Nursing Within Primary Care Settings in Atlantic Canada: A Scoping Review

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Abstract
To address the prevalence of chronic diseases in Newfoundland and Labrador, the province has committed to primary health care reform, including implementing interdisciplinary primary care (PC) teams. To inform discussions regarding integrating nurse practitioners (NPs), registered nurses (RNs), and licensed practical nurses (LPNs) into these teams, better understanding of their roles in PC is needed. A scoping review was conducted to examine and synthesize existing evidence related to nursing roles and resources in PC settings across Atlantic Canada (Newfoundland and Labrador, New Brunswick, Nova Scotia, Prince Edward Island), and associated contributions to patient care. Joanna Briggs Institute scoping review methodology was used. The Nursing Role Effectiveness Model guided the review. Twenty articles met inclusion criteria. Roles of RNs and NPs in PC included chronic disease management, education, and health promotion. No literature focused on LPNs. Interdisciplinary collaboration was evident across studies. However, nurses’ functions within teams were limited by institutional constraints and other providers. PC settings with nurses had positive clinical outcomes, improved access to services, and high patient satisfaction. The prevalence of nursing in PC throughout Atlantic Canada and how nurses’ roles are enacted is unclear. There is opportunity for future inquiry into specific attributes of nursing and PC teams that result in positive patient and system outcomes.

Keywords
primary care, nurses, Newfoundland and Labrador, Nursing Role Effectiveness Model

Background and Purpose
Newfoundland and Labrador ranks among the highest in Canada for the prevalence of chronic diseases (Government of Newfoundland and Labrador, 2011) and modifiable risk factors for chronic diseases (Government of Newfoundland and Labrador, 2002). Individuals living with chronic diseases in Newfoundland and Labrador access health care services primarily through family physicians (Government of Newfoundland and Labrador, 2002). However, high rates of family physician turnover have created a barrier to access and lack of continuity of care for many individuals in the province, particularly in rural areas (Mathews, Edwards, & Rourke, 2008; Mathews & Park, 2007). In response to the prevalence and burden of chronic diseases, the Government of Newfoundland and Labrador (2011) published a policy framework aimed at preventing and managing chronic diseases in the province. The framework outlined a commitment to optimize health service delivery, citing interdisciplinary team-based primary health care as a potential strategy. Interdisciplinary primary care (PC) teams have been found to improve outcomes for individuals with chronic diseases and reduce the economic burden of illness (Aggarwal & Hutchison, 2012; Health Council of Canada, 2009).

In Canada, there are three licensure categories for nurses; nurse practitioners (NPs), registered nurses (RNs), and licensed practical nurses (LPNs; known as registered practical nurses in Ontario). Emerging evidence suggests the presence of nurses in PC settings is associated with positive outcomes for patients and the health care system. Higher levels of nurse staffing in PC settings is associated with favorable clinical outcomes and higher rated care, particularly for patients with chronic diseases (Griffiths, Maben, & Murrells, 2011; Griffiths, Murrells, Maben, Jones, & Ashworth, 2010; Lukewich, Williamson, Edge, VanDenKerkhof, & Tranmer, 2016). Furthermore, patients cared for by nurses in PC settings received more teaching (Laurant et al., 2005; Swan, Fergusson, Chang, Larson, & Smaldone, 2015) and reported higher satisfaction with care (Horrocks, Anderson, &
As Canadian health care systems transition to interdisciplinary models of care, there is a need to explore and synthesize available information related to nursing in PC. Although nurses are essential to the interdisciplinary team, their role in PC settings is not well understood (Lukewich, Edge, VanDenKerkhof, & Tranmer, 2014; Martin-Misener et al., 2014). A comprehensive summary of available information related to nursing roles and associated outcomes are needed to contribute to resources used to inform discussions related to PC models that incorporate nurses, particularly within Newfoundland and Labrador where PC is currently largely provided by physicians.

The research question guiding this review was as follows:

**Research Question:** What is the current state of knowledge of nursing roles and resources within PC settings in Atlantic Canada?

The Nursing Role Effectiveness Model guided the study. This model is adapted from Donabedian’s (1980) model of quality care, and depicts a structure–process–outcome approach that can be used to guide assessment of nursing contributions to health care (Irvine, Sidani, & McGillis Hall, 1998). Structural variables include characteristics of patients (e.g., age, physical condition), nurses (e.g., education, designation, skill level), and organizations (e.g., staffing patterns, models of care) that purportedly affect nurses’ ability to perform their role functions. The process component of the model includes nurses’ functions categorized as independent, interdependent, and medical-related roles. According to the Nursing Role Effectiveness Model, structure and process variables influence patient and system outcomes, including physical and functional health outcomes, knowledge, satisfaction, and cost (Irvine et al., 1998). The Nursing Role Effectiveness Model has been used as a framework for several recent studies of nursing within a variety of practice settings (Doran et al., 2014; Rondinelli, Omery, Crawford, & Johnson, 2014; White, Jackson, Besner, & Norris, 2015).

**Methods and Procedures**

This study was conducted using the Joanna Briggs Institute (JBI; 2015) scoping review methodology. Scoping reviews are appropriate when review authors aim to assess the size, scope, and characteristics of available research on a topic, and to identify key concepts within the extant literature (Arksey & O’Malley, 2005; Grant & Booth, 2009; JBI, 2015).

A preliminary scan of the literature revealed a small volume of heterogeneous literature from Newfoundland and Labrador. In consultation with a librarian, it was determined that a comprehensive examination of relevant literature would be best achieved if the search was expanded to include all four Atlantic Canadian provinces (i.e., Newfoundland and Labrador, Nova Scotia, New Brunswick, Prince Edward Island). The search was conducted from September to November, 2016. A three-step search strategy was used to find both published and unpublished studies (JBI, 2015). An initial limited search of PubMed and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) was conducted using the following search terms: nurs* AND primary care AND Newfoundland and Labrador OR New Brunswick OR Nova Scotia OR Prince Edward Island. Next, words contained in titles and abstracts and subject headings, which are used to describe articles, were analyzed and a second search using identified terms was undertaken across all included databases (Table 1). The databases searched included PubMed, CINAHL, Embase, AMED, JBI Database, Cochrane Database, Sociological Abstracts, OT Seeker, Google Scholar, and PEDro. Third, the reference lists of all included reports and articles were searched for key studies, authors, and organizations. In addition, 19 relevant websites were searched, including the Canadian Nurses Association, Canadian Family Practice Nurses Association, provincial nursing regulatory bodies, and provincial ministries of health.

