

Outcomes Associated with Family Nurse Practitioner Practice in Fee-For-Service
Community-based Primary Care

by

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B.S.N., University of British Columbia, 1982
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of the Requirements for the Degree of

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University of Victoria

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Supervisory Committee

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Abstract

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The formalized nurse practitioner (NP) role in British Columbia is relatively new with the majority of roles implemented in primary care. The majority of primary care is delivered by physicians using the fee-for-service model. There is a shortage of general practitioners (GP) and difficulties with recruitment and retention, particularly in rural and remote locations. The uptake of the primary care NP role has been slow with challenges in understanding the extent of its contributions. This study was to identify the impacts and outcomes associated with the NP role in collaborative primary care practice. Multiple case studies where NPs were embedded into rural fee-for-service practices were undertaken to determine the outcomes at the practitioner, practice, community, and health services levels. Interviews, documents, and before and after data, were utilized to identify changes in practise, access, and acute care service utilization.

The results showed that NPs affected how care was delivered, particularly through the additional time afforded each patient visit, the development of a team approach with interprofessional collaboration, and a change in style of practise from solo to group practise. This resulted in improved physician job satisfaction. Patient access to the practice improved with increased availability of appointments and practice staff experienced improved workplace relationships and satisfaction. At the community level, access to primary care improved for harder to serve populations and new linkages developed between the practice and their community. The acute care services experienced a statistically significant decrease in emergency use and admissions to hospital ($p = .000$). The presence of the NP improved their physician colleagues desire to remain in their current work environment.

This study identified the diversity of needs that can be addressed by the NP role; the importance of time to enhance patient care, and its associated benefits, especially in the fee-for-service model; the value of the NP's role in the community; the acceptance of the clinical competence of NPs by their physician colleagues; the outcomes generated at the practice level in terms of organizational effectiveness and service provision; and substantiated the impact of the role in improving primary care access and reducing acute care utilization.

Key words: primary care nurse practitioner, outcomes, rural practice, case study

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List of Abbreviations Used

AANP	American Academy of Nurse Practitioners
ACHDHR	Advisory Committee on Health Delivery and Human Resources
ANCOVA	Analysis of Covariance
ANP	Advanced Nursing Practice
APN	Advanced Practice Nurse
BC	British Columbia
BCCFP	British Columbia College of Family Physicians
BCMA	British Columbia Medical Association
BCMHS	British Columbia Ministry of Health Services
BCNPA	British Columbia Nurse Practitioners Association
CASN	Canadian Association of Schools of Nursing
CFPC	College of Family Physicians of Canada
CHSRF	Canadian Health Services Research Foundation
CIHI	Canadian Institute for Health Information
CNA	Canadian Nurses Association
CNPI	Canadian Nurse Practitioner Initiative
CNS	Centre for Nursing Studies
CRNBC	College of Registered Nurses of British Columbia
EICP	Enhancing Interdisciplinary Collaboration in Primary Health Care
EMR	Electronic Medical Record
GDP	Gross Domestic Product
GP	General Practitioner
GPSCBC	General Practitioner Services Commission of British Columbia
HC	Health Canada
HCC	Health Council of Canada
MAETT	Ministry of Advanced Education, Training and Technology
MOA	Medical Office Assistant
MoH	Ministry of Health
MoHS	Ministry of Health Services
MSP	Medical Services Plan
NP	Nurse Practitioner
NPOS	Nurse Practitioner Association of Saskatchewan
OECD	Organisation for Economic Co-operation and Development
PHC	Primary Health Care
PHCO	Primary Health Care Organization
RCPSC	Royal College of Physicians and Surgeons of Canada
RN	Registered Nurse
RNABC	Registered Nurses Association of British Columbia
SARI	Senior's at Risk Initiative
SPSS	Statistical Program for the Social Sciences
UK	United Kingdom
US	United States
UVic	University of Victoria
WHO	World Health Organization
YRNA	Yukon Registered Nurses Association

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Chapter 1 – Challenges of the NP Role in Primary Care

The nurse practitioner (NP) role was introduced in 2005 by the British Columbia (BC) Ministry of Health (MoH)¹ as a primary healthcare reform strategy to improve public access to health care services in the province (Advisory Committee on Health Delivery and Human Resources (ACHDHR), 2009; British Columbia Ministry of Health (BCMoH), 2000; College of Registered Nurses of BC (CRNBC), 2006a; Health Council of Canada (HCC), 2004). NP positions have developed across the province in a variety of contexts with the majority of these involving the delivery of community-based primary care to either the general population or specialized population groups (MacDonald & Roots, 2008; Roots, 2008; Roots & MacDonald 2008, 2010). Currently two thirds of primary care NP positions are associated with community health centres and programs for underserved populations; the remaining third work in collaborative practice models with general practitioners (GPs) (Roots & MacDonald, 2010). The majority of primary care in BC is delivered to the population through GPs using the fee-for-service model² of remuneration (Wong et al., 2009). NPs have been introduced as a pilot project in a small number of fee-for-service primary care practices in BC to “best meet the primary care needs of the population” (Canadian Health Services Research Foundation (CHSRF), 2010, p.1).

Although the number of primary care NP roles has been increasing, there are challenges that exist in implementing and integrating NP roles in the province (MacDonald & Roots, 2008; Stevenson & Sawchenko, 2010). One of these challenges is identifying and understanding the

¹ Over the past decade, the government ministry that is responsible for health services and planning in BC has changed its name several times. In this dissertation I will use the current name, Ministry of Health (MoH) to discuss current actions and initiatives. When referencing a particular document or announcement from the past I will use the name of the Ministry at the time the document was produced or the announcement was made to enable readers to track the original reference.

² Fee-for-service – this is the physician payment model in which the individual provider is paid a specified fee for providing a specific service to a patient based on an approved Ministry of Health payment schedule.

extent of the contributions the NP role can bring to a collaborative practice model with community-based primary care practices. To make these contributions more visible, the specific changes that have occurred as a result of the implementation of the role need to be identified and the associated outcomes evaluated (Sidani & Irvine, 1999). Without the identification of these impacts and outcomes it is difficult to demonstrate that NPs make a difference to the delivery of primary care and to the larger health care system (Pringle & Doran, 2003).

