimed to promote interprofessional and interorganizational collaborative practices, affected patients' experiences of the core dimensions of primary care.	QC	English	FMGs in 2 regions of Quebec
Tracy et al., 2013	Published other	Program description	This paper designs and evaluates a new interprofessional model of care for community-dwelling seniors with complex health care needs.	ON	English	This model was developed for and applied to an interprofessional team of clinicians, educators and researchers.

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope	Language	Participants
Vedel et al., 2011	Research	Qualitative descriptive	The purpose of this article is to describe the transformation currently underway and the results of recent initiatives in integrated health and social care. The focus is on the extent to which system-wide transformation and localized initiatives achieved the integration objective, and to identify barriers and facilitators to achieving such integration.	QC	English	N/A
Wong et al., 2012	Research	Mixed methods	This paper reports on whether the Responsive Interdisciplinary Child-Community Health Education and Research (RICHER) initiative is associated with increased: 1) access to health care for children and families with multiple forms of disadvantage and 2) patient-reported empowerment. This study provides the first examination of a model of delivering PHC, using a social paediatrics approach.	BC	English	86 respondents completed the survey about their child's PHC experiences and 8% also completed an in-depth interview.

QC= Quebec; ON= Ontario; AB= Alberta; NS= Nova Scotia; CA= Canada; FMG= Family Medicine Group; FHT= Family Health Team; PCN= Primary Care Network; CHC= Community Health Centre; HSO= Health Service Organization; FHN= Family Health Network; FFS= Fee-For-Service; GMV= Group Medical Visits; ED= Emergency Department.

Table A4. Study characteristics of PHC delivery models grey literature papers

Author	Source	Geographic scope	Type of Paper	Methods	Topic
Glazier et al., 2012	ICES	ON	Investigative report	Quantitative observational studies (e.g., survey, prospective/ retrospective)	Are there differences between Ontario's primary care models in who they serve and how often their patients/clients go to the emergency department? Models examined were: community health centres (CHCs, a salaried model), family health groups (FHGs, a blended fee-for-service model), family health networks (FHNs, a blended capitation model), family health organizations (FHOs, a blended capitation model), family health teams (FHTs, an interprofessional team model composed of FHNs and FHOs
Malatest & Associates Ltd., 2011	Primary Care Initiative Committee, Government of Alberta	AB	Summary report	Case report	This report evaluates primary care networks and develops an understanding of the interaction between contextual influences and the development and implementation of particular PHC models.
Orientations for the Development of Integrated Family Medical Groups and Network Clinics, 2008	Agence de la santé et des services sociaux de Montreal	QC	Project update document	N/A Summary of project's origins, projected clientele of teams, objectives, protocols for integrated clinics and teams, etc.	This document presents orientations for the implementation of the Montreal model of primary care patient management.
Scott & Lagendyk, 2012.	Canadian Health Services Research Foundation	AB	Report	Comparative case study approach	This report examines Alberta's experience in the development of primary care networks over the period 2007 to 2011.
College of Family Physicians, 2009	College of Family Physicians of Canada	CA	Discussion paper	None specified	To describe the "Home is Best" model of primary and community care.
Tholl & Grimes, 2012	Strengthening Primary Health Care in Alberta Through Family Care Clinics: From Concept to Reality	AB	Report	Literature synthesis Key informant interviews Site visits	Work was completed in collaboration with the Ministry of Health. Aim is to help provide a *conceptual framework* for the deployment of family care clinics (FCCs) in broader context of enhancing access to primary care for all Albertans.

ON= Ontario; AB= Alberta; QC= Quebec; CA= Canada; PHC= Primary Health Care.

Table A5. Purpose or focus of PHC delivery models published articles

Author	Single model	Compare models
Beaulieu et al., 2013		Identify the organizational characteristics of primary care practices that provide high-quality primary care.
Bourgeois et al., 2011	Facilitate timely delivery of the 2009 H1N1 influenza vaccine to a family practice population while preserving regular clinic function and to create a model of effective vaccination delivery for future outbreaks.	
Brauer et al., 2012	Examine patients' perceptions of preventive lifestyle counselling in their primary care practices, shortly after the dietitians joined the family health networks and about one year later.	
Breton et al., 2013	Analyze the impact of reforms (family medicine groups (FMGs) and local health networks (LHNs). Focus is on the development of collaborations among primary healthcare practices and between these organizations and hospitals both within and outside administrative boundaries of the local health networks in two regions.	
Breton et al., 2011		Analyze the family medicine group (FMG) model's potential as a lever for improving healthcare system performance and to discuss how it could be improved. Next, we discuss possible ways of advancing primary care reform, looking particularly at the family health team (FHT) model implemented in Ontario.
Campbell et al., 2013	Determine what types of chronic disease management programs were offered in PCN and to determine their resource intensity and effectiveness	
Dahrouge et al., 2011		Assess whether the model of service delivery affects the equity of the care provided across age groups.
Dahrouge et al., 2010		Evaluate whether gender differences in the primary care experience in each model exist and whether the extent of gender differences between models differs. .Models included fee for service (FFS), community health Centres (CHCs), health Service organizations (HSOs) and family health networks (FHNs).
Dahrouge et al., 2009		Describe 4 funding models (FFS, HSOs, CHCs and FHNs), to measure and compare the quality of primary care delivered and to better understand aspects of practice organization that may influence the health care experience of patients and the quality of care they receive.

Author	Single model	Compare models
Fry, 2009		Examine the international literature for the barriers and facilitators influencing the success and sustainability of after-hours care models on acute care utilization.
Gaumer & Fleury, 2008	Examine first years of the (local community service centre) CLSCs' existence through their functions and mandates; the role of community organizers (which reflects the original position held by the CLSCs); key roles played by the CLSCs in the emergence of community organizations, in home support services, and in mental health; and CLSCs' prospects for the future in the context of major reforms.	
Glazier, et al., 2012		Examine measures of access to primary care in relation to the investments made in Ontario's patient enrolment models, with a view to deriving lessons that may apply to Ontario and other jurisdictions.
Goldman et al., 2010	Examine family health team (FHT) members' perspectives and experiences of interprofessional collaboration and perceived benefits.	
Heale, 2012	Describe a NP-led clinic model in Canada, including overcoming barriers.	
Heale & Pilon, 2012	Explore the experience of patients who received healthcare services from the Sudbury district NP clinics with a focus on determining the level of patient satisfaction with accessibility to clinic services and healthcare received.	
Hogg et al., 2009	Examine whether quality of care (QOC) improves when nurse practitioners and pharmacists work with family physicians in community practice (family health network) and focus their work on patients who are 50 years of age and older and considered to be at risk of experiencing adverse health outcomes.	
Hogg et al., 2009		Compare the performance of primary care models of service delivery in Ontario in providing health promotion activities and determine what practice factors are associated with the delivery of health promotion.
Howard et al., 2011	Determine organizational predictors of higher scores on team climate measures as an indicator of the functioning of a family health team.	
Howard et al., 2009	Describe patient satisfaction with access in interprofessional academic family practices (FHT) and to examine predictors of being less than satisfied with access.	