**Inclusion Criteria**

All articles retrieved were reviewed independently by two reviewers for relevance and inclusion in the review. The review included published literature, including qualitative and quantitative primary research studies, reports, and discussion papers; and unpublished literature, including expert opinions, discussion papers, position papers, and reports. The scoping review included literature that pertained to NPs, RNs, or LPNs working in a PC setting and/or as part of a PC team in any Atlantic province (i.e., Newfoundland and Labrador, Nova Scotia, New Brunswick, Prince Edward Island). Literature pertaining to settings/services other than PC, such as acute care, long-term care, and emergency services were excluded. Articles were considered for inclusion if they were related to variables outlined within the Nursing Role Effectiveness Model (Irvine et al., 1998). All literature available as of November, 2016 was considered, as historical trends were considered relevant to overall findings. Only English language articles were considered eligible for review. As per JBI (2015) scoping review methodology, the quality of literature was not a factor in determining eligibility for inclusion.
| Database       | Search terms                                                                 |
|---------------|-----------------------------------------------------------------------------|
| PubMed        | 1. Primary health care (subject heading)                                    |
|               | 2. Primary care nursing (subject heading)                                  |
|               | 3. Primary care (keyword)                                                   |
|               | 4. 1 or 2 or 3                                                              |
|               | 5. Newfoundland and Labrador (subject heading)                              |
|               | 6. New Brunswick (subject heading)                                          |
|               | 7. Prince Edward Island (subject heading)                                   |
|               | 8. Nova Scotia (subject heading)                                            |
|               | 9. Newfoundland (keyword)                                                   |
|               | 10. Labrador (keyword)                                                      |
|               | 11. “New Brunswick” (keyword)                                               |
|               | 12. “Prince Edward Island” (keyword)                                        |
|               | 13. “Nova Scotia” (keyword)                                                 |
|               | 14. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13                            |
|               | 15. Nurses (subject heading)                                                 |
|               | 16. nurs* (keyword)                                                         |
|               | 17. 15 or 16                                                                |
|               | 18. 4 and 14 and 17                                                         |
|               | 19. Limit 18 to English language                                             |
| Embase        | 1. Primary health care (subject heading)                                    |
|               | 2. Primary medical care (subject heading)                                   |
|               | 3. Primary care (keyword)                                                   |
|               | 4. 1 or 2 or 3                                                              |
|               | 5. Newfoundland and Labrador (subject heading)                              |
|               | 6. New Brunswick (subject heading)                                          |
|               | 7. Prince Edward Island (subject heading)                                   |
|               | 8. Nova Scotia (subject heading)                                            |
|               | 9. Newfoundland (keyword)                                                   |
|               | 10. Labrador (keyword)                                                      |
|               | 11. “New Brunswick” (keyword)                                               |
|               | 12. “Prince Edward Island” (keyword)                                        |
|               | 13. “Nova Scotia” (keyword)                                                 |
|               | 14. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13                            |
|               | 15. Nurse (subject heading)                                                  |
|               | 16. Registered nurse (subject heading)                                      |
|               | 17. Nurse Practitioner (subject heading)                                    |
|               | 18. Licensed practical nurse (subject heading)                              |
|               | 19. nurs* (keyword)                                                         |
|               | 20. 15 or 16 or 17                                                           |
|               | 21. 4 and 14 and 20                                                         |
|               | 22. Limit 21 to English language                                             |
| CINAHL        | S1. nurs* and “primary care” and (Newfoundland or Labrador or “Nova Scotia” or “New Brunswick” or “Prince Edward Island” or Atlantic) |
|               | S2. Primary health care (subject heading)                                   |
|               | S3. Newfoundland (subject heading) or Nova Scotia (subject heading) or New Brunswick (subject heading) or Prince Edward Island (subject heading) |
|               | S4. Nurses (subject heading) or nurs* (keyword)                             |
|               | S5. S2 and S3 and S4                                                        |
|               | S6. S1 or S2                                                                |
|               | S7. Limiters—English language                                                |
| Cochrane Library | 1. Primary health care (subject heading)                                    |
|               | 2. Primary care nursing (subject heading)                                   |
|               | 3. Primary care (keyword)                                                   |
|               | 4. 1 or 2 or 3                                                              |
|               | 5. Newfoundland and Labrador (subject heading)                              |
|               | 6. New Brunswick (subject heading)                                          |
| Database                   | Search terms                                                                                                                                 |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 7. Prince Edward Island (subject heading) |                                                                                                                                               |
| 8. Nova Scotia (subject heading) |                                                                                                                                               |
| 9. Newfoundland (keyword) |                                                                                                                                               |
| 10. Labrador (keyword) |                                                                                                                                               |
| 11. “New Brunswick” (keyword) |                                                                                                                                               |
| 12. “Prince Edward Island” (keyword) |                                                                                                                                               |
| 13. “Nova Scotia” (keyword) |                                                                                                                                               |
| 14. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 |                                                                                                                                               |
| 15. Nurses (subject heading) | **Note.** EBP = evidence-based practice; CINAHL = cumulative index to nursing and allied health literature; PEDro = physiotherapy evidence database. |
| 16. nufs* (keyword) |                                                                                                                                               |
| 17. 15 or 16 |                                                                                                                                               |
| 18. 4 and 14 and 17 |                                                                                                                                               |
| 19. Limit 18 to English language |                                                                                                                                               |
| Joanna Briggs Institute EBP database | 1. Primary health care (subject heading)                                                                                                                                                            |
| 2. Primary care (keyword) | 3. 1 or 2                                                                                                                                                                                                 |
| 4. Newfoundland and Labrador (subject heading) | 5. New Brunswick (subject heading)                                                                                                                                                                    |
| 6. Prince Edward Island (subject heading) | 7. Nova Scotia (subject heading)                                                                                                                                                                     |
| 8. Newfoundland (keyword) | 9. Labrador (keyword)                                                                                                                                                                                 |
| 10. “New Brunswick” (keyword) | 11. “Prince Edward Island” (keyword)                                                                                                                                                                  |
| 12. “Nova Scotia” (keyword) | 13. 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 |                                                                                                                                               |
| 14. Nurses (subject heading) | 15. nufs* (keyword)                                                                                                                                                                                 |
| 16. 14 or 15 | 17. 3 and 13 and 16                                                                                                                                                                                  |
| 18. Limit 17 to English language |                                                                                                                                               |
| OTseeker                  | 1. Primary health care (any field)                                                                                                                                                                      |
| 2. Primary care (any field) | 3. 1 or 2                                                                                                                                                                                                 |
| 4. Newfoundland (any field) | 5. Labrador (any field)                                                                                                                                                                                |
| 6. New Brunswick (any field) | 7. Nova Scotia (any field)                                                                                                                                                                             |
| 8. Prince Edward Island (any field) | 9. 4 or 5 or 6 or 7 or 8 |                                                                                                                                               |
| 10. nufs* (any field) | 11. 3 and 9 and 10                                                                                                                                                                                   |
| PEDro                     | 1. Primary health care (any field)                                                                                                                                                                      |
| 2. Primary care (any field) | 3. 1 or 2                                                                                                                                                                                                 |
| 4. Newfoundland (any field) | 5. Labrador (any field)                                                                                                                                                                                |
| 6. New Brunswick (any field) | 7. Nova Scotia (any field)                                                                                                                                                                             |
| 8. Prince Edward Island (any field) | 9. 4 or 5 or 6 or 7 or 8 |                                                                                                                                               |
| 10. nufs* (any field) | 11. 3 and 9 and 10                                                                                                                                                                                   |
| Google Scholar            | “primary care” and Newfoundland or Labrador or “New Brunswick” or “Nova Scotia” or “Prince Edward Island” and nurse                                                                                     |
Results