Although the NP role is a recent addition to the BC health care system, the role has been in existence in the United States (US) for over 40 years (Marsden, Dolan, & Holt, 2003), and has expanded globally to include the United Kingdom (UK), European countries, Australia, and New Zealand (Canadian Nurse Practitioner Initiative (CNPI), 2005; Furlong & Smith, 2005). During this time there has been a proliferation of studies justifying the benefits of the role. “Three dozen randomized control trials have confirmed that they [NPs] can deliver a wide swath of effective primary care services” (Lewis, 2008, p.270). These studies have shown that NPs have made significant contributions to improved patient health outcomes at the individual and family levels through the management of acute and chronic disease, prevention of earlier onset of disability and institutional care, improved quality of life, and maintenance of optimal functioning (Baer et al., 1999; Mundinger et al., 2000; Newhouse et al., 2011; Quagliette & Anderson, 2002; Schreiber et al., 2003). Evidence from studies in New Zealand, the UK, and the US have shown that collaborative practice between NPs and physicians can result in improved health care system outcomes such as increased patient access, improved physician job satisfaction, and increased productivity (Carr, Armstrong, Hancock, & Bethea, 2002; Dontje, Corser, Kreulen, & Tietelman, 2004; Flanagan, 1998; Gilmer & Smith, 2009; Hooker, 2006; Running, Hoffman, & Mercer,

2008); however, the scope of the NP role and/or the models of primary care delivery in these studies are different than those currently found in BC.

Community-based primary care NP roles have developed in all Canadian provinces and territories (Canadian Institute of Health Information (CIHI), 2006a; Hass, 2006; Yukon Registered Nurses Association (YRNA), 2009). The specific components of these roles have been identified and described in some primary care contexts (DiCenso, Paech, & IBM Corporation, 2003; Goss Gilroy Inc., 2001; Martin-Misener, 2006; Martin-Misener, Downe-Wambolt, & Girouard, 2009). Positive contributions from these roles have been identified at the individual, family, and community level (Dicenso et al.; Goss Gilroy Inc.; Martin-Misener, Reilly, & Robinson Vollman, 2010; Martin-Misener et al., 2009). However, few studies have identified the impact of introducing a NP at the practice and health systems levels (Reay, Patterson, Halma, & Steed, 2006; Sawchenko, Fulton, Gamroth, & Budgen, 2011). There are limited and contradictory findings associated with introducing a NP into fee-for-service primary care practices in other provinces (Centre for Nursing Studies (CNS), 2001; Goss Gilroy Inc.). No researcher has explored in-depth how the NP role has been enacted in fee-for-service primary care practices in BC or the changes and contributions that the role can make at the practice and health system levels. The contributions and changes associated with the enactment of the NP role in fee-for-service primary care practices need to be identified, examined, and understood because findings from other primary care contexts have identified the capacity of the NP role to result in improved outcomes for the primary care practice and the health care system. By identifying the outcomes from these changes, I anticipate that this will contribute to building theoretical knowledge about the value that the NP role can contribute in the fee-for-service model of community-based primary care delivery. The need to demonstrate the value of the NP

role has been identified as a limitation to the development and sustainability of the role (Barton, Baramée, Sowers, & Robertson, 2003; Ingersoll, McIntosh, & Williams, 2000; Pogue, 2007; Schreiber et al., 2003).

Purpose of the Research Study

The purpose of this research study was to identify the changes associated with the introduction of the NP role into fee-for-service community-based primary care practices. The overarching research question was:

What is the impact of introducing a nurse practitioner into a fee-for-service community-based primary care practice?

To identify the changes associated with introducing the NP role, including the specific impacts at different levels, the following questions were used:

- *How has the introduction of the NP role impacted the practitioners within the practice?*
- *How has the introduction of the NP role impacted the practice as an organization?*
- *How has the introduction of the NP role impacted organizations or events in the local community?*
- *How has the introduction of the NP role impacted use of the local health care services by the patients of the primary care practice?*

The specific aims of this research were to: (a) describe the different components of the enacted NP role in the fee-for-service primary care practices studied in this research; (b) describe what changes have occurred as a result of introducing the NP role at the practitioner, internal organizational (primary care practice), external organizational (community organizations and

events), and health system levels; and (c) understand the outcomes of these changes for the practitioners, the primary care practice, the organizations that interact with the primary care practice, and the local health care sector.

Definitions of Terms and Concepts

Terms and concepts used by health practitioners, researchers, and policy makers, in practice and in the literature, often have differing meanings. The following terms form the basis for this study and require discussion and clarification to ensure a common understanding in the context of this study.

Impacts and outcomes. The meanings of the terms impacts and outcomes have been identified as variable and these terms are often used interchangeably (London Business School, 2004; Weiss, 1998; Wilson-Grau, 2008). Impacts can be the immediate effects or changes that an activity, intervention, or program has on behaviours or other factors that are influenced by the activity (Green & Kreuter, 1999); outcomes are then referred to as the end results from this activity or intervention for the people it was intended to serve (Weiss) or the effects of the program on its ultimate objectives (Green & Kreuter). However, impacts and outcomes can also be viewed in the opposite order. Outcomes can be the observable positive and negative changes in the actions of social actors that have been influenced, either directly or indirectly, by the activities that contribute to improvement in people's lives; impacts are the larger, long-term, sustainable changes that occur from these outcomes (Earl, Carden, & Smutylo, 2001; Organisation for Economic Co-operation and Development (OECD), 2008; Wilson- Grau).

In this study, I use the terms actions, impacts, and outcomes to describe the changes that have been created by the introduction of the NP role at the different levels of influence of the

fee-for-service practice. Actions describe the activities of the NP. Impacts depict the initial and intermediate changes created by these activities, and outcomes are the end results for the people (practitioners, practice staff, and patients), the community, and the health care system.