Author	Single model	Compare models
Howard et al., 2008		Examine whether the six-month prevalence of emergency department and walk-in clinic use differed among patients of eight family health network (FHN), 16 family health group (FHG) and 12 fee-for-service (FFS) physicians in one city.
Jaakkimainen et al., 2011		Evaluate differences in performance between FHNs and FHGs and to compare performance before and after physicians joined these new primary care groups.
Jesmin et al., 2012		Evaluate the impact of team-based PHC on available process and outcome indicators of primary care from Canadian patients' perspective.
Kristjansson,et al., 2013		Assess predictors of continuity of care within a large sample of primary care practices in Ontario, Canada. A secondary question assessed whether there was a difference between organizational models of primary care in the continuity of care provided.
Lavoie et al., 2013	Identify and describe key format and process elements used in group medical visits (GMVs) as identified by providers and patients engaged in GMVs, and explain how these key elements link to improved health outcomes.	
Lee et al., 2010	Describe the implementation of an interdisciplinary memory clinic operated within a family health team.	
Lefebvre et al., 2010	Assess participant perception of an integrated model of care for substance abuse in pregnancy in two family medicine groups.	
Levesque et al., 2011		Rate the importance of primary healthcare (PHC) attributes in evaluations of PHC organizational models in Canada
Liddy et al., 2011		Compare the quality of preventive cardiovascular care delivery amongst different primary care models.
Ludwick et al., 2010	Determine if telehealth combined with interdisciplinary team–based care can reduce wait times for dermatologic consultation while making the consultation process easier for physicians.	
Manns et al., 2012	Determine the association between enrolment in primary care networks and the outcome and care of patients with diabetes, using administrative data.	
McCusker et al., 2009		Explore whether organizational characteristics of primary care services provided in the patients' area of residence were related to outcomes of an ED visit (death, hospitalization, return ED visit without hospitalization, visit to the primary physician) among seniors discharged home.

Author	Single model	Compare models
Milliken et al., 2011		Compare the relative productive efficiencies of four models of primary care service delivery using the data envelopment analysis method on 130 primary care practices in Ontario, Canada.
Moe et al., 2010	Describe in detail the design of the Westview Primary Care Network (WPCN) clinical associate (CA) program including its conceptual framework and operational strategies and to share program implementation learning.	
Moore et al., 2012	Describe an interprofessional, integrated geriatric program within a family health team and includes a preliminary evaluation from the perspective of primary care providers and patients. To improve the quality, efficiency, and coordination of care for the frail elderly living in the community and to enhance geriatric and interprofessional skills for providers and learners.	
Muggah et al., 2012		Determine the patient reported access to primary health care services by immigrants who were current users of the primary care system and compare how this differed from the Canadian born population. The second objective was to explore how the organizational model of primary care might impact access to care for immigrants.
Muldoon et al., 2010		Determine which of 4 organizational models of primary care in Ontario were more community-oriented. Community orientation (CO) was assessed from the perspectives of the practices and the providers working in them.
Oelke et al., 2009	Describe the planning and implementation of a community-based model of primary care in the Calgary Rural Primary Care Network (CRPCN).	
Pineault et al., 2011		Examine the extent to which experience of care varies across chronic diseases, and to analyze the relationship of primary health care organizational models with the experience of care reported by patients in different chronic disease situations.
Provost et al., 2010		Measure the association between primary healthcare (PHC) organizational types and patient coverage for clinical preventive services (CPS).
Rodriguez & Pozzebon, 2010	Examine 1st year of implementation of family medicine group with focus on emergence of organizational identity.	
Rondeau. & Bell, 2009	Examine how well primary care networks are succeeding at implementing the components of the chronic care model.	

Author	Single model	Compare models
Russell et al., 2010		Explore does the extent of comprehensive care vary between 4 models; and what practice-level organizational factors are associated with the provision of comprehensive care in PC.
Russell et al., 2009		Assess whether chronic disease management differed between 4 models of primary care in Ontario and what practice-based organizational factors are associated with high-quality chronic disease management.
Schoen et al., 2011		Identify areas of shared concern and opportunities to improve primary care, care coordination, and communication and extent to which having a primary care practice with attributes of a patient-centred medical home influenced the patient's care experience. Survey of patients with complex care needs in 11 countries.
Thind et al., 2008		Determine which physician and practice setting is associated with self-reported provision of preventive care.
Tourigny et al., 2010	Evaluate how a primary care reform (family medicine groups) which aimed to promote interprofessional and interorganizational collaborative practices, affected patients' experiences of the core dimensions of primary care.	
Tracy et al., 2013	Describe IMPACT (Interprofessional Model of Practice for Aging and Complex Treatments) clinic.	
Vedel et al., 2011		Describe the transformation currently underway and the results of recent initiatives in integrated health and social care, more specifically for people with multiple chronic diseases
Wong et al., 2012	Report on whether the Responsive Interdisciplinary Child-Community Health Education and Research (RICHER) initiative is associated with increased: 1) access to health care for children and families with multiple forms of disadvantage and 2) patient-reported empowerment. This study provides the first examination of a model of delivering PHC, using a social paediatrics approach. RICHER is an intersectoral and interdisciplinary community outreach PHC model.	

FFS= Fee-For-Service; HSO= Health Service Organization; CHC= Community Health Centre; FHN= Family Health Network; FHG= Family Health Group.

Table A6. Study characteristics of published primary care frameworks papers

Author	Type of paper	Research design	Purpose/focus of paper	Geographic scope of framework
Browne et al., 2012	Research	Mixed methods ethnographic design	The purpose of this paper is to discuss 1. The key dimensions of equity oriented services to guide primary health care organizations and 2. Strategies for operationalizing equity oriented primary health care services, particularly for marginalized populations	CA
Delon, MacKinnon on behalf of Alberta Health CDM Advisory Committee, 2009	Research	Case study	This paper presents strategies implemented through collaboration through primary care to improve care of individuals with chronic conditions, evaluation evidence support success and lessons learned from the Alberta perspective.	AB
Dufour & Lucy, 2010	Research	Comprehensive literature review, critical appraisal of family health team initiative, gap analysis and practice model development	This paper explores how the World Health Organization's international classification of functioning disability and health could inform the development of a practice model to enable primary health care.	CA
Hogg et al., 2008	Research	Framework development	A conceptual framework for primary care originally developed to guide the measurement of the performance of primary care organizations within the context of a large mixed method evaluation of four types of models of primary care in ON, Canada.	ON
Kates et al., 2012	Invited essay	Framework development and implementation	This paper presents a framework that describes the key elements of high performing primary care and the supports required to attain it.	ON
Levitt et al., 2013	Research	Quality assessment and framework development **The tool was tested, validated and refined using a modified Delphi method*	This article describes and proposes a conceptual framework for categorizing primary care indicators that align with the IOM's 6 aims for quality and healthcare performance (safe, effective, patient-centered, timely, efficient and equitable).	CA
Vedel et al., 2010	Research	Scoping review	The purpose of this article is first to describe the transformation currently underway and the results of recent initiatives in integrated health and social care, more specifically for people with multiple chronic diseases.	QC
Watson et al., 2009	Research	Logic model for primary health care: a conceptual foundation for population-based information systems	This paper describes work conducted in BC since 2003 to create a results-based logic model for primary health care using the approach of the treasury board of Canada in designing management and accountability frameworks together with a literature review policy analysis and broad consultation with ~650 people.	CA

CA= Canada; AB= Alberta; ON= Ontario; QC= Quebec.

Table A7. Study characteristics of grey literature primary care frameworks papers

Author	Source	Geographic scope	Type of paper	Methods	Topic
Aggerwal & Hutchison, 2012	CFHI	CA	Research	Comparative study design between the performance of Canadian primary care to that of the best performers among countries at a level of economic development comparable to Canada.	Canadian and international evidence and experience is examined to paint a clear picture of the features of high-performing primary care. This identifies the gaps in the Canadian primary care system and highlights what needs to be done at the federal, provincial/territorial, regional, local and organizational levels.
Saskatchewan Ministry of Health, 2012	Saskatchewan Ministry of Health	SK	Framework report	Literature review and key informant interviews.	This framework synthesizes the perspectives of more than 400 people (community leaders, patients, providers, policy-makers and managers) to outline their shared vision for a sustainable primary health care system that will provide a superior patient experience and result in an exceptionally healthy Saskatchewan population.

CFHI= Canadian Foundation for Healthcare Improvement; CA= Canada; SK= Saskatchewan.