A summary of search results is included in Figure 1. Once duplicates were removed, the database search returned 114 results. Defined inclusion and exclusion criteria were applied and 17 articles were deemed eligible for inclusion. The web search resulted in inclusion of two additional reports (Health Council of Canada, 2009; Labrosse, 2016) and perusal of reference lists of eligible articles resulted in the inclusion of one additional research article (Goss Gilroy Inc, 2001). An additional four articles were potentially eligible; however, despite requesting access from the authors, full-text articles could not be obtained. After all inclusion and exclusion criteria were applied, a total of 20 articles were eligible for inclusion and were reviewed. Data extraction was guided by available JBI data extraction forms.

Included literature (Table 2) consisted of 11 primary research studies (Barrett et al., 2011; Chambers, Bruce-Lockhart, Black, Sampson, & Burke, 1977; Chambers & West, 1978; Goss Gilroy Inc, 2001; Graham, Sketris, Burge, & Edwards, 2006; Lawson, Dicks, Macdonald, & Burge, 2012; Martin-Misener, Downe-Wamboldt, Cain, & Girouard,
| **Agnew (1974)** |  |
| --- | --- |
| **Purpose** | To highlight the need for baccalaureate curriculum that supports expanded RN role in NL and throughout Canada |
| **Participants and setting** | Family practice RNs in Atlantic Canada, specifically NL |
| **Model of care** | NA |
| **Type of study/article** | Position paper |
| **Key findings/observations** | Expanded role of nurses not well understood. |
| **Conclusions/recommendations** | Need to build a nursing education program with portability between provinces. Bachelor of nursing curriculum should support expanded role by incorporating history taking, physical examination, diagnosis and treatment of common illnesses, and chronic disease management. |

| **Barrett et al. (2011)** |  |
| --- | --- |
| **Purpose** | To compare a nurse-coordinated model of care to usual care for CKD |
| **Participants and setting** | Referred sample of 474 adults, aged 40-75 years, living with Stage 3 or 4 CKD |
| **Model of care** | Nurse-coordinated team with nephrologist |
| **Type of study/article** | Quantitative—Unblinded RCT |
| **Key findings/observations** | Compared with usual care, nurse-coordinated care did not affect rate of decline of GFR or control of most risk factors in individuals with CKD. IG was more likely than CG to be using RAAS blockers ($p = .06$) and lipid-lowering agents ($p = .0003$) over time. IG was extremely satisfied with care. Score = 31 out of a possible 32 at 8, 16, and 24 months. |
| **Conclusions/recommendations** | Primary health care teams are effective in providing care to patients with Stage 3/4 CKD. Nurse-coordinated model of care had similar effects on control of risk factors as usual care and was associated with greater use of some medications. Further assessment recommended. |

| **Bristow et al. (1974)** |  |
| --- | --- |
| **Purpose** | To raise questions concerning the nature and impact of an expanded nursing role in NS and other Atlantic provinces |
| **Participants and setting** | NS. Participants NA |
| **Model of care** | NA |
| **Type of study/article** | Position paper |
| **Key findings/observations** | Common for RNs to practice expanded role in remote settings. Nursing in Atlantic provinces is controlled by institutions and other professionals, which restricts nursing role. |
| **Conclusions/recommendations** | Expanded RN role should be incorporated in PC settings in which physicians are present. Clients are best served when health professionals collaborate. |

| **Chambers and West (1978)** |  |
| --- | --- |
| **Purpose** | To compare effectiveness of PC provided by an FPN to conventional care |
| **Participants and setting** | Purposive sample of 877 families attending one St. John’s, NL family practice clinic over a 1-year period in 1974 |
| **Model of care** | FPN-led with physician or other clinician referral as needed |
| **Type of study/article** | Quantitative—RCT |
| **Key findings/observations** | After 1 year, 50% of CG and 61% of IG were classified as physically healthy ($p < .01$). No significant difference between groups in emotional or social functioning. |
| **Conclusions/recommendations** | Results support patients receiving first contact care from an FPN experience favorable health outcomes, comparable with those receiving standard care from a family physician. |

| **Chambers, Bruce-Lockhart, Black, Sampson, and Burke (1977)** |  |
| --- | --- |
| **Purpose** | To determine the effect of an FPN on the volume, quality, and cost of rural health services |
| **Participants and setting** | Residents of all ages from an isolated area of rural NL |
| **Model of care** | All regular PC services provided by one salaried FPN, practicing out of a community-based health clinic |
| **Type of study/article** | Quantitative—RCT |

(Continued)
Table 2. Continued

| Key findings/observations |   |
|---------------------------|---|
| PC visits increased by 136% and hospital visits decreased by 35% in IG during study period.* |   |
| Acute days hospitalized decreased by 5% in IG and increased by 39% in CG.* |   |
| Total annual health service cost per 1000 persons increased by 26% in IG and by 21% in CG.* |   |
| *p values not reported |   |
| Health outcome indicators comparable between groups. |   |

Conclusions/recommendations

No measurable change in quality of care before and after study period. Incorporation of FPN resulted in more PC services provided, PC services being provided in the community rather than hospital, and a focus on preventive care. Service costs increased slightly in the short term.