Primary health care and primary care. Primary health care (PHC) and primary care are terms that are also often used interchangeably, sometimes leading to confusion (Barnes et al., 1995; Canadian Nurses Association (CNA), 2005a; Lamarche et al., 2003a). The term *primary health care* was coined by the World Health Organization (WHO) in 1978: it is both a philosophy, and a conceptual model for improving overall health and the delivery of healthcare (WHO, 1978). PHC philosophy is grounded in a vision of global social justice that aims to ensure health care is available to the whole population and encompasses primary care, disease prevention, health promotion, population health, and community development within a holistic framework, with the goal of providing essential community-focused health care (Shoultz & Hatcher, 1997; WHO). The principles of PHC are access and equity, individual and community participation and empowerment, health promotion, appropriate and affordable technology, and inter-sectoral collaboration and cooperation (Calnan & Rodger, 2002; CNA; WHO).

PHC recognizes that health and health services occur within unique physical environments affected by historical, socio-political, economic, and cultural contexts that shape the determinants of health for the individuals, families, groups, communities, populations, regions, and countries concerned (Thomas-Maclean, Tarlier, Ackroyd-Stolarz, Fortin, & Stewart, 2009). The main focus of PHC is the health of individuals, families, and communities; however, PHC is equally concerned with addressing the overall social and economic development of communities and thereby targets the social determinants of health. PHC embodies a spirit of

self-reliance and self-determination, which can result in community empowerment, increased capacity, and resilience (Vukic & Keddy, 2002).

PHC implies essential community-based health care that a) is universally accessible to individuals, families, groups, communities and populations; b) is driven by community participation in identifying health issues; c) involves community participation in decision-making regarding appropriate solutions; and d) is sustainable by the community (Thomas-Maclean et al., 2009, p. 2).

Primary care is a component or constituent within PHC: “While primary care is distinct from PHC, the provision of essential primary care is an integral component of an inclusive PHC strategy” (Tarlier, Johnson, & Whyte, 2003, p. 180). Although definitions of primary care have evolved over time to include a more interdisciplinary focus, and continue to evolve (Hogg, Rowan, Russell, Geneau, & Muldoon, 2008), Starfield’s 1992 definition of primary care remains foundational to most current definitions. Starfield’s definition is:

the level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions, and coordinates or integrates care provided elsewhere or by others (p 8 -9).

Starfield (1998) states that primary care is characterized by: (a) an ongoing relationship between the patient and the provider; (b) the care provided is inclusive of illness prevention, health maintenance, health promotion, and the management of acute and chronic illness; and (c) that this process will ensure the provision of coordinated care across providers and differing levels of the health care system.

In this study, I will use the term PHC as both the philosophical approach to health and health services, and a conceptual framework for health service delivery characterized by the intersectoral collaboration of different community and organizational sectors toward mutually defined economic, social, health, and political goals (Barnes et al., 1995). PHC will include

community-based primary care services that provide the entry point to the health care system for individuals and families (Barnes et al.; CNA, 2003a, 2005a; Tarlier et al., 2003).

Advanced nursing practice, advanced practice nursing, and nurse practitioner.

Efforts to keep up with increasing and ever changing demands and constraints on health care services have led to the need to enhance nursing's contribution through the development of expanded roles for nurses known as advanced nursing practice (Schober & Affara, 2006). Expanded roles, while varying slightly in their scope in different countries and jurisdictions, include initiatives such as nurse prescribing of medications and treatments, diagnosis and ordering of laboratory tests, and referral and admission rights to institutional health care services (Schober & Affara). In Canada, advanced nursing practice (ANP) "is an umbrella term describing an advanced level of clinical nursing practice that maximizes the use of graduate educational preparation, in-depth nursing knowledge and expertise in meeting the health needs of individuals, families, groups, communities and populations" (CNA, 2008, p. 10). Individuals who work in these ANP roles are referred to as advanced practice nurses (APN): the NP role is considered one of these roles (CNA; DiCenso, 2008).

Nurse practitioners are registered nurses (RN) with master's level education who provide comprehensive, holistic care by combining prevention and health promotion with the diagnosis and treatment of acute and chronic illness (CRNBC, 2010b; Registered Nurses Association of BC (RNABC), 2003). The NP role can be undertaken in a variety of community-based settings including primary care, public health, residential care settings, and acute care settings. The scope of the role can encompass health assessment, diagnosis, pharmacotherapeutic and non-pharmacotherapeutic management; interdisciplinary collaboration; individual and community health promotion; education; and research, mentoring, and leadership (CNPI, 2006a; CRNBC;

DiCenso et al., 2003; McCloskey, Grey, Deshefy-Longhi, & Grey, 2003; Quagliette & Anderson, 2002; RNABC).

Nurse practitioners can be classified in two different ways; either by their population-based registration category with the provincial regulatory body as in BC (family, adult or paediatric) (CRNBC, 2006b, 2010b, 2011; RNABC, 2003), or by the focus of the role that they undertake as in Ontario (primary care or acute care) (DiCenso et al., 2007; DiCenso, 2008). Each of the three registration categories in BC provides for a broad scope of practice that allows NPs to diagnose independently and manage many common acute and chronic conditions (CRNBC, 2008a, b, c, 2011). Within each of these three registration categories, NPs may choose to practice in primary, community, residential, and/or acute care settings; be primary care providers to individuals and families; or choose to undertake specialization that builds upon the broad population-based stream under which they are regulated (CRNBC, 2010b; RNABC). In the BC context, almost all NPs working in primary care settings are registered in the family NP registration category (Roots & MacDonald 2008, 2010); as a result the NPs referred to in this research are family NPs who work in primary care practices.

This research study is presented in several chapters. Chapter 2 provides a review of the literature related to the NP role in community-based primary care practice, current issues in primary care delivery, and the known impacts of the NP role on primary care practice and the health system. Chapter 3 provides an overview of the theoretical aspects underpinning the methodology used for the study. The implementation of the methodology is described in Chapter 3. The findings from the study are presented in Chapters 5, 6, 7, and 8. Chapter 9 concludes with the discussion of the findings, the contributions of the study, and implications for policy, practice and further research.