Table A8. Nursing role activities in published and grey literature primary care delivery models papers

Author	Model	Nursing role activities
Agence de la santé et des services sociaux de Montréal., 2008	Patient management model	Nurse clinician manages cases for complex patients
Bourgeois et al., 2011	H1N1 influenza vaccine delivery in a family practice while preserving regular clinic function.	NPs vaccinate patients.
Campbell et al., 2013	Chronic disease management programs offered in PCN	Nurses working in an expanded role.
Hogg et al., 2009	Community health centre, fee-for-service practices, family health networks and health service organizations	Number of nurses in the practice is independently positively associated with health promotion
Hogg et al., 2009	Nurse practitioners and pharmacists working with family physicians in family health network with focus on patients 50 years of age and older and at risk of adverse health outcomes.	NP developed an individualized care plan in collaboration with the patient and in consultation with the pharmacist and the patient's family physician. Care delivered by phone or patients' homes.
Howard et al., 2009	Interprofessional academic family health team.	Nurse telephone triage to an on-call physician 24/7.
Moe et al., 2010	Westview Primary Care Network (WPCN) clinical associate (CA) program	CA position can be filled by a registered nurse. WPCN provides guidelines for clinics' utilization of nurses.
Moore et al., 2012	Interprofessional, integrated geriatric program within a family health team.	NP role prominent in the program.
Rodriguez & Pozzebon, 2010	Family medicine group	Deliver 24hr front-line services to a rostered clientele.
Russell et al., 2009	Community health centre, fee-for-service practices, family health networks and health service organizations	Presence of NP improved CD management in all models
Tourigny et al., 2010	Family medicine groups	Patient follow-up, health promotion and preventive care offered to patients 24hr/day 7 days/week through regular appointments, walk-in clinics, home visits and telephone hotlines. Nurses provided disease prevention care (40%), follow-up of chronic health problems (33%) and triage or pre-visit activities before physician appointment (27%).

PCN= Primary Care Network; CD= Chronic Disease.

Table A9. Nursing role activities in primary care published and grey literature framework papers

Author	Framework	Nursing role activities
Delon et al., 2009	This paper presents strategies implemented through collaboration through primary care to improve care of individuals with chronic conditions, evaluation evidence support success and lessons learned from the Alberta perspective.	Calgary's chronic disease nursing support is integrated into primary care through co-location directly in family physician practices. Providing patient-centred care, working with the individual to identify real and potential risks at the bio-psycho-social-cultural-spiritual levels, the nurse supports the individual in health behaviour change, providing the knowledge, tools and skills, and facilitating referrals to the multi-disciplinary team, services and programs.
Dufour & Lucy, 2010	This paper explored how the ICF could inform the development of a practice model to enable PHC. Three potential barriers to the envisioned enactment of PHC within the espoused Canadian FHT initiative are identified through a critical gaps analysis; lack of (1) philosophical grounding, (2) developmental and operational directives, and (3) evaluation methods.	Guiding principle #4 of family health teams (FHT) states that team-based care FHTs will be interdisciplinary teams of providers including physicians, nurses, nurse practitioners and other health care professionals.
Saskatchewan Ministry of Health, 2012	The synthesis of 400+ stakeholders' perspectives and vision for a sustainable primary health care system in Saskatchewan was used to create a framework. The framework is the beginning of a province-wide effort to achieve a high performing primary health care system.	Team-based care encourages professionals to work to their full scope of practice while enjoying a better work-life balance. Nurses and nurse practitioners roles include long-term relationship building with patients, cultural competence, common vision and goals, work collaboratively, engage their community, increase accessibility, utilize technology to improve communication, support patient feedback and incorporate evidence into practice.

ICF= International Classification of Functioning; PHC= Primary Healthcare; FHT= Family Health Team

Table A10. Study characteristics of published primary care funding papers

Author	Type of paper	Population examined	Purpose/focus of paper	Geographic scope	Language
Basu & Mandelzys, 2008	Research	NS family physician building data set	This paper examines if there is a significant difference between the average full-time equivalent of family physicians remunerated through fee-for-service, salary, and blended arrangements.	NS	English
Dahrouge et al., 2012	Research	137 primary care practices in ON (35 fee-for-service, 35 salaried physicians (community health centres), 35 practices in the new capitation model (family health networks) and 32 practices in the established capitation model (health services organizations)	The goals of this study were to compare the delivery of preventive services by practices in 4 primary care funding models and to identify organizational factors associated with superior preventive care.	ON	English
Glazier et al., 2009	Research	Urban and rural practice models in ON	This paper evaluates practice characteristics and patterns of care under a blended capitation model and an enhanced fee-for-service model.	ON	English
Hutchison, 2008	Invited essay	Primary health care teams in QC, AB and ON	This essay argues that processes are needed at the regional and provincial levels to collectively engage the full range of key stakeholders in providing policy advice and informing the articulation of clear policy direction for primary health care. Critical areas for investment are highlighted including: integrated health information systems, quality improvement processes, interdisciplinary primary health care teams and group practices, and systematic evaluation of primary health care innovations and ongoing system performance.	QC, AB, ON	English
Jiwani & Fleury, 2011	Policy analysis	QC and ON's health policy	The paper highlights key trajectories and outcomes of the recent policy developments toward integrated health care delivery systems in QC and ON in the primary care centre and in the development of regional networks of health and social services.	ON and QC	English

Author	Type of paper	Population examined	Purpose/focus of paper	Geographic scope	Language
Kaczorowski et al., 2013	Research	232 physicians from 24 primary care network or family health network groups across 110 different sites eligible for pay-for-performance incentives	This study evaluated the effect of the provider and patient reminders in Ontario: Multistrategy Prevention Tools (P-PROMPT) reminder and recall system and pay-for-performance incentives on the delivery rates of cervical and breast cancer screening in primary care practices in ON, with or without deployment of NP	ON	English
Kantarevic et al., 2011	Research	Fee-for-service and family health group funding models in ON	This study examines an enhanced fee-for-service model for primary care physicians in the family health group in ON, Canada in contrast to the traditional fee-for-service model.	ON	English
Kiran et al., 2012	Research	757,928 Ontarians with diabetes	The impact of a diabetes incentive code for primary care physicians in ON, Canada in 2002 on quality of diabetes care at the population and patient level was assessed.	ON	English
Sibley & Glazier, 2012	Research	The study sample was those patients who were enrolled to FHN continuously from Sept. 1 2005 to Aug. 31 2006.	This study assesses the extent to which the current age-sex capitation rates in ON reflect health care needs of patients across socioeconomic status by comparing Ontario's age-sex adjusted capitation remuneration rate index with relevant expected health care resource use by socioeconomic status.	ON	English
Steele et al., 2013	Research	3 groups of patients were included in this study: 1. those psychotic or bipolar diagnoses 2. those with other mental health diagnoses and 3. those with no mental health diagnoses	This study evaluates the extent to which persons with mental illness were included in physician's total practices (as rostered and non-rostered patients) and were included on physician's rosters across types of medical homes in ON.	ON	English
Tu et al., 2009	Research	135 primary care physicians (45 from each of the 3 different models of care)	This study examines primary care physician's screening treatment and control rates for hypertension and whether type of physician payment model affected those rates.	ON	English
Wranik & Durier-Copp, 2011	Funding framework development	N/A	The article brings together the scattered elements of theory and elements into a structured framework that adds practice use value to economic theory, useful in the applied practice of policy development, design, implementation and evaluation.	CA	English

Author	Type of paper	Population examined	Purpose/focus of paper	Geographic scope	Language
Wranik & Durier-Copp, 2010	Research	Canadian family physicians	This study analyzes 27 qualitative interviews with stakeholders in the Canadian health care system to assess the reasons and expectations behind the implementation of salaries and payment models that blend fee-for-service with salary or capitation components payment methods for family physicians as well as the extent to which objectives have been achieved.	CA	English

NS= Nova Scotia; ON= Ontario; QC= Quebec; AB= Alberta; CA= Canada.