Faculty of Nursing University of New Brunswick (1974)

Purpose

To clarify and provide support for the expanded role of the nurse

Participants and setting

NB. Participants NA

Model of care

NA

Type of study/article

Position paper

Key findings/observations

Nursing in Atlantic provinces is focused on responsibilities to institutions and other professionals, which restricts nursing role.

Expanded RN role in PC is not well understood.

Conclusions/Recommendations

Need to broaden current RN role by expanding nurse functions, independence, and accountability; and improving health professionals’ attitudes about expanded nursing role. Communication and collaboration between health professionals is necessary. Focus of nursing responsibilities must shift to direct patient care.

Goss Gilroy Inc (2001)

Purpose

To evaluate the implementation, extent of integration, and impact of the NP–primary health care role in NL, and to identify plans for future deployment

Participants and setting

NPs from first two graduating classes in NL (1998 and 1999), managers and health professionals who worked with them, and key informants involved in NP role implementation and integration in NL and two other Canadian provinces

Model of care

Variable

Type of study/article

Mixed methods—survey, key informant interviews, and collection of service, workload, and activity data over a 1-week reference period

Key findings/observations

NP role accepted, but not clearly understood by public or other health professionals. NPs worked collaboratively with other professionals. Collaboration with physicians was primarily informal consultation.

Role integration facilitated by provincial legislation, funding, regulatory framework, and championing by managers and NPs.

Role integration constrained by lack of understanding of role, lack of acceptance by fee-for-service physicians, inadequate management, lack of clarity regarding implications of collaborative relationships with physicians, and lack of clear direction for future of NP role.

NP role had no effect on recruitment and retention of physicians. Slightly decreased workload and increased job satisfaction of physicians and other health professionals. Physicians reported being concerned about an increase in complexity of caseload and potential legal liabilities of collaborative relationships.

Conclusions/recommendations

More research needed to examine effect of NP role on health services. Need formal engagement of provincial and regional leadership to clarify roles and responsibilities of professionals, and to develop policies around the same. Need to develop a plan for future deployment of NPs and to continue to pursue funding that will support interdisciplinary collaboration in health service delivery.

Graham, Sketris, Burge, and Edwards (2006)

Purpose

To assess the impact of PC reform involving collaborative practice PC teams on the quality of process-of-care, self-care, and proxy measures for health outcomes of individuals with diabetes and hypertension

Participants and setting

Recruited from a record of all patients in four Strengthening Primary Care Initiative sites in NS with diabetes or hypertension who had at least one billing for care of their condition during the period January 1998-January 2000

Model of care

Collaborative practice teams with NP and at least one physician, using “alternative funding arrangements,” not fee-for-service

Type of study/article

Quantitative—Observational pre–post intervention chart audit

(Continued)
### Table 2. Continued

| Key findings/observations | Diabetes: Postintervention, patients approximately twice as likely to have achieved satisfactory blood pressure (p < .05), have been screened for nephropathy (p < .01), and to be monitoring blood glucose levels at home (p < .01); and 1.6 times more likely to have been screened for retinopathy (p < .05). No statistically significant differences before and after for other indicators. Hypertension: Postintervention, patients were 3 times as likely to have achieved satisfactory systolic BP and twice as likely to have achieved satisfactory diastolic BP (p < .001). Percentage of patients having BP measured twice per year decreased by 4.1%. Patients were more likely to have had blood glucose (p < .001) and lipid levels (p < .05) checked. No statistically significant differences before and after for other indicators. |
| Conclusions/recommendations | More resources should be allocated for evaluation of PC initiatives. Collaborative teams may improve health of Canadians. More research is needed to explore the relationships between specific contributions and outcomes. |

### Health Council of Canada (2009)

**Purpose**
To report the characteristics of PC teams across Canada and potential implications for patients and taxpayers

**Participants and setting**
Community-based centers, offering mental health services (NL) and cardiovascular risk management program (NS), and providing services to marginalized populations (NB)

**Model of care**
Collaborative PC teams, including NP, nurses (unspecified), allied health professionals, and physicians

**Type of study/article**
Organization report

**Key findings/observations**
Collaborative PC teams effectively deliver mental health and addictions services to individuals of all ages; empower individuals and community to make changes by delivering standard PC and other community services, and help decrease cardiovascular risk by modifying risk behaviors and using medications appropriately. Nurses provide education, counseling, referral, and support.

**Conclusions/recommendations**
PC teams expanding across Canada, but access still limited for many Canadians. Data about PC teams are limited and unclear. More research is needed to determine the value of PC teams in delivering care to average, uncomplicated populations, and to determine the nature of valuable PC teams.

### Jaimet (2012)

**Purpose**
To highlight nurses’ responses to the changing health care system in NB

**Participants and setting**
One nurse manager (RN) at a health center in Rogersville, NB

**Model of care**
One nurse and one physician

**Type of study/article**
Feature column

**Key findings/observations**
Nurse-led programs for smoking cessation, fitness, and weight loss are having success.

**Conclusions/recommendations**
Great potential for expanding currently limited nursing role in PC: focus on prevention, screening, counseling, and chronic disease management.

### Jones (2015)

**Purpose**
To report initial results of an evaluation of Outreach Diabetes Case Managers in PC

**Participants and setting**
An unspecified number of patients with diabetes receiving care in PC settings in NB

**Model of care**
Interdisciplinary teams that include RNs as diabetes case managers

**Type of study/article**
Report

**Key findings/observations**
ODCMs as part of PC teams improved patient outcomes and resulted in high levels of patient-centered care. Case managers typically seeing patients above 65 years of age with multiple comorbidities.

**Conclusions/recommendations**
ODCMs being well integrated into NB health system. ODCMs as part of PC teams improve chronic disease self-management, promote knowledge transfer for patients and professionals, and enhance interdisciplinary team collaboration.

### Labrosse (2016)

**Purpose**
To evaluate the effect of integrating NP role into collaborative PC models and to compare relationship of collaborative and noncollaborative models on quality of and access to care

**Participants and setting**
Health professionals at the Harbourside Health Center in Summerside, PE

**Model of care**
Collaborative team consisting of 3.6 FTE salaried family physicians, two NPs, two RNs, four LPNs, one diabetes educator RN, and two registered dieticians

**Type of study/article**
Report with case study

(Continued)
Key findings/observations
Addition of two NPs during time of physician shortage reduced wait times and improved patient satisfaction, while having no effect on quality of care.