Chapter 2 - Literature Review

This literature review is intended to present an overview of the NP role in community-based primary care practice and what is known of the impact and outcomes associated with the NP role at the practice and health system level. The review is divided into three sections. In the first section, *Nurse Practitioners in Primary Care*, I provide a brief history of the development of the NP role in community primary care practice in Canada and BC, and discuss the scope of the NP role. In the second section, *The Delivery of Primary Care*, I discuss primary health care models, primary health care reform, collaborative practice, and current issues in the delivery of primary care. Finally, in the third section, *Influences on Outcomes in Primary Care Practice*, I explore the influence of context and change processes on outcomes in primary care practices, describe what is known about the outcomes at the practice and health system level associated with the introduction of NPs and other health professionals, and discuss the cost-effectiveness of the NP role.

Nurse Practitioners in Primary Care

History of NPs in community-based primary care in Canada. The history of nurse practitioners in Canada has been closely tied to the availability of physicians to meet the public's need for primary health care services, and the strength of the political will to bring about changes in the approach to the delivery of these services (de Witt & Ploeg, 2005; DiCenso, 2008; DiCenso et al., 2007; Tomblin Murphy Consulting Inc., 2005). The first nurses acknowledged as delivering "nurse practitioner-like" services in primary care were outpost nurses in the 1930's who practised in remote and northern communities (Hodgson, 1982). Recognition of this role resulted in the development of the first education program specifically to prepare nurses for NP-like roles in 1967 (DiCenso et al., 2007; Worster, Sardo, Thrasher, Fernandes, & Chemeris,

2005). A shortage of primary care physicians, coupled with a surplus of nurses in the late 1960's and early 1970's, led to a decision to make better use of the capacity of nurses working in urban family practices by expanding their roles to provide patient services that had previously been performed by physicians. This decision led to the development of the first university based NP education program in Ontario in 1970 (LeFort & Kergin, 1978) and the implementation of NP roles in primary care practices in communities in Ontario (DiCenso et al., 2007; Spitzer & Kergin, 1973; Spitzer et al., 1973; Spitzer et al., 1974). Subsequently, the 1972 *Report of the Committee of Nurse Practitioners* (Boudreau, 1972) recommended the implementation of this expanded role for nurses as a high priority for the Canadian health care system. This was followed in 1973 by *The Expanded Role of the Nurse: A Joint Statement of CNA/CMA* from the Canadian Nurses Association (CNA) and the Canadian Medical Association (CMA) that supported the development and introduction of the NP role in Canada (CNA-CMA, 1973). As a result, university programs to prepare NPs were developed in a number of provinces, culminating in Alberta, Manitoba, Ontario, Quebec, Nova Scotia, and Newfoundland producing NP graduates (Nurse Practitioner Organization of Saskatchewan (NPOS), 2010). While the total number of graduates from these programs is unknown (Tomblin Murphy Consulting Inc., 2004), between 1970 and 1983, at least 250 NPs graduated in Ontario (DiCenso et al., 2007). As a result of these education programs, NP-like roles subsequently developed in other provinces including BC, Saskatchewan, Manitoba, Ontario, Newfoundland, and in northern Canada (Centre for Nursing Studies (CNS), 2001; Chambers & West, 1978a; NPOS; Schreiber et al., 2003).

The initial introduction of the NP role was followed by a number of studies in Ontario and Newfoundland that established the effectiveness of the primary care services delivered by these nurses. The Ontario study, known as the Burlington trial, conducted in 1971 to 1972 by

physicians Spitzer, Sackett, and Sibley, randomized families to NPs and physicians to evaluate the effect of substituting physicians with NPs. Results showed that NPs were able to manage 67% of all patient visits, with no difference in the quality of care while obtaining higher patient satisfaction scores (Spitzer et al., 1974). This trial also identified a further benefit from the addition of NPs to these primary care practices: “The physicians involved in this trial believe that their own work became more efficient since they were forced to develop the rigor and clarity of thought needed to communicate with their co-practitioners” (p.255). Another similar randomized controlled trial of the quality of care provided to families by the combination of a physician and a family practice nurse³ in St John’s Newfoundland found comparable results that demonstrated NPs were effective and safe (Chambers & West, 1978b). A chart extraction study of the quality of medical care provided in five Newfoundland family practices before and after the addition of a NP found no differences in the scores obtained despite the physicians having significantly more experience in the primary care role than the NPs (Chambers, Burke, Ross, & Cantwell, 1978).

Despite the demonstrated effectiveness of the NPs in these studies, by 1983 the shortage of physicians had turned to a surplus in most urban areas, and other issues relating to the lack of remuneration mechanisms, absence of appropriate legislation, little public awareness, and limited support from other health professionals resulted in the discontinuation of the NP role in all but northern settings (Browne & Tarlier, 2008; De Leon-Demare, Chalmers & Askin, 1999; DiCenso et al., 2003; Spitzer, 1984). All NP education programs, except the two programs specifically to prepare nurses for work in remote northern nursing stations, were closed by 1983 (Dicenso et al., 2007).

³ The title family practice nurse was used in Newfoundland and Labrador in the 1970s for nurses who had completed the expanded role university program.

By the early 1990's the perceived oversupply of physicians had resulted in governments reducing medical school enrolments in a number of provinces creating a "sudden transformation from a surplus to a shortage, which would grow steadily more severe" (Barer, 2007, p.1). This action, along with the implementation of health reform agendas in a number of provinces designed to provide more efficient use of resources and shift the emphasis from treatment to health promotion, disease prevention, and community-based care, led to a renewed interest in the NP role (De Leon-Demare et al., 1999; DiCenso et al., 2007; Goss Gilroy Inc., 2001; Patterson, 2001). Following the lead of the Ontario government in 1993, all provincial/territorial governments have since moved to introduce NP roles to meet the need for more primary care services (Fahey-Walsh, 2004; Patterson). This interest in regenerating the NP role has resulted in the necessary legislative changes being passed between 1997 and 2009 in all 13 Canadian jurisdictions⁴ to protect the NP title and enable NPs to practice (CIHI, 2006a; Hass, 2006; YRNA, 2009). However, variations in the extent of political will in different jurisdictions, the long term effects of a lack of a coordinated approach to health and education by the jurisdictions created by the divisions of power stipulated in the British North America Act (1867) (Hillmer, 2011), and the 12 year time frame associated with implementing these changes, has resulted in different requirements for education and licensing of NPs across the provinces and territories (CNA, 2009a). These educational and licensing differences are the result of developing NP roles, in particular primary care roles, without a national plan or framework (agreed to by the provinces) being in place to guide the process from the beginning.