Table A11. Study characteristics of grey literature primary care funding papers

Author	Source	Geographic scope	Type of Paper	Methods	Topic
Hurley et al., 2011	CHEPA	Provincial	Research	A before-after design with a concurrent control group (also called a difference-in-difference design).	This paper sought to determine if the performance-based incentive payments for preventive care services (senior flu shots, toddler immunizations, cervical cancer screening, breast cancer screening and colorectal cancer screening) and for defined sets of physician services (obstetrical services, palliative care services, office procedures, prenatal care and home visits) increased the provision of these services in target populations.
Milicic et al., 2013	CFHI	Provincial	Policy analysis	20 merit-reviewed expert syntheses were commissioned and a series of policy and stakeholder dialogues were held to discuss the findings.	To synthesize evidence on cost drivers, options to improve efficiency, extend financing and at the same time to understand and support health system transformation in Canada.

CHEPA= Centre for Health Economics and Policy Analysis; CFHI= Canadian Foundation for Health Improvement

Table A12. Published primary care funding papers: negotiation and impacts

Author	Funding model	Negotiation	Positive impacts	Negative impacts	Unintended impacts
Basu & Mandelzys, 2008	Compares the fee-for-service, salary and blended arrangements.	Some provincial governments and their respective medical associations have negotiated contracts that allow physicians to choose alternative arrangements as opposed to FFS.	FFS leads to greater patient contact than alternative arrangements.	As income is fixed, physicians have reduced incentives to exert effort in their practice. Capitation payment encourages income-maximizing physicians to keep costs below their per capita fee. They may do this by selecting low-risk patients or actively discouraging high-risk patients unless the fee is adjusted upwards.	There is no consensus as to the necessity of extra services provided.
Dahrouge et al., 2012	Compared the delivery of preventive services by practices in the 4 funding models (FFS, salaried, new capitation model and established capitation model)	This study is part of a larger evaluation of primary care models in Ontario funded by MOHLTC.	Organizational factors are associated with superior preventive care across the funding models (size of practice, having a female physician and an electronic reminder system).	Busier practices had lower overall prevention scores than practices with smaller patient loads.	This study found that no model was associated with superior preventive care. Findings raise questions about reform initiatives but they support the adoption of information technology.
Glazier et al., 2009	This paper compared the capitation or enhanced FFS physician remuneration against a long list of characteristics such as roster size, patient enrolment, and hours.	Physicians are free to select one of the models or remain in the straight fee-for-service plan	Patients in capitation practices had lower morbidity and comorbidity indices.	Both models were skewed toward patients with higher incomes and comparable in terms of comprehensiveness and continuity of care.	Physicians enrolled in the capitation model had different practice characteristics than those in the enhanced FFS model (pre-existing characteristics)
Hurley et al., 2011	Difference-in-difference design to determine whether performance-based incentives for physicians have improved preventive care services.	Performance incentives for physicians in FHN, FHG, CCM and FHOs vs. fee-for-service	Performance incentives were effective in increasing the provision of preventive care services (senior flu shot, Pap smear, mammogram and colorectal cancer screening)	Performance incentives were not effective for targeted baskets of services.	Fee-for-service physicians were not eligible for performance incentives during the study period
Hutchison, 2008	Describes a variety of funding methods: FFS, capitation, salary,	Choice of payment method and the growth of	Canadian primary healthcare has leapt forward in the last several years and is still gathering	When other team members contribute to the achievement of performance targets but the financial incentive	FFS physicians usually have no contractual obligations to provide any defined set of

Author	Funding model	Negotiation	Positive impacts	Negative impacts	Unintended impacts
	sessional payments, FFS, infrastructure funding, targeted payments for particular services and blended payments options.	blended payment methods.	momentum. Positive funding impacts not discussed as this paper focused on identifying gaps and addressing limitations.	accrues to the physician, team morale and function may be damaged.	services and are accountable only for having provided the service for which they bill the health insurance plan.
Jiwani & Fleury, 2011	Ontario's family health teams constitutes and innovative public funding for private delivery model.	The public funding for private delivery model is set up to enhance the capacity of primary care and to facilitate patient-based care.	Contextual factors combined with increased and varied forms of physician remunerations and incentives mitigated some of the challenges from policy legacies, interests and cultures.	Despite common policy legacies, both QC and ON have different trajectories and divergent implementation of integrated health care delivery systems.	Integration strategies in QC and ON yield clinical autonomy and power to physicians while simultaneously making them key partners in change.
Kaczorowski et al., 2013	Pay-for-performance incentives.	Not described.	Pay-for-performance incentives resulted in significant increases in the uptake of Pap tests and mammograms among eligible primary care patients over a 1-yr period in SW Ontario	This project involved a combined intervention using both bonus incentives and reminder letter. It is not possible to separate the effects of the bonus incentives from those of the reminder letters on increases in mammogram and Pap test rates.	Financial incentives were usually combined with other quality improvement measures, the specific effect of financial incentives on quality improvement was not clear.
Kantarevic et al., 2011	Enhanced fee-for-service (FFS) funding model in the family health groups (FHG) compared to the traditional FFS funding model.	Not specified.	FHG physicians have lower referral rates and treat slightly more complex patients than the comparable FFS physicians. FHG model significantly increases physician productivity relative to the FFS model as measured by the number of services, patient visits and distinct patients seen.	Incentives targeted to improve the quality of care may actually reduce the quantity of care depending on the relative strength of income and substitution effects.	Physician productivity can improve despite significant pay increases in the new payment models. FHG models offer a promising alternative to the FFS model for increasing physician productivity.
Kiran et al., 2012	The impact of the diabetes incentive code for primary care physicians in Ontario was assessed.	In 2002, the government in Ontario introduced a new fee code for primary care physicians to encourage regular, comprehensive management of diabetic patients. This code could	Patients with higher numbers of incentive code billings were more likely to receive recommended testing (but also were more likely to have received the highest level of recommended testing prior to introduction of the incentive code).	Individuals who were younger, lived in rural areas, were not enrolled in a primary care model, or had a mental illness were less likely to receive all 3 recommended diabetes tests.	Improvement in recommended testing was no greater after billing of the first incentive code than before. Physicians who provide the highest quality care prior to incentives may be those

Author	Funding model	Negotiation	Positive impacts	Negative impacts	Unintended impacts
		be billed to a maximum of 3 times/year per patient at $37/visit.			most likely to claim incentive payments.
Milicic et al., 2013	N/A Literature review to synthesize evidence on cost drivers, options to improve efficiency, extend financing and at the same time to understand and support health system transformation in Canada.	N/A	The analysis from this report can be used as one input into the decision-making process in selecting appropriate policy options when a policy window opens at the appropriate level of decision-making.	N/A	Canada is not the only country struggling to advance transformative health system objectives.
Sibley & Glazier, 2012	Age-sex adjusted capitation remuneration used in family health networks in Ontario.	N/A	Among those in the lowest income group, expected utilization was much higher than the age-sex capitation rates.	Among those in the highest income group, expected utilization was much lower than the age-sex capitation rates.	This is a potential for systematic inequities in capitation based payment models (inequities in physician compensation where physicians who care for a disproportionately high number of very sick patients are not adequately reimbursed or inequities in patient access where healthier patients are selective enrolled).
Steele et al., 2013	Compared enhanced FFS practices with team-based blended capitation practices.	N/A This paper evaluated the extent to which persons with mental illness were included in physicians' total practices and on rosters.	Physicians in enhanced FFS practices were more likely to roster patients with mental health diagnoses.	Compared with expected proportions, practices with both capitation models were significantly less likely than enhanced FFS practices to roster patients with psychosis or bipolar disorder.	Persons with mental illness were under-represented in the rosters of Ontario's capitation-based medical homes.
Tu et al., 2009	Compared fee-for-service, primary care network (paid by	Not specified.	Capitation physicians have the best treatment and control rates for hypertension.	Nurses and NPs were not as available to FFS physicians.	The incentive for FFS physicians is to provide more patient visits. The incentive