Conclusions/recommendations
NP should increase clinic capacity on PE by 600-800 patients, seeing 9-15 patients per day each. NP practice on PE is meant to be collaborative, not competitive, with other professionals. Clear communication of role is necessary. Physician engagement is necessary. Some physicians view NP integration as disruptive.

Lawson, Dicks, Macdonald, and Burge (2012)
Purpose
To evaluate the effect of an enhanced collaborative care model on the quality of health care delivery among a community primary health care population

Participants and setting
Patients with certain health conditions of interest (DM, HTN, asthma, CAD), plus a random “tape measure method” sample of additional patients seen one or more times by a PC provider at one NS community practice over a specified 12-month period

Model of care
Collaborative practice team with NP and three physicians, using “alternative funding arrangement” involving shadow-billing, not fee-for-service

Type of study/article
Quantitative—Observational, retrospective pre–post intervention chart audit

Key findings/observations
Preventive care: Postintervention, statistically significant increase in percentage of patients aged 7-18 years receiving full course of MMR immunization \( (p < .01) \) and women 50 years and above receiving recent mammogram \( (p < .05) \); decrease in males 40 years and above having full lipid profile \( (p < .05) \). Results otherwise insignificant.

Chronic disease management: Postintervention, statistically significant increase in recommended screening tests for patients with diabetes, and greater proportion of patients at or below HbA1C and systolic BP targets \( (p < .05) \).

Conclusions/recommendations
PC teams can improve access to services and facilitate higher quality of care delivery. Greater gains may be seen over time with team building and physician support. NPs and family physicians have an important role to play in strengthening primary health care system.

Magee, Hodder-Malloy, and Mason (2011)
Purpose
To highlight the rise of FPNs in fee-for-service practice settings in NS

Participants and setting
One FPN and one family physician working at a family practice in Halifax, NS

Model of care
FPN and physician work together in fee-for-service family practice

Type of study/article
Feature column

Key findings/observations
Wait times at practice reduced. Additional time available for education and counseling, including behavior modification.

Conclusions/recommendations
Family practice nursing is cost-effective, patient-centered, and improves comprehensiveness of care. FPN is effective in providing preventive care and chronic disease management.

Martin-Misener, Downe-Wamboldt, Cain, and Girouard (2009)
Purpose
To determine whether PC and emergency services provided by an NP–paramedic–family physician team would, over time, improve psychosocial adjustment of adults in a rural community and reduce health care expenditure

Participants and setting
English-speaking residents of the geographically isolated Long and Brier Islands, NS, aged 40 years or above, with a diagnosis of at least one chronic disease. Complete data set collected for 50 subjects; partial data set for 36 subjects

Model of care
Following education program to broaden skill set of paramedics, an NP–paramedic–physician model of primary and emergency care introduced. Paramedic and NP onsite, physician offsite with regular visits

Type of study/article
Mixed methods—Longitudinal 3-year study

Key findings/observations
Over 3 years, total costs were decreased, with reductions attributable to reduced travel \( (p = .02) \) and medication \( (p = .02) \) costs. Total physician visits decreased by 28%* and ER visits decreased by 40%*. No measurable change in psychosocial adjustment scores.

*\( p \) values not reported.

Participants reported increase in accessibility to a broader range of services (e.g., health promotion, screening, disease management) and were highly satisfied with health services, structure, and provider collaboration.

Conclusions/recommendations
Implementation of change required great effort. Supportive organizational structures are key to model reform. NP–paramedic–physician model is effective for rural communities with low emergency call volumes. Sufficient time following implementation is required before results become evident.

Table 2. Continued

| Key findings/observations | Conclusions/recommendations |
|---------------------------|----------------------------|
| Addition of two NPs during time of physician shortage reduced wait times and improved patient satisfaction, while having no effect on quality of care. | NP should increase clinic capacity on PE by 600-800 patients, seeing 9-15 patients per day each. NP practice on PE is meant to be collaborative, not competitive, with other professionals. Clear communication of role is necessary. Physician engagement is necessary. Some physicians view NP integration as disruptive. |

(Continued)
Table 2. Continued

Martin-Misener, McNab, Sketris, and Edwards (2004)

| Purpose | To convey the experience of planning and implementing the SPCI in NS |
|-----------------------------------------------|
| Participants and setting | Authorities and health professionals involved in implementing the SPCI in four communities in NS from 2000-2002 |
| Model of care | NPs and family physicians engage in formal collaborative practice agreements with an alternative non-fee-for-service funding model |
| Type of study/article | Institutional report |
| Key findings/observations | SPCI involved extensive collaboration between NPs, physicians, other health professionals, and authorities. Formal NP–physician collaborative practice agreements were instituted to allow NPs to practice in absence of legislation. Introduction of NPs was met with some resistance, with concerns from physicians and pharmacists about liability. Many NP functions limited by regulations from various authorities. |
| Conclusions/recommendations | Interdisciplinary PC teamwork is the approach that best utilizes resources to meet patient care needs. Collaboration between NPs and physicians was central to the goals of the SPCI, and reception was variable. Collaborative practice in PC requires substantial commitment by health professionals, organizations, and institutions. |

Martin-Misener, Reilly, and Vollman (2010)

| Purpose | To describe how rural health board chairpersons and health care personnel define NP roles in NS |
|-----------------------------------------------|
| Participants and setting | Purposive sample of health board chairpersons (n = 6), and NPs, FPs, public health nurses, and FPNs (n = 51) in rural NS |
| Model of care | Physician-led family practices and community-based nurse-led clinics |
| Type of study/article | Mixed methods—Triangulation model of concurrent qualitative (interview) and quantitative (questionnaire) data collection with subsequent analysis and integration |
| Key findings/observations | Chairpersons and providers perceived NP role as focused on wide range of holistic health services. Participants indicated an overlap of NP and FP services, which they reported serves to improve care. Potential overlap exists between NP, public health, and FPN in health promotion activities. When asked if current supply of care providers was adequate to meet community needs, 70% of nurse respondents said “no” and 62% of FPs said “yes.” 39% said NPs perform assessment and diagnostic activities; 91% said NPs should. 35% said NPs perform consultation, referral, and admission activities; 80% said they should consult/refer and 79% said they should admit. |
| Conclusions/recommendations | There was disagreement between nurses and physicians regarding adequacy of health services. NP role provides opportunity to improve accessibility of rural residents to PC services, namely, health promotion, illness prevention, and chronic and episodic disease care. |