⁴ At the time of writing (March 2012), the Yukon government had passed the necessary legislation and the Yukon Registered Nurses Association was in the process of developing the necessary regulations to permit NPs to work under the title of NP in the Yukon Territory.

To address this lack of a national framework for the primary care NP role, and support the sustainability of this role, the CNA undertook the Canadian Nurse Practitioner Initiative (CNPI)⁵ from 2004 to 2006 (CNPI, 2006a). Primary care NP roles have now been established in all jurisdictions through the use of a variety of models of primary care delivery (CIHI, 2006a; CNA, 2009a; “Nurse-led clinics ...”, 2010; van Soeren, Hurlock-Chorostecki, Goodwin, & Baker, 2009). However, while some progress has been made through the work of the CNPI, differences still remain in educational and licensing requirements across the jurisdictions (CNA, 2009a; Martin-Misener et al., 2010a). In particular, Ontario, Newfoundland, and Saskatchewan do not require primary care NPs to have master’s level education (Fahey-Walsh, 2004; CNA, 2009a; Martin-Misener, 2010), and BC requires a different licensure process involving a different written examination and an Objective Structured Clinical Exam (CRNBC, 2006b). Despite the successful re-introduction of the role nationally, the longstanding challenges with funding NP positions remain, particularly in the primary care sector where the majority of NPs currently practice (Martin-Misener; “Nurse-led clinics ...”; Stevenson & Sawchenko, 2010).

History of NPs in community-based primary care in British Columbia. The implementation of the formalized NP role in BC did not occur until 2005; later than many of the other provinces in Canada (Fahey-Walsh, 2004). However, the exploratory and preparatory work necessary for the introduction of the role began in 2000. A small study to explore the

⁵ Canadian Nurse Practitioner Initiative (CNPI) was sponsored by CNA and funded by Health Canada from 2004 to 2006 through the PHC Transition fund to develop a pan-Canadian framework to support the sustained integration of the NP role in Canada’s health system through identifying the necessary infrastructure. This initiative identified the legislative, practice, human resources, and educational issues that were challenging the consistent introduction of the NP role and provided 84 activities under 13 main recommendations as a way forward to a national approach (CNPI, 2006a). A follow-up study to assess the level of success in completing the recommendations of the 2006 report was undertaken in 2009 (CNA, 2009a) which found that “more than half of the actions have been fully or partially completed since 2006, and that several key actions remain in progress or are not completed” (p.3). The 2009 report recommended that a multi-stakeholder, multi-jurisdictional forum be convened to develop an updated action plan with clear, achievable goals to successfully resolve the outstanding actions and recommendations. This was followed by the development of a collaborative integration plan for the NP role in Canada: 2011-2015 (CNA, 2011).

possibility of implementing an additional ANP role⁶ in BC was undertaken in the spring of 2000 (MacDonald, Schreiber, Hammond, & Wright, 2001). This was followed by a second study undertaken from late 2000 to early 2003 to explore how the role of nurses, including NPs, could be expanded in BC (BCMōH, 2000; Schreiber et al., 2003). This study provided recommendations to guide the introduction and implementation process of the NP role in the province, and highlighted gaps in existing services that could be addressed by the role. The specific gaps that were identified included the delivery of health promotion and disease prevention services, primary care, services to seniors, and mental health services. Shortly after the initiation of the second study, in December 2000, the MoH announced that the NP role would be established in the province with the goal to improve public access to health care services (CRNBC, 2006b; BCMōH). By the time the work required to introduce the NP role in BC was commencing there had already been significant research undertaken on NP role implementation, in both Canada and other countries, which demonstrated that there were significant barriers and challenges to implementation and integration of the NP role (Brown & Olshansky, 1998; Burgener & Moore, 2002; Cummings, Fraser, & Tarlier, 2003; Dicenso et al., 2003; Goss Gilroy Inc., 2001; Hamric, 2005; McLain, 1988; Patterson, 2001; Sidani, Irvine, & DiCenso, 2000; van Soeren & Miceviski, 2001; Way, Jones, Baskerville, & Busing, 2001; Way, Jones, & Busing, 2000). As a result, the key stakeholder groups in BC put significant efforts into developing an implementation strategy for the NP role that built on and learned from the lessons of other provinces and jurisdictions (MacDonald et al., 2006). Unfortunately the proposed implementation strategy was not carried through as planned, and barriers and challenges to successful NP implementation remain across the province (MacDonald & Roots, 2008).

⁶ The clinical nurse specialist role was at that time well-established as an ANP role in BC (MacDonald, Regan, Davidson, Schreiber, Crickmore, et al., 2006)

The development of the NP role was initiated in a partnership between the Ministry of Health Services (MoHS) and the Registered Nurses Association of BC (RNABC)⁷. RNABC had the responsibility to develop the competencies for NP practice and the regulatory framework to cover the requirements for initial registration and annual registration renewal (CRNBC, 2006b). The MoHS was responsible for the regulations that established the scope of practice for NPs, dealing with employment issues (BC Ministry of Health Services (BCMHS), 2004a), and working with the Ministry of Advanced Education, Training and Technology⁸ (MAETT) to fund the necessary educational programs (BC Ministry of Advanced Education, Training and Technology (BCMAETT), 2001). The MoHS undertook substantial consultation prior to developing the regulations resulting in a scope of practice that is among the most expansive in Canada, incorporates an overlapping scope of practice with medicine, and provides significant autonomy for NPs. These regulations have eliminated many of the barriers to NP role implementation identified in the literature, in particular the limited authority of NPs to practice to the full extent of the competencies expected of those in the role.