Author	Funding model	Negotiation	Positive impacts	Negative impacts	Unintended impacts
	capitation) and community health centre (paid salaries with benefits) physicians.				for capitation physicians is to have healthy patients who are less likely to require visits and providing less unnecessarily care. Salaried physicians have no financial incentives to work more hours or see more patients. Physicians in FFS practice reported the highest average weekly work hours (46.1), CHC physicians worked the fewest hours (39.3).
Wranik & Durier-Copp, 2011	This article examines: FFS, capitation, salaries and blended payment models.	The design of physician remuneration methods is applied to the Canadian context.	FFS payments are best when the goals are quantity of care and risk acceptance. Capitation is best when the goals are collaboration between providers and delivery of preventive services and health promotion. Salaries are best when population density is low and the goal is to recruit physicians to rural and remote areas. Blended payment models are recommended for the achievement of multiple goals.	Financial incentive affect physician's choice with respect to the quantity and type of care delivered (e.g. preventive, collaborative) and the type of patient accepted (e.g. risky, chronic).	Optimal choice of PRM depends on the goals of the health care system and on external contextual factors.
Wranik & Durier-Copp, 2010	Fee-for-service with blended salary or capitation components.	Salaries offered in Canada are fixed lump sum payments negotiated on an annual basis.	Salaries have had some positive effect on recruitment and retention.	Canadian physicians under the FFS system are reluctant to delegate tasks and to collaborate with other providers.	Patient rostering has created an administrative burden without being able to prevent patients from switching physicians.

FFS= Fee-For-Service; MOHLTC= Ontario Ministry of Health and Long-Term Care; FHN= Family Health Network; FHG= Family Health Group; CCM= Comprehensive Care Model; FHO= Family Health Organization; QC= Quebec; ON= Ontario; CHC= Community Health Centre.

Table A13. Characteristics of published papers of primary care models in Aboriginal or rural/remote communities

Author	Type of paper	Population examined	Purpose/focus of paper	Geographic scope	Language
Lavoie et al., 2010	Research	All Manitoba residents eligible under the universal Manitoba Health Services Insurance Plan and living on First Nation reserves between 1984/85 and 2004/05	This study documents the relationship between local access to primary health care, measures of community control and the rates of hospitalization for ambulatory care sensitive conditions (ACSC) in First Nations living on reserve, in the province of Manitoba, Canada.	MB	English
Pylypchuk et al., 2007	Research	Northern Saskatchewan First Nations population with diabetes (review documented history and conducted interviews with all provider and many participants)	To review the Diabetes Risk Evaluation and Microalbuminuria (DREAM) studies and the role of participatory research using a home and community care model in treating First Nations diabetes.	SK	English
Tarlier & Browne, 2011	Research	First Nations communities in BC, Canada.	Using a critical social justice lens, this article explores the clinical and ethical implications of Remote Nursing Certified Practice (RNCP) in terms of access to equitable, high-quality primary health care. This article also examines the fit between the level and scope of health services provided by registered nurses working under RNCP and the health needs of remote First Nations communities.	BC	French and English

MB= Manitoba; SK= Saskatchewan; BC= British Columbia.

Table A14. Study characteristics of grey literature papers on primary care models in Aboriginal or rural/remote communities

Year of Publication	Source	Geographic Scope	Type of Paper	Methods	Topic
2012	Aboriginal Healthy Living Branch, BC Ministry	Provincial	Progress report	Conducting interviews.	Bringing birth back into the hands of Aboriginal women through The Aboriginal Doula Initiative. This initiative aims to overcome barriers that pregnant mothers may experience such as access to prenatal care. This report also describes the work being done by the First Nations Health Authority to improve school nutrition programs in First Nations schools in BC to give kids nutritional education and a healthy start during classroom hours. Finally, this reports on their initiative to successfully build mental health awareness by mixing traditional and western approaches.
Unknown	Regional Health Authority	Provincial	Summary report	None specified.	To raise awareness within the mental health care system among service provides and within the five Maliseet communities in an effort to create a respectful and collaborative approach to addressing the mental health needs of the Maliseet nation.

BC= British Columbia; NB= New Brunswick.

Table A15. Published and grey literature papers: models that promote care coordination and innovation in Aboriginal communities

Author	Purpose/model involved	Activities that promote care coordination/innovation
Personal Communication from L. Ashley, 2014	To raise awareness within the mental health care system among service provides and within the five Maliseet communities in an effort to create a respectful and collaborative approach to addressing the mental health needs of the Maliseet nation.	This project brings the five Maliseet communities together to work with the regional health authority which is unprecedented. In addition, a parallel process evolved from this Maliseet community collaboration on culturally appropriate crisis management training.
Lavoie et al., 2010	The generalized estimated equating (GEE) model was used to understand the relationship between local access to primary health care, measures of community control and the rates of hospitalization for ambulatory care sensitive conditions (ACSC) in First Nations living on reserve, in the province of Manitoba, Canada.	Using nurses promotes care coordination. Access to primary health care provided by nurses working with an expanded scope of practice is effective in meeting community health care needs. Rates of hospitalization are lower in communities served by a nursing station.
Macdonald, 2012	1. Through regionally-based training sessions, the Aboriginal Doula training program is a culture-based prenatal outreach and support program aimed at overcoming barriers that pregnant mothers may experience. 2. The BC school fruit and vegetable nutrition program increases: awareness of the health benefits of fruits and vegetables, awareness of the safe handling practices of fresh fruits and vegetables, and the consumption of local fruits and vegetables for youth in school. 3. A traditional, spiritual and community-driven approach to mental illness improves substance abuse, family breakdowns, self-esteem and depression in First Nation population.	1. An evaluation framework has been developed with the goal of creating a long-term model for Aboriginal Doula services in BC. The ultimate outcome for these Doulas would be if they continue into health careers such as nursing, doctors or midwifery. 2. Through a network of over 4000 volunteers and partners, BC-grown fresh fruit and vegetable snacks are provided every other week to nearly 380,000 students in 56 First Nations schools. 3. Each year there has been increased support for the project, increased attendance at events, and very positive changes related to addictions and unhealthy behaviours.
Pylypchuk et al., 2007	This study reviews the Diabetes Risk Evaluation and Microalbuminuria (DREAM) studies and the role of participatory research using a home and community care model in treating First Nations diabetes.	Home and community care teams that work together with primary care physicians and specialist in First Nations communities can help prevent the complications of diabetes. Furthermore, a chronic-disease management model utilizing a trained multidisciplinary home and community care team and informed patients can lead to lower blood pressure in Canadian First Nations with diabetes.
Tarlier & Browne, 2011	Using a critical social justice lens, this article explores the clinical and ethical implications of Remote Nursing Certified Practice (RNCP) in terms of access to equitable, high-quality primary health care. This article also examines the fit between the level and scope of health services provided by registered nurses working under RNCP and the health needs of remote First Nations communities.	N/A this is a scoping review that summarizes the history of remote nurses. It identifies gaps in the current primary health care system without discussing care coordination activities.

BC= British Columbia.