Murphy, Martin-Misener, Cooke, and Sketris (2009)

| Purpose | To identify the patterns of prescribing by PC NPs for a cohort of older adults |
|-----------------------------------------------|
| Participants and setting | Practicing PC NPs in NS (n = 15) for fiscal years 2004/05-2006/07 |
| Model of care | Not discussed |
| Type of study/article | Quantitative—Retrospective analysis of prescription claims data |
| Key findings/observations | Average age of patients was 77 years in first year and 79 years in last 2 years. Antimicrobials and anti-inflammatories were most prescribed and ranked highest in cost. Over 3 years, prescription volume per NP doubled and cost per prescription increased by 20%. |
| Conclusions/recommendations | NP prescribing practices in NS consistent with those reported elsewhere. Further study needed to link patient characteristics and conditions to prescriptions. |

Paterson, Duffett-Leger, and Cruttenden (2009)

| Purpose | To describe how the changing context of a nurse-managed clinic resulted in changes in nurses’ roles |
|-----------------------------------------------|
| Participants and setting | Purposive sample of 23 stakeholders of a CHC in NB, including clients, volunteers, staff from other community agencies, and nursing or social work students who completed clinical rotations at the CHC. Clinic serves marginalized groups, such as those with drug addictions |

(Continued)
Nova Scotia had the greatest amount of literature related to nursing within PC settings (n = 11) compared with other Atlantic provinces, including four quantitative (Barrett et al., 2011; Graham et al., 2006; Lawson et al., 2012; Murphy et al., 2009) and three mixed methods (Martin-Misener et al., 2009; Martin-Misener et al., 2010; Todd et al., 2007) study papers, and two feature columns (Jaimet, 2012; Magee et al., 2011). Six articles were from Newfoundland and Labrador (Agnew, 1974; Bristow et al., 2011; Chambers et al., 1977; Chambers & West, 1978; Goss Gilroy Inc, 2001; Health Council of Canada, 2009) and five articles were from New Brunswick (Faculty of Nursing UNB, 1974; Health Council of Canada, 2009; Jaimet, 2012; Jones, 2015; Paterson et al., 2009). New Brunswick was represented in only one primary research study, which was qualitative (Paterson et al., 2009), whereas PC nursing in Newfoundland and Labrador was studied in three randomized controlled trials (RCT; Barrett et al., 2011; Chambers et al., 1977; Chambers & West, 1978) and a mixed methods study (Goss Gilroy Inc, 2001). Prince Edward Island was represented in one report discussing the role of NPs in PC (Labrosse, 2016). In the RCT by Barrett et al. (2011) and the report by the Health Council of Canada (2009), more than one Atlantic province was examined.

**Nurse Structural Variables in PC Settings**

The RN and NP designations were most represented in PC literature from Atlantic Canada. Nurses within the RN and NP designations were the focus in 10 articles each. Specifically, the role of the RN as a family practice nurse (FPN) was explored in five articles (Agnew, 1974; Bristow et al., 2011; Chambers et al., 1977; Chambers & West, 1978; Magee et al., 2011; Todd et al., 2007). No articles focused on LPNs. LPNs were mentioned as part of a PC team in a case study of one clinic (Labrosse, 2016). However, the report focused only on the NPs working on the team. In three articles, the term “nurse” was used to refer to a group of nurses without specifying designation (Barrett et al., 2011; Health Council of Canada, 2009; Paterson et al., 2009), and some articles focused on more than one nursing designation (Health Council of Canada, 2009).
In early publications, there was emphasis on promoting baccalaureate education for RNs in the Atlantic provinces and expanding nursing curricula to include additional clinical skills (Agnew, 1974; Bristow et al., 1974). This enhanced knowledge and skill translated to an “expanded nursing role” (Agnew, 1974; Bristow et al., 1974; Faculty of Nursing UNB, 1974) that became pivotal in PC in Atlantic Canada (Chambers et al., 1977; Chambers & West, 1978). However, the current overall education level of nurses in PC and how it relates to nursing roles or patient and system outcomes is unclear. A survey of a small sample of 41 participants by Todd and colleagues (2007) reported that 85% of family practice RNs in Nova Scotia had a diploma in nursing, whereas the remaining 15% had a baccalaureate degree. However, the data were purely descriptive. No such data were reported for NPs, LPNs, or RNs working in other Atlantic provinces.

Organizational Structure: Models of PC Delivery

Interdisciplinary collaboration between nurses, physicians, and other health professionals was evident throughout the literature. There was a variety of interdisciplinary PC team models discussed. Nurse-led care by NPs (Goss Gilroy Inc, 2001; Paterson et al., 2009), RNs (Chambers & West, 1978), or unspecified nurses (Barrett et al., 2011; Health Council of Canada) in consultation with physicians and other professionals was identified in Newfoundland and Labrador and New Brunswick. Alternatively, NPs and physicians in Nova Scotia engaged in formal collaborative practice agreements (Graham et al., 2006; Lawson et al., 2012; Martin-Misener et al., 2004). An innovative NP–physician paramedic model for providing PC to a remote location in Nova Scotia was examined in a longitudinal mixed method study by Martin-Misener et al. (2009). Findings from this study indicated this model reduced emergency room visits, improved patient satisfaction, and reduced health care costs over a 3-year period.

Historically in Atlantic Canada, nurse autonomy was exercised almost exclusively in areas where no other PC provider was available (Agnew, 1974; Chambers et al., 1977). The expanded nursing role of the 1970s was expected to enhance nurse autonomy and oppose the hierarchical structure of health care (Bristow et al., 1974; Faculty of Nursing UNB, 1974). Nurses began to practice independently or in collaboration with physicians (Chambers et al., 1977; Chambers & West, 1978). PC practice environments have continued to evolve to promote nurse autonomy and nurse-led models of care (Barrett et al., 2011; Chambers et al., 1977; Chambers & West, 1978; Goss Gilroy Inc, 2001; Jaimet, 2012; Paterson et al., 2009). Yet, placement of nurses in PC continues to be motivated by a need to improve access to PC practitioners, particularly in response to challenges with recruiting and retaining family physicians (Chambers et al., 1977; Goss Gilroy Inc, 2001; Labrosse, 2016; Martin-Misener et al., 2009). Goss Gilroy Inc (2001) reported NPs had no effect on recruitment and retention of other care providers in Newfoundland and Labrador, and that settings in which NPs reported practicing autonomously were primarily those without family physicians.