After extensive consultation provincially, nationally, and internationally, RNABC determined, in developing the competencies for NP practice, that they would regulate NPs in three population-based streams of practice: family, adult, and paediatric⁹ (CRNBC, 2010b; RNABC, 2003; Wearing, Black, & Kline, 2010). Each of the three regulated streams' scopes of practice allows for independent diagnosis and management by NPs of many common acute and chronic conditions. The three scopes of practice each have specific standards, limits, and

⁷ RNABC became the College of Registered Nurses of BC (CRNBC) on August 19, 2005, and is responsible for regulating registered nurses and nurse practitioners under the Health Professions Act.

⁸ The Ministry of Advanced Education, Training and Technology changed in 2008 and is now called Ministry of Advanced Education and Labour Market Development.

⁹ The competencies required for NPs in BC were revised in 2010 and the new version came into effect in 2011. Given the timing of this study in relation to the release of these new competencies, both the 2003 and 2011 competencies are referred to when discussing issues relevant to the competencies required for NPs in BC.

conditions that determine when NPs have the authority to diagnose, order diagnostic tests, prescribe and dispense medications, and delineate when there is a need for consultation or referral to a physician (CRNBC, 2008a,b,c, 2011). Descriptions of the expectations and profiles of a newly graduated NP in each of the three streams refer to “nurse practitioners as primary care providers” (p.1) and state that they “are prepared with the competencies to work independently with clients ...in general primary care settings” (p.1,2,3), the only difference being the age of the identified clients (CRNBC, 2010a).

The MoHS and RNABC also determined that all NPs in BC, irrespective of the practice setting or stream of practice, would be required to have master level education as entry to practice (CRNBC, 2006b). This was consistent with the recommendations of the Canadian Association of Schools of Nursing (CASN) Primary Health Care Nurse Practitioner Education Task Force (CASN, 2006) and the Canadian Nurse Practitioner Initiative (CNPI, 2006a); however, it is in conflict with some of the other provinces (Fahey-Walsh, 2004; CNA, 2009a; Martin-Misener, 2010). To meet the competencies required for these primary care NPs, three Master of Nursing - family NP programs were created in the province that have been producing graduates since 2005.

Over the course of the seven years since the initial licensing of NPs in BC (2005 to 2012) approximately 240 NPs have become registered to practice in BC. A smaller group of nurses (approximately 20) have graduated from programs but are not registered to practise (Roots, 2011). However, due to challenges with funding for NP positions (Stevenson & Sawchenko, 2010) only approximately 80% of these registered NPs are currently able to practice in the province (Roots & MacDonald, 2010; Roots, 2011). Of those NPs practising in November 2011, 61% were providing primary care in community-based settings (Roots). In BC, the majority of

all NP positions (89%) and 85% of community-based primary care NP positions are funded through the six government funded health authorities (Roots & MacDonald); five of these are regional health authorities responsible for geographical areas of the province and one is a provincial health authority responsible for province-wide specialized tertiary services. Some health authorities have chosen to develop some NP positions as pilot projects by placing salaried NPs into fee-for-service primary care practices (DiCenso et al., 2010), highlighting the potential of “a collaborative model of primary care” (CHSRF, 2010 p.2). Evidence collected one year into two of these pilot projects indicated “rave reviews from patients, nurse practitioners, and physicians alike” (CHSRF, p.2), but little is known about the actual changes that have transpired at the practice level, or the impact and outcomes of these changes for the practice, the organizations that interact with the practice, and the health system at large. Identifying and understanding these changes requires understanding the enactment of the NP role in primary care.

Enacting the NP scope of practice in primary care. Scope of practice is generally considered to mean the activities that members of a professional group are educated and authorised to perform (Davies & Fox-Young, 2002). The enactment of a scope of practice can be referred to as role enactment (Schuiling & Slager, 2000). Role enactment is differentiated from scope of practice as being the actual practice or day-to-day activities that are performed by health care providers (White et al., 2008). Oelke et al. (2008) identified that the actual performance of activities is influenced by factors such as legislation, workplace policies, experience, the context of practice, respect of other health care providers, and level of competence. Baranek (2005), in her review of scopes of practice of multiple health professions, recognized the overlap of role and function that occurs across professions. Some authors have

suggested that maximizing role enactment in contexts with multiple healthcare professionals is strongly influenced by the individual practitioner's ability to work in a team, collaborate, understand the others' skills and knowledge, and develop the trust and respect of the other health professionals (Baranek, 2005; Besner et al., 2005; Davies & Fox-Young; White et al.). Optimal maximization of enacted scopes of practice has been shown to improve patient safety, inter- and intra-professional relationships, and result in better health outcomes for all (Davies & Fox-Young).

The enacted role of the NP in primary care has been described in other jurisdictions. In rural Nova Scotia, Martin-Misener (2006) found the NP role to have three foci: individual and family focused direct care; population focused activities; and professional practice activities that include research, education, and administrative activities. These findings are consistent with the expectations of ANP roles identified in the CNA framework (2008) and the *Canadian NP Core Competency Framework* (CNA, 2010). Consistent with the findings of earlier and later studies (de Guzman, Ciliska, & DiCenso, 2010; DiCenso et al., 2003; Holcomb, 2000; Koren, Mian, & Rukholm, 2010; Sidani, Irvine, & DiCenso, 2000; van Soeren et al., 2009), Martin-Misener found the major focus of the role to be on direct patient care; however, she also identified population-focused activities as an important part of the NP role. With a population-focus, the NP "...could connect the community and the primary health care practice by reaching out to identify high risk patients and also by linking physicians to the health-related work of community organizations" (p. 141). An Alberta study also found the NP to be the conduit to the community: "Community leaders developed strong working relationships with the NP ... they could contact the NP on any issue they deemed important to community health" (Reay et al., p.103). Studies in Ontario and Nova Scotia (DiCenso et al., 2003; Koren et al., 2010; Martin-

Misener; van Soeren et al., 2009) identified professional practice activities. In the Martin-Misener study, NPs engaged in professional practice activities both independently and collaboratively with physicians. From these studies I expected that the enacted roles of the NPs in this study would have a similar distribution of the identified three elements; however, confirmation of this needed to be obtained. I also hypothesized that the optimization of these roles within the practice setting could lead to improved relationships and better outcomes for all associated with the practice.