Table A16. Characteristics of papers about nursing roles in primary care

Author	Type of paper	Research design	Methods	Geographic scope	Language	Participants
Akeroyd et al., 2009	Research	Qualitative Descriptive	Interviews	National	English	Interdisciplinary healthcare team members
Allard et al., 2010	Research	Quantitative	Cross-sectional survey	National	English	Physicians and nurses
Banner et al., 2010	Review		Scoping review	International	English	
Benhaberou-Brun, 2012	Essay		Summarizes a conference presentation	Quebec	French	
Bourgueil et al., 2008	Essay		Policy analysis	International	French	
Chin et al., 2011	Review		Literature review	International	English	
Courtenay & Carey, 2008	Review		Literature review	International	English	
D'Amour et al., 2008	Research	Case Study	Interviews	Quebec	French	Nurses and physicians
Forchuk & Kohr, 2009	Essay		Examines prescriptive authority for nurses	National	English	
Jaimet, 2012	Essay		Examines nursing roles and primary healthcare reform	New Brunswick	English	
Keleher et al., 2009	Review		Systematic review	International	English	
*Kulig et al., 2009	Research	Quantitative	Cross-sectional survey	National	English	Nurses
Laflamme, 2010	Essay		Position paper	Quebec	French	
Leahey & Svarsdottir, 2009	Essay		Discusses knowledge translation in family nursing	Alberta	English	
Levine et al., 2012	Research	Quantitative	Retrospective cohort	Alberta	English	Patient medical records
*MacLeod et al., 2008	Research	Qualitative	Interviews	National	English	Nurses
*Martin-Misener et al., 2008	Research	Qualitative	Interviews	National	English	Nurses
Moaveni et al., 2010	Research	Qualitative	Delphi	Ontario	English	Expert stakeholders
Oandasan et al., 2010	Research	Case study	Interviews and focus groups	National	English	Nurses
Paterson et al., 2009	Research	Qualitative Interpretative	Interviews	New Brunswick	English	Patients, volunteers, staff, nursing and social work students

Author	Type of paper	Research design	Methods	Geographic scope	Language	Participants
Sevean et al., 2008	Research	Qualitative	Interviews	Ontario	English	Patients and families
*Stewart et al., 2011	Research	Quantitative	Cross-sectional survey	National	English	Nurses
Wong et al., 2009	Research	Quantitative	Analysis of administrative data	British Columbia	English	RN registration data

CA= Canada; AB= Alberta; NB= New Brunswick; ON= Ontario; QC=Quebec. *A cluster of papers examining different results from on large study.

*A cluster of papers examining different results from a large study.

Table A17. Purpose or focus of papers about nursing roles in primary care

Author	Describe nursing roles	Nurse-led care	Aboriginal and rural/remote communities	Scope of practice
Akeroyd et al., 2009	Identify perceptions of the RN nurse role in urban academic family practice settings			
Allard et al., 2010	Explore the nursing role in family practice residency training programs			
Banner et al., 2010			Examine the transition of nursing roles in PHC in rural/remote settings	
Benhaberou-Brun, 2012	Describe the role and impact of nurses in PC in Quebec			
Bourgueil et al., 2008	Describe nursing roles and competencies in different healthcare systems			
Chin et al., 2011		The quality of care of nurse-led and allied provider-led PC clinics.		
Courtenay & Carey, 2008		Examine effectiveness of nurse-led care in acute/chronic pain		
D'Amour et al., 2008	Describe nursing practice development in FMGs			
Forchuk & Kohr, 2009				Examine RN prescriptive authority
Jaimet, 2012				Describe expansion of RN roles for PHC reform
Keleher et al., 2009		Compare PC nurse to physician care on patient health outcomes		
*Kulig et al., 2009			Examine job satisfaction, community satisfaction and community attachment in rural/remote nurses	
Laflamme, 2010	Describes an RN and CNS role in providing mental health services in PC			

Author	Describe nursing roles	Nurse-led care	Aboriginal and rural/remote communities	Scope of practice
Leahey, 2009	Describe knowledge translation in family nursing and mental health care in a CHC			
Levine et al., 2012		Evaluate RN-led versus physician INR monitoring for patients on warfarin		
*MacLeod et al., 2008			Examine advice on how to support nurse retention in rural/ remote communities	
*Martin-Misener et al., 2008			Examine outpost nurses' advice on providing PHC in remote communities	
Moaveni et al., 2010	Clarify/delineate the roles and competencies of family practice RNs			
Oandasan et al., 2010	Provide a picture of the unique role and competencies of family practice RNs			
Paterson et al., 2009	Examine how nurses' roles evolved in a university nurse-managed clinic.			
Sevean et al., 2008			Explore patient/family experiences with nurses and video telehealth consultations	
*Stewart et al., 2011			Explore predictors of intent to leave a nursing position in rural/remote settings.	
Wong et al., 2009	Describe the population and geographic distribution of RNs in PHC in BC			

BC= British Columbia; CHC= Community Health Centre; FMGs= Family Medicine Groups; INR= International Normalized Ratio; PC= Primary Care; PHC= Primary Healthcare Reform; RN= Registered Nurse.

Table A18. Characteristics of grey literature sources of nursing roles

Author	Source	Geographic scope	Type of paper	Methods	Topic
Besner et al., 2011	Alberta Health Services	Provincial	Research report	Interviews, surveys, ethnographic notes, review of health service utilization data	Optimizing the practice of registered nurses in the context of an interprofessional team in primary care
Browne et al., 2012	CHSRF and CNA	National	Commissioned research report	Literature review of high quality systematic reviews and studies of nursing interventions	Effect of models of nursing care on patient and health system outcomes related to chronic disease management, home care, community care, primary care and mental health settings
DiCenso & Bryant-Lukosius, 2011	CHSRF	National	Funded research report	Scoping review, key informant and focus group interviews	Clinical nurse specialists and nurse practitioners in Canada
HCC, 2012	HCC	National	Policy report	Not described	Self-management support for Canadian with chronic health conditions. A focus for primary healthcare
Jacobson, 2012	CHSRF	National	Commissioned report	Literature review and synthesis	Evidence synthesis for the effectiveness of interprofessional teams involving nurses or nurse-led in primary care
NBHC, 2010	NBHC	Provincial	Policy report	Citizen engagement initiative	Our health. Our Perspectives. Our solutions. Results of our first engagement initiatives with New Brunswick citizens
RNAO, 2012a	RNAO	Provincial	Policy report	Literature review, human resource analysis, role inventory	Primary solutions for primary care. Expanding the role of the primary care nurse in Ontario
RNAO, 2012b	RNAO	Provincial	White paper policy report	Not described	ECCO: Enhancing community care for Ontarians - A three year plan.
Virani, 2012	CHSRF and CNA	National	Commissioned research report	Scoping review	Interprofessional collaborative models of care that include a substantive role for nurses in primary healthcare

CHSRF= Canadian Health Services Research Foundation; CAN= Canadian Nurses Association; HCC= Health Council of Canada; NBHC= New Brunswick Health Council; RNAO= Registered Nurses Association of Ontario; CA= Canada; ON= Ontario; NB= New Brunswick; AB= Alberta.

Table A19. Dimensions of the registered nurse role in primary care/family practice (FP)