Nurse Process Variables: Nursing Roles in PC

The reported role of RNs and “nurses” in PC principally involved managing chronic diseases (Barrett et al., 2011; Health Council of Canada, 2009; Jones, 2015; Magee et al., 2011) and providing education and counseling to patients (Health Council of Canada, 2009; Jaimet, 2012; Jones, 2015; Magee et al., 2011; Todd et al., 2007). In particular, risk factor modification (Barrett et al., 2011; Health Council of Canada, 2009; Jones, 2015; Magee et al., 2011) and promoting self-management (Barrett et al., 2011; Health Council of Canada, 2009; Jones, 2015) were cited as aspects of nurses’ roles in chronic disease management. Patient education and counseling roles included diabetes education (Jones, 2015), one-on-one smoking cessation counseling (Jaimet, 2012), behavior modification (Magee et al., 2011), and general provision of health-related information (Magee et al., 2011; Todd et al., 2007). Other nursing roles included advocating for social justice for marginalized populations (Health Council of Canada, 2009; Paterson et al., 2009), facilitating clinician education (Jones, 2015), organizing health and fitness programs (Jaimet, 2012), and providing direct interventions, such as screening tests and medication administration (Martin-Misener et al., 2010; Todd et al., 2007).

With respect to NPs, specifically, literature described their role in diagnosing, treating, and managing chronic diseases, including diabetes, pulmonary disease, kidney disease, mental illness, and cardiovascular disease; and episodic illnesses, such as infections (Goss Gilroy Inc, 2001; Graham et al., 2006; Labrosse, 2016; Lawson et al., 2012; Martin-Misener et al., 2009; Martin-Misener et al., 2004; Martin-Misener et al., 2010; Murphy et al., 2009). Prescribing and managing medications and monitoring clinical outcomes were also cited as part of the NP role (Goss Gilroy Inc, 2001; Lawson et al., 2012; Martin-Misener et al., 2010).

Nurse role implementation and integration into PC settings was affected by various governmental, financial, and sociopolitical factors (Goss Gilroy Inc, 2001; Martin-Misener et al., 2004; Paterson et al., 2009). Nursing roles were found to be responsive to the needs of populations and communities (Paterson et al., 2009). Based on qualitative data, strong governmental support, in the form of regulation, legislation, and funding, facilitated nurses’ roles in practice (Goss Gilroy Inc, 2001; Martin-Misener et al., 2004). Barriers to performing role functions included financial constraints (Paterson et al., 2009), lack of understanding and
acceptance of roles (Goss Gilroy Inc, 2001; Martin-Misener et al., 2004), and lack of substantial planning for the future direction of nurse roles (Goss Gilroy Inc, 2001). In collaborative settings, lack of role clarity led to concerns about potential effects on the roles and responsibilities of other professionals. In particular, concerns from physicians regarding the scope of practice of NPs and the legal implications of collaborative practice were identified (Goss Gilroy Inc, 2001; Martin-Misener et al., 2004). Although the NP role was expected to alleviate some of the pressure on family physicians, some physicians found the NP role disruptive to their practice (Goss Gilroy Inc, 2001; Labrosse, 2016). In a survey conducted by Goss Gilroy Inc (2001), physicians cited concerns such as increased complexity of caseload as NPs took on patients with less complicated conditions. Martin-Misener et al. (2010) noted that differences in attitudes of nurses and family physicians toward the perceived adequacy of health services could also affect nursing roles within PC settings. When they asked participants whether the current supply of health care practitioners was adequate to meet community needs, 70% of nurse respondents replied “no,” whereas 62% of family physicians said “yes.”

**Patient and System Outcomes**

Eleven articles discussed patient and system outcomes related to nurses within PC. In Atlantic Canada, PC settings that incorporate nurses have resulted in better (Chambers et al., 1977; Chambers & West, 1978; Graham et al., 2006; Jones, 2015; Lawson et al., 2012) or equal (Barrett et al., 2011; Chambers & West, 1978; Labrosse, 2016; Lawson et al., 2012) patient health outcomes when compared with settings that do not include nurses. In particular, many clinical outcome measures for patients with chronic diseases were improved (Barrett et al., 2011; Graham et al., 2006; Jones, 2015; Lawson et al., 2012) or unchanged (Barrett et al., 2011) with the addition of nurses when compared with usual care. Notably, patients with chronic diseases had increased odds of having satisfactory blood pressure (Graham et al., 2006; Lawson et al., 2012) and hemoglobin A1C levels (Lawson et al., 2012); receiving certain recommended medications (Barrett et al., 2011); and participating in many recommended screening and monitoring practices (Graham et al., 2006; Lawson et al., 2012) when nurses were added to models of care. Nurses in PC settings are also associated with improved access to health services, as evidenced by increased PC visits (Chambers et al., 1977), decreased hospital or emergency department visits (Chambers et al., 1977; Martin-Misener et al., 2009), shorter wait times (Labrosse, 2016; Magee et al., 2011), and greater frequencies of recommended screening and monitoring practices (Graham et al., 2006; Lawson et al., 2012). Patients reported increased accessibility of a broader range of health services (Martin-Misener et al., 2009) and high levels of satisfaction (Barrett et al., 2011; Health Council of Canada, 2009; Jones, 2015; Labrosse, 2016; Martin-Misener et al., 2009) with models of PC that incorporate nurses. Reports suggested implementing interdisciplinary PC teams with nurses increased initial health care expenditures (Chambers et al., 1977; Labrosse, 2016; Martin-Misener et al., 2009; Murphy et al., 2009). Only one study examined costs longitudinally, and overall costs were found to decrease over a 3-year period (Martin-Misener et al., 2009). Many of these studies identified reliance on chart abstraction of existing health records as a limitation to conducting research of this nature (Chambers et al., 1977; Graham et al., 2006; Labrosse, 2016; Lawson et al., 2012; Murphy et al., 2009).

**Discussion**

Overall, there was limited evidence related to nursing within PC in Atlantic Canada. Consistent with JBI (2015) scoping review methodology, comprehensive quality appraisal of literature was not performed. However, many limitations within the body of evidence were recognized throughout the processes of data extraction and analysis. Much of the literature consisted of position papers and reports that did not provide new evidence, or did not clearly outline the sources and methods from which information was derived. Only 11 out of 20 articles reviewed were primary research studies. Of these, only three were experimental studies (Barrett et al., 2011; Chambers et al., 1977; Chambers & West, 1978), two of which were nearly 40 years old. In addition, many methodological limitations, such as small sample sizes and vague statistical reporting (e.g., unreported p values and odds ratios) were noted in studies. The lack of high quality, strongly designed literature limits the extent to which decisions about policy and practice throughout Newfoundland and Labrador and Atlantic Canada can be informed. This scoping review highlights the need for more rigorous research related to nursing within PC, and it is a necessary first step in guiding the direction of research in this area.