The Delivery of Primary Care

Models for the delivery of primary health care and primary care services. The impacts and outcomes achieved by PHC and primary care services are influenced by the organizational model used to deliver the services (Marriot & Mable, 2000). Lamarche et al. (2003a) undertook an international synthesis of models for organizing PHC in which they studied 28 primary health care organizations in 12 industrialized countries and developed a taxonomy of models based on the dominant organizational characteristics of the studied cases. This synthesis involved both analysis of the structure and organization of these PHC organizations and analysis of the impacts such as effectiveness, accessibility, responsiveness, quality, continuity of care, and productivity based on empirical data provided in 38 primary studies. The evaluation data provided in these studies was assessed for the strength of its evidence through statistical measures and by using a three round Delphi study with 50 expert opinions (Lamarche et al., 2003b).

In this taxonomy Lamarche et al. (2003a) identified and described two main approaches for organizing PHC delivery: the *professional approach* and *community-orientated approach* (see Table 1). Each of these approaches has two models based on their delivery objectives and

the degree of integration with other parts of the healthcare system. Both the professional approach models, *professional contact* and *professional co-ordination*, were designed to deliver medical services to patients; the professional contact model does so without integration within the other components of the health care system, while the professional co-ordination model does include integration with the rest of the healthcare system. The two community-orientated models, *integrated* and *non-integrated*, were designed to improve the health of geographically defined populations (communities) as well as contribute to community development by providing a set of required medical, health, social, and community services. Again, these differ in their degree of integration into the rest of the healthcare system. The professional co-ordination model includes the use of physicians and nurses working together and both the community models involve the use of teams of professionals from various disciplines to provide a range of patient services and co-ordination.

Table 1. Summary of Types of Primary Healthcare Models

	Professional Approach		Community- orientated Approach	
	Professional Contact	Professional Co-ordination	Integrated	Non-integrated
Delivery Objective	Medical Services to the Patient	Medical Services to the Patient	Improve the health of the population and contribute to community development	Improve the health of the population and contribute to community development
Integration with the health care system	No	Yes	Yes	No
Team approach	No	Yes	Yes	Yes

Lamarche and colleagues (2003a) endorsed the integrated community-orientated model as the most effective in terms of: (a) health and service provision; (b) supplying services of the highest technical quality and relevancy to the community; and (c) having the best possibility of controlling costs and usage. However, they acknowledged that in the areas of responsiveness and accessibility the professional co-ordination model excels. While the strength of the evidence for the use of these two models is high, they do acknowledge that “regardless of the model adopted there will be varying residual gaps that will need to be filled” (Lamarche et al., 2003b p.63). They recommended a combination of these two models as the optimal model.

Primary care in Canada has traditionally been delivered by GPs without the involvement or benefit of interprofessional teams or collaboration (HCC, 2008; Hutchison, 2008). According to the Lamarche et al. (2003a) report, the dominant model for the delivery of primary care in Canada is the professional contact model, which is described as physicians practising in solo or group practices with little contact with other health care professionals and no accountability to a defined community. However, this approach was recognized as early as 1973 (Lees, 1973) as not being effective in its delivery of primary care services because it “fails to make maximum use of the skills available” (p. 955). Furthermore, it has not been able to keep up with the needs of a burgeoning aging population with increasing chronic health issues, nor has it been able to address the health concerns of marginalized populations (Hutchinson, Abelson, & Lavis, 2001).

In BC, the majority of primary care is delivered through family practice physicians under the professional contact model (Lamarche et al., 2003a; Watson et al., 2009) using the fee-for-service model of remuneration (Wong et al., 2009). The other model of service delivery, the

community-orientated approach (Lamarche et al.), is also used in the province in the 69 to 81¹⁰ community health centres identified in 2008 (Goldsmith, 2008 as cited in Wong et al., 2009). These centres serve either a geographically-defined population, often either rural or remote, or a specific population that experiences barriers to access through other approaches. The services at these centres are more likely to be provided through interdisciplinary teams funded through contracts with health authorities or methods of remuneration other than fee-for-service. Some primary care is also provided through interdisciplinary teams working through *community collaboratives* that target improving outcomes for patients with specific chronic diseases (Wong et al.). NPs have been implemented as primary care providers in a number of these primary care delivery models, including the professional contact - “traditional family practice” model, the community clinic model, and the community collaborative model (Roots & MacDonald, 2010). Based on the descriptions provided in the Lamarche report I propose that the integration of the NP role into fee-for-service primary care practices could move the model of delivery of care from the professional contact model to the professional co-ordination model through the development of a team approach involving the GP and the NP. Depending on the context and the level of involvement of this team with the community, this new model may include aspects of the integrated community model. This potential for change in the model of care delivery would be a step towards reforming or renewing the major type of PHC available in Canada.

History of primary health care renewal in Canada. Primary care¹¹ is the foundation of the health care system in Canada, as its’ services provide the “basic tools for health improvement and illness care, and are often the gateway to other health services” (CIHI, 2003, p.

¹⁰ The 2008 study (Goldsmith) identified 69 community health centres across the province and another 12 centres that could be included in the definition.

¹¹ This document (CIHI, 2003) uses the term primary health care; however their description of the services included is consistent with the identified definition of primary care in this study.

19). Since the early 1970's there have been "repeated calls for radical change" (Hutchison et al., 2001, p.116) to the basic structure of this system. This change, *primary health care renewal*, is intended to re-vision and transition a primary medical care model focused on physicians in solo practice treating and curing episodes of illness, to a more comprehensive PHC model based on the principles of PHC and focusing on prevention, continuous, and comprehensive care by health professionals working in teams with community participation, and intersectoral collaboration (Romanow, 2002; Starfield, 1998).