Source	Role dimensions
Role description Canadian Family Practice Nurses Association (n.d)	**Health assessment:** Each interaction with a patient offers an opportunity to complete a comprehensive assessment of the presenting problem as well as a complete assessment of the health status, risks and opportunities that can affect long-term health. This may be completed during one visit or over a series of visits depending on the circumstances and should be updated in the patient's record on a regular basis. **Healthcare management and therapeutic interventions:** The RN provides care and management for patients with a wide range of health issues. As an integral member of the health team, RNs provide care for complex patients and those that require extra time and attention to develop a plan of care. **Health education:** The RN provides education that is responsive to the needs of the patient to optimize health, enhance understanding of health status, and engage the patient in managing their own health while anticipating challenges and barriers. **Health promotion and prevention of illness, injury and complications:** Screening and monitoring is completed to ensure early identification of health issues and complications associated with chronic or communicable diseases. The RN can play a key role in the prevention of illness and promotion of health by ensuring screening mechanisms are in place and patient-management of health is encouraged. **Professional role and responsibility:** The RN works in an ever-changing environment and, as such, invests considerable time in maintaining their professional expertise and maintaining a strong evidence-based approach. The RN acquires and maintains a comprehensive understanding of health and social services as well as referral processes, including diagnostic services, specialists, hospital care, rehabilitation and support programs, educational programs, and community-based health agencies. They are also involved in many initiatives aimed at improving the health-care practice, identifying risk and safety issues and facilitating resolution. They are strong and visible role models for their profession.
Role description RNAO (2012a)	1. Assessment; 2. Program management; 3. Documentation; 4. Quality improvement; 5. Treatment 6. Patient self-management; 7. Management/administration; 8. Planning; 9. Education; 10. Advocacy 11. Collaboration; 12. Knowledge; 13. Professional commitment
Competency framework Moaveni et al. (2010)	**Professional:** The FP RN is a highly skilled healthcare professional dedicated to the delivery of patient/client-centred care. The nurse demonstrates integrity and leadership; advocates for patient/clients in collaboration with them, their families and other healthcare professionals; and assumes responsibility for her/his role within the family practice setting. **Expert:** The FP RN articulates and applies the specific knowledge, skills and attitudes required for nursing in family practice. The nurse is a critical thinker and an effective decision-maker in all domains of primary healthcare (i.e., prevention, promotion, rehabilitation, curative and supportive). **Communicator:** The FP RN skilfully uses verbal and non-verbal methods of communication to develop and maintain effective and trusting relationships with patients/clients, families and other healthcare providers. **Synergistic:** The FP RN establishes, maintains and promotes effective collaborative relationships. The nurse connects patients/clients, and their families with healthcare providers and community partners to enhanced patient/client-centred care. **Health educator:** The FP RN educates patient/clients in the prevention and treatment of illness, and the promotion and maintenance of health and well-being. The nurse effectively shares information in a way that is understood by patients/clients, empowering them to achieve their health goals. **Lifelong learner:** The family practice RN is a reflective, proactive, lifelong learner who actively pursues opportunities to enhance knowledge, skills and attitudes. The nurse recognizes that family practice is an evolving discipline and continuous learning is necessary to maintain competence.

FP= Family Practice; RN= Registered Nurse.

Table A20. Structural barriers and facilitators to optimization of nursing roles in primary care

Level	Barrier	Facilitator
Individual	Lack of knowledge and/or skills for the role • challenge of taking on full scope of the role Lack of experience for the role Lack of understanding of scope of practice	Education and training for the role Experience for the role Personal qualities and attributes • passion for healthy living and preventing illness • perseverance in meeting patient/family health/social needs • recognize personal limitations • motivated to expand their knowledge, skills and roles • willingness to work weekends • lifestyle preferences Skills for integrating and applying technology in practice
Organization	Physicians as nurse employers Lack of role clarity Nurse isolation Lack of policies to support nursing role and team work • no job description	Creating space and responsive resources • adequate examination room and space • clerical/office support • sufficient staff for holiday relief coverage to ensure continuity of care and job satisfaction • adequate orientation for new hires • flexible team leadership • funding for nurse-led pilot projects Mechanisms to support interdisciplinary collaborative practice • policies and procedures to support teamwork • supportive work culture • location of services with proximity to primary care providers, allowing doctors and other health professionals to work together • access to interprofessional distance and continuing education
Health system	Scope of practice • understanding nursing scope of practice • legislative restrictions to scope of practice Access to relevant education programs Funding and funding models	Population health needs Nursing education • entry-level and continuing education relevant to nurses in rural/remote settings Careful role planning and development to support implementation Health care policies to support interprofessional collaboration

Table A21. Process barriers and facilitators to optimization of nursing roles in primary care

Level	Barrier	Facilitator
Individual	Confidence in carrying out primary care nursing role	Adherence to evidence-based guidelines or clinical protocols Avoiding burnout Confidence and competence in carrying out primary care nurse role Ability to access additional resources
Organization	Physician views of generalist practice Lack of administrator and physician support	Patient screening, recruitment and referral processes Clinical nursing leadership Factors contributing to nurse job satisfaction • provision of comprehensive patient care, feeling valued as a team member, hours of work, broad scope of clinical practice, role independence, educating residents Implementing and sustaining family nursing knowledge • champions, team ownership of practice framework, vision, continuity of management support, supervision/consultation Recruiting and supporting nurses in rural/remote settings • effectively recruit and remunerate fairly • consider quality of life in policy and resource decisions • be more available and listen/respond to nurse concerns
Health system	Lack of public awareness of the role Social, political and economic factors	Role support from physicians and their professional associations Education of the public about the nursing role Systematic approaches to role planning Community engagement

Table A22. Barriers and facilitators to achieving expected nursing role outcomes in primary care

Outcome	Barrier	Facilitator
Continuity of care	1. Human resources • staff coverage, staff turnover • meeting generalist and specialized care needs	1. Collaborative interprofessional care 2. Nurse-led care 3. Human resources 4. Video teleconference consultations 5. Consistency of provider
Staff mix	1. Human resources • current role activities and capacity to take on additional responsibilities • shortages of providers	1. Interprofessional team approach to care • training and skills • long-distance team work • maximizing skill sets
Professional development	1. Availability and access to continuing education 2. Lack of role clarity 3. Isolation	1. Systematic role planning and implementation 2. Personal qualities
Quality practice environments	1. Resources • funding, human resources, equipment, support for education 2. Role clarity 3. Lack of culturally relevant evidence-based practices	1. Electronic medical health records 2. Interprofessional team 3. Supportive practice environment 4. Quality improvement initiatives 5. Evidence-based practice 6. Community collaboration
Intra- and inter-professional collaboration	1. Role confusion 2. Lack of formal linkages	1. Mechanisms to support collaboration 2. Integrated care 3. Funding models
Use of technologies	1. Quality of technology and training	1. Electronic medical health records 2. Telephone consultations 3. Video telehealth consultations 4. Evidence-based care
Enhanced scope of practice	1. Policies and legislation 2. Employer	1. Medical directives 2. RN prescribing

Table A23. Grey literature paper recommendations for optimizing nursing roles in primary care

Author	RNs	APNs	Team-based models	Nurse-led models	Other models	Technology	Chronic disease management	Areas for role expansion/use
DiCenso & Bryant-Lukosius, 2010		The full contribution of APNs has yet to be realized. Opportunity exists to more clearly define roles, improve integration, and maximize APN roles for improving access and quality of care, and patient and health system outcomes.	The strong emphasis on IP collaboration increases the complexity of coordinating care delivery and ensuring that health-care team members are deployed in an efficient and effective manner to maximize patient health. This requires a strong awareness of health-care team member roles and a coordinated health human resources strategy to ensure the right mix of providers for specific setting and community/patient needs.			Inadequate resources to support the APN role (e.g., communication technology) have been frequently reported.	The healthcare system faces enormous challenges. These include an aging population and a high incidence of chronic illnesses including cancer, heart disease, diabetes, mental health problems and arthritis.	There are many patients without primary care providers.
NBHC, 2010			Expand the roles, responsibilities and decision-making power of nurses and allied health profess-sionals to alleviate the pressure on physicians and allow them to spend more time with patients. Do a better job of integrating other health professionals (e.g., dietitians, paramedics)		Make community health centres and clinics the centrepiece of PC to reduce the burden on hospitals and facilitate access, particularly in rural areas.		Pharmacy teams could include nurses playing various roles (checking blood pressures, CDM, public health information, etc.).	