The literature was well dispersed over three of the four Atlantic provinces. Prince Edward Island was considerably underrepresented in the literature. This may be due in part to the comparatively small population and geographic area of Prince Edward Island in relation to the other provinces. Also, it is noteworthy that Newfoundland and Labrador, New Brunswick, and Nova Scotia have all released frameworks for or developed initiatives to improve PC using interdisciplinary health care teams that include nurses (Government of New Brunswick, n.d.; Government of Newfoundland and Labrador, 2015; Martin-Misener et al., 2004), whereas Prince Edward Island has not. In addition to the Strengthening Primary Care Initiative, a provincial initiative aimed at reforming PC delivery using interdisciplinary health care teams across the province (Graham et al., 2006; Lawson et al., 2012; Martin-Misener et al., 2004), the large number of articles from Nova Scotia may be related to the existence of the Family Practice Nurses Association of Nova Scotia.
Nurses’ roles in health promotion and preventive care, particularly for individuals with chronic diseases, aligns well with the Government of Newfoundland and Labrador’s (2002, 2011, 2015) plans for addressing pressing health system challenges. RNs and NPs are currently involved in these roles in PC across Atlantic Canada. It is conceivable that LPNs may also be among the cohort of nurses in PC in Atlantic Canada, as they are in other locations (Freund et al., 2015). However, LPNs were not identified as participants in any literature. We cannot rule them out as participants, as some articles discussed “nurses” without specifying a designation (Barrett et al., 2011; Health Council of Canada, 2009; Paterson et al., 2009). Because the scopes of practice, roles, and responsibilities of each nursing designation are different, future studies should attempt to be clear about designations when designing and reporting studies of nurses. LPNs are the lowest paid of the three nursing regulatory designations, making them attractive to governments and employers who are interested in reducing or controlling expenditures. But, the applicability of research findings to LPN practice within PC teams is limited by the lack of LPN-specific data. There is a need for future research to examine the contribution of this group of nurses to PC, especially in Newfoundland and Labrador, where current budgetary constraints demand prudence.

The findings related to barriers and facilitators of nursing role implementation and integration in PC are consistent with the greater Canadian and international literature. Financial constraints (DiCenzo & Matthews, 2005), legislation, health care provider attitudes (Cashin, Theophilos, & Green, 2017; DiCenzo & Matthews, 2005), and lack of understanding of roles (Cashin et al., 2017; van Soeren, Hurlock-Chorostecki, Goodwin, & Baker, 2009) are cited as barriers throughout the literature. Although there is limited discussion of facilitators to RN and LPN role implementation and integration in PC, the greater body of literature indicates teamwork between NPs and other health care professionals is facilitated by positive, supportive relationships between professionals and their management teams (Poghosyan & Liu, 2016; Reay, Golden-Biddle, & Germann, 2003; Sangster-Gormley, Martin-Misener, Downe-Wamboldt, & DiCenzo, 2011). Furthermore, a structural approach that fosters active participation by health care providers in the planning and implementation process (Reay et al., 2003; Sangster-Gormley et al., 2011) and includes clear policies and practice protocols to minimize role confusion (Norful, Martsolf, de Jacq, & Poghosyan, 2017; Reay et al., 2003) can facilitate NP and RN role implementation and integration in PC. The transition to collaborative practice teams in Atlantic Canada has required extensive commitment from government, institutions, and professionals (Health Council of Canada, 2009; Martin-Misener et al., 2009; Martin-Misener et al., 2004), and much work remains to be done. Although outcomes are promising, there is resistance and perceived lack of support by some stakeholders concerning integration of nursing roles into PC teams. It is in the best interest of professionals, authorities, and the public to explore means of identifying and addressing issues of resistance (Sangster-Gormley et al., 2011). However, the literature did not indicate what, if any, strategies have been implemented to address this issue. Furthermore, many of the articles included in the review were written at times when nurses were being transitioned into PC settings or into new roles within their current settings. To best inform future decisions about nursing role implementation and integration within PC in Atlantic Canada, it would be prudent to re-examine stakeholder attitudes once nurse roles have been in place for some time.

Consistent with other Canadian and international literature (Griffiths et al., 2011; Griffiths et al., 2010; Horrocks et al., 2002; Keleher et al., 2009; Laurant et al., 2005; Lukewich et al., 2016; Swan et al., 2015), the findings of studies included in the review indicated the presence of nurses in PC settings is associated with positive patient and system outcomes. Most notably, there is some evidence in the Atlantic Canadian literature to support that PC teams that incorporate nurses can improve access to health care and improve health outcomes from individuals living with chronic diseases. Studies that examined the relationship between nursing care and patient outcomes found that outcome measures were improved or comparable when measured against care models that did not incorporate nurses. However, researchers did not attempt to identify specific nursing resources and attributes of PC teams that contribute to outcomes. Incorporating a structure–process–outcome framework, such as the Nursing Role Effectiveness Model, into future studies would help clarify the nature of relationships between variables. Furthermore, there were only six published, peer-reviewed research studies examining the relationships between nursing and patient or system outcomes in PC settings. These points represent substantial gaps in evidence in this field and important opportunities for future research.

Limitations

Although the authors attempted to retrieve all available literature, it is possible that additional studies and articles exist that could further enhance our understanding of the use of nursing resources within PC settings in Atlantic Canada. Consistent with JBI (2015) scoping review methodology, we did not conduct comprehensive appraisal of studies or exclude any literature based on methodological quality. Therefore, results cannot be assumed to be generalizable and should not be used alone to inform policy and practice (Arksey & O’Malley, 2005; Grant & Booth, 2009; JBI, 2015).
Conclusion

This scoping review has examined literature related to nursing roles and resources within PC settings in Atlantic Canada. Nurses are present and active in PC settings, particularly as members of collaborative teams. However, the extent to which nursing roles and resources are being utilized remains unclear. Emerging evidence suggests nurses in PC settings positively affect patient outcomes and improve access to health care; and thus, may contribute to necessary improvements within Atlantic Canadian health care systems. Continued commitment by health professionals, health authorities, and provincial governments is needed to support optimization of nursing resource utilization in PC. For this to be accomplished, further inquiry is needed to enhance understanding of the value of nursing roles and resources in achieving desired patient and system outcomes. There is potential for greater understanding of the relationships between variables identified in this review using the Nursing Role Effectiveness Model in research frameworks.

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