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			into multidisciplinary health teams.					
Besner et al., 2011	RNs and LPNs	NPs	Alberta PCNs. The importance of clarifying roles when IP team models of care are introduced in new settings was identified. There was no consensus on the role nurses should play in the PCN.				CDM was the dominant focus of nursing practice in PCNs.	Expand RNs role beyond the care of individual patients to address the needs of population subgroups serviced by the PCN. The RNs felt their education pre-pared them to assume a greater role in promoting population health. Provide a more holistic, health oriented compre-hensive assess-ment of patient health needs beyond a disease oriented approach. Provide a patient-centred collabora-tive approach to program planning and delivery.
Browne et al., 2012	X	X	Team-based care is the most effective kind of care if properly structured, governed, financed, and supported with ongoing education for protocol development	We have had a physician-led model of healthcare for several centuries and an insured physician led model for the past 50 years that has focused on episodic acute		Home telehealth Tele-monitoring Electronic health records	Proactive, targeted nurse led care that focuses on preventive patient self-management for people with chronic illness.	People with types 1 and 2 diabetes mellitus People with common depress-sion and/or anxiety problems Asthma

Author	RNs	APNs	Team-based models	Nurse-led models	Other models	Technology	Chronic disease management	Areas for role expansion/use
			and team collaboration as well as incentives for achieving targeted patient outcomes and reduced resource consumption. Team-based care is cost-efficient because it is either only equally costly or less costly than usual care.	care. In the current context of people with multiple chronic conditions, it is time to test the value of a nurse-led proactive, targeted model of comprehensive chronic care, with a physician as one member of a team where all are doing what they do best and the nurse is enlisting all the health and social services that can augment the determinants of a person's health. Nurse-led models of care (especially supplemental models) that are proactive, compre-hensive, coordinated and targeted to address determi-nants of health, either alone or as part of an inter-disciplinary team. Community based, nurse led models of care with an interdisciplinary team that includes the primary care physician. Such complex intervention			A nurse leader to identify risk factors for deterioration and hospitalization for the patient with chronic illness. Assessment and monitoring should be proactive, rather than reactive or on demand. The nurse leader can collaborate with other providers and caregivers to develop/ implement a patient-centred plan of care, including end-of-life care. The plan would clarify the roles of involved team members along with types and schedules of monitoring and clear lines of communication.	From Keleher (2009): Incontinence, Parkinson's disease, non-emergent conditions, bronchiectasis, dystonia, falls, excessive drinking

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				requires specially trained or APNs who supplement the care provided by physicians and other healthcare providers. The proactive, comprehensive, coordinated model of community care is patient and family centred, targeted at community-dwelling individuals with complex chronic conditions and social circumstances.				
HCC, 2012	X	X	Team-based care allows for efficient and innovative approaches to SMS	Nurse-led group self-management program. Nurse-led follow-up by phone, face-to-face, or check-in visit may help to ease physician time pressures and provide optimal SMS.		Telephone programs providing proactive follow-up by a nurse to provided education, action planning, ongoing monitoring and SMS.	Patient education may be provided one-to-one by a nurses who works with a family doctor. Group visits led by a physician or an APN and may include a nurse, social worker, pharmacist, or mental health. professional. Coaching and support by nurses to assess barriers, provide education and skill building,	

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							and support change. Case manager or care coordinator for patients with multiple chronic conditions.	
Jacobson, 2012	X	X	CDM requires more than just physicians to help patients manage their disease. IP team care should be the mode of choice, with a strong emphasis on the increased use of nursing resources in more responsible roles. Patient-oriented payment methods such as capitation and blended payment models are more appropriate to the optimal use of nursing resources in IP teams.	A shift in emphasis to nurse-led IP teams can increase capacity at relatively lower cost than other alternatives if appropriate payment levels and modalities, as well as institutional settings, are available. IP models, including nurse-led teams, can improve quality, patient satisfaction, access and equity. Such gains, appropriately valued, should offset the added resource costs associated with service expansion. Access to care in rural and remote areas and to other underserviced populations can be facilitated with nurse-led teams.			The enhanced use of nursing resources can improve patient contact, educa-tion and CDM. The role for nursing is particu-larly clear in CDM in PC, because of the greater need for patient involvement and activation.	
RNAO, 2012a	Identifies the highest level of RN and RPN scope of		The task force focused on the role of both RNs and RPNs to		System naviga-tion and care coordination,		Management of chronic illnesses where nurses have	Identification and treatment of otitis media or an infec-

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	practice utilization already present in selected PC settings in Ontario. Recommends an upward harmonization of scope of practice utilization for all PC nurses, across all sites in Ontario. Identified needed expansions to the scope of practice of the PC RN and RPN that would serve to further improve access to PC for the public. Recommendations focus on mechanisms required to achieve the proposed scope of practice expansions.		provide differential role clarity in primary care and optimize both roles within patient-centred interprofessional teams, while strengthening continuity of care.		especially for seniors who are living with multiple chronic health conditions. PC RNs are best situated with the clinical background and system knowledge, to support Ontarians and co-ordinate with patients through all transitions from "womb to tomb."		developed long-term therapeutic relationships with patients.	tion of the throat as common encounters in PC. Initiation and maintenance of a contraception program, which would involve prescribing birth control pills to patients. Many public health nurses have assumed this function through delegation and medical directives. Authorize RNs to initiate, renew, dispense, compound and sell medication to prevent or treat health conditions, chronic disease and episodic illness according to the RN's level of competence, knowledge, and skills. Care co-ordination is a role function that belongs fully within PC. Given the rich supply of PC RNs and the need for full human resource utilization, care coordination is a natural fit to the

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								evolving role of the PC RN.
RNAO, 2012b	x	x	PC RNs must take a lead role in the care co-ordination and system navigation process, in collaboration with other PC providers within the IP team.		Primary care is the foundation of the ECCO model which recommends transition of 3,500 case managers in CCACs to IP PC models. These RN case managers will deliver expert care co-ordination and system navigation for the 10% of Ontario's population that requires nearly 80% of health-care resources. The existing 2,873 RNs practising in PC along with the remaining 500 CCAC case managers other PC providers will provide the same services to the balance (90%) of the population with less complex health and social needs.		PC based, RN-led care co-ordination for patients with multiple chronic conditions and complex care needs is well supported within the scientific literature	PC case manager will: - identify the profile of high-risk and complex populations - attach the population to the PC organization(s) - develop a comprehensive care management plan - review social and environmental determinants of health, ensure appropriate referrals, provide interventions - monitor/ evaluate health status and effectiveness of interventions - collaborate with the hospital discharge planner - support safe and timely discharge from hospital to home or other location - make referrals for home health-care

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					ECCO is similar to the PC based "guided care" model developed in the USA to improve the quality of care for co-morbid clients.			and support services - work with individuals and families to identify and secure optimal long-term care home placement - manage PC needs in collaboration with IP team, - facilitate same-day access. The PC RN coordinator will be the link between the client, PC and specialty care practices.
Virani (2012)	X	X	There is an array of IP collaborative care models in PC with an essential role for nurses. 1. Study further the models of care identified in this scoping review. 2. Be open to the plurality of PHC models, at least in the short run. Supporting diverse models of care is a good thing. 3. Develop a pan-Canadian strategy		Five types of IP care models with a substantive role for nurses were found in the published and grey literature: IP team; nurse-led; case management; patient navigation; shared care. Choosing the right model is context dependent. More research is needed to iden-		Positive evidence of IP team models is building, particularly for patients with chronic diseases and/or mental health needs. Case management models are often embedded in IP models and tend to focus on complex or high-resource groups such as patients with chronic conditions.	

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			to integrate RNs and NPs in PC *models* of care. 4. Promote the use of evidence-based implementation of models of care using the PEPPA framework. 5. Support nurses to implement innovative models of care in PC.		tify the essential components of the 5 models; but since context matters, implementation of innovative models of care should be encouraged, accompanied by rigorous evaluation		Navigation models are being used with patients suspected as having, or who have been diagnosed with, cancer, and patients who have chronic diseases.	

APNs= Advanced Practice Nurses; CCAC=Community Care Access Center; CDM= Chronic Disease Management; IP= Interprofessional; LPN= Licensed Practical Nurse; NP= Nurse Practitioner; PC= Primary Care; PHC= Primary Healthcare; PCN= Primary Care Network; RNs-Registered Nurses; SMS= Self-Management Support.

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