Since the 1970s, a number of PHC reform initiatives have been undertaken both federally and provincially, all driven by the need for cost control, increased access, and quality issues such as better co-ordination, integration, and multidisciplinary care (Fooks & Lewis, 2002; HCC,2004). These included the development of alternative physician payment mechanisms, increased usage of non-physician practitioners, and the use of pilot or demonstration projects (CIHI, 2003; Fooks, 2004; Hutchison et al., 2001). The late 1990s brought the first of the large scale health reform funding from the federal government: The \$150 million Health Transition Fund (1997 to 2001) the purpose of which was "to test and evaluate innovative ways to deliver health care services" (Health Canada (HC), 2007a, p.1). Primary care and PHC were identified as one of the four priority areas for this new funding with the majority of these funds being used by provinces and territories to develop demonstration projects. However, these attempts at reform failed to have a substantial impact on the system (Fooks). This is attributed, in part, to the use of pilot or demonstration projects which gave the "impression that a final decision on a policy direction hasn't been made, permits time for opposition to build, and leaves open the possibility of policy reversal when new Ministers or governments take office" (Fooks, p 5-6). Research into the enablers and barriers to effective change has shown that when funding is

project-based “it is unusual for these initiatives to become institutionalized, adequately resourced and formally evaluated” (Enhancing Interdisciplinary Collaboration in Primary Health Care (EICP), 2005, p. ii).

By 2000, “Canadians began to name health care as the single most important problem facing the country, overtaking concerns about the economy, which had dominated public opinion surveys throughout the 1990s” (HCC, 2008, p.7). There was almost universal agreement that PHC change was required across the entire health care system, resulting in an agreement by the federal, provincial, and territorial First Ministers to work together on a PHC agenda (HC, 2007b). The resulting plan emphasized the importance of multi-disciplinary teams and established the \$800 million Primary Health Care Transition Fund (2000 to 2006) to support provinces and territories in their efforts to reform the PHC system (HC, 2007b). This fund was to be targeted at provincial projects, multi-jurisdictional collaboration, and national initiatives to develop the skills and capacity of PHC providers, technology, research, and evaluation (HC; Zelmer & Lewis, 2003), all of which were envisioned to have long-term and sustained effects on the health care system (HC); however, the majority of jurisdictions used the funds to initiate small pilot projects rather than invest in long-term viable change (HCC, 2008). This history of attempting sustainable change through the use of pilot projects reinforces the need to identify the impacts and outcomes associated with this pilot project to introduce NPs into fee-for-service primary care practices. Identifying the changes occurring in the practices, and the outcomes of these changes, could become the precursor to a formal evaluation in the future.

Following the establishment of the Primary Health Care Transition Fund there were a number of commissioned studies and reports, both nationally (Kirby, 2002; Romanow, 2002) and by individual provinces (Alberta, New Brunswick, Ontario, Quebec, and Saskatchewan)

about the state of the Canadian health care system. All of these identified the need for continued PHC reform with a focus on population health and primary care reform (Fooks & Lewis, 2002).

The response to these reports was the 2003 *First Ministers' Accord on Health Care Renewal* (HC, 2003). This accord reached federal/provincial consensus on four core components necessary for an effective PHC system and set targets for measuring success:

- 1) Improved continuity and coordination for care of the patients
- 2) Early detection and action through primary health care teams
- 3) Better information on needs and outcomes through better information technology and management
- 4) New and stronger incentives to support adoption of new approaches to improve patient care and enable providers to work together

...and set goals that by 2011 at least half of [each jurisdictions] residents/potential users would have access to an appropriate provider 24 hours a day, seven days a week (24/7); and residents/potential users will routinely receive needed care from multidisciplinary primary health care organizations or teams (HCC, 2004, p.4).

The accord brought with it new funding “loosely linked to reform objectives” (HCC, 2008, p. 10) including \$16 billion over five years to improve access to PHC providers, home care, and provide coverage for catastrophic drug costs (HCC, 2008). The accord was met with generally positive responses; however, there were concerns expressed regarding the absence of detail about what the new funding was meant to achieve and the impact of unpredictable and potentially irregular transfers on long term planning. One of the successes of the accord was the establishment of the Health Council of Canada (HCC) “to report to Canadians on the progress of health care renewal” (HCC, 2008, p.3). A year later in 2004, a second First Ministers’ agreement, *10 Year Plan to Strengthen Health Care*, expanded the funding and fleshed out aspects of the 2003 accord. In 2008, the HCC released a comprehensive report on the first five years since the implementation of the accord in which they stated:

We find much to celebrate and yet much that falls short of what could – and should – have been achieved by this time (p.2). ... But has the accord had the broad national impact that government leaders intended? In short the answer is no (p. 33). ... [with regard to PHC] nationwide progress is uneven and difficult to measure. More concerning, too many Canadians don't have timely access to their regular medical provider and too often primary health care services are not coordinated or comprehensive (p.34).

Although the current 10 year plan does not expire until 2014, the federal government announced in December 2011 its plan for health funding for the period until 2024. The current level of funding increases (six per cent per year) will continue until the 2016-17 fiscal year. Following that, annual increases will be tied to nominal GDP (Gross Domestic Product), but will be guaranteed to be at least three per cent per year (Payton, December 19, 2011). Under this new approach to health transfer payments the decisions on how to spend this money are left entirely with the individual provinces (Norquay, December 23, 2011). Given this situation, a greater understanding of how collaborative practice between NPs and physicians can improve outcomes in the delivery of primary care, may be beneficial in guiding how provinces choose to spend their health care resources.

History of primary health care reform in British Columbia. Pressured by rapid growth in health care expenditure during the second half of the 1980s, a subsequently increasing provincial debt, and the onset of a recession at the beginning of the 1990s, BC began its current era of health care reform with the 1990 Royal Commission on Health Care and Costs (Lazar, 2009). This commission undertook a review of the provincial health care system and in its report *Closer to Home* made recommendations for changes including the development of decentralized regional management for the delivery of health services (Brackley & Penning, 2004). This report led to a new policy statement by the government in 1993 entitled *New Directions for a Healthy British Columbia* which “committed the government to a population health perspective

and extensive community involvement in the health services reform process” (Davidson, 1999, p.35). This policy was proposed to improve intersectoral collaboration through the integration of a broad range of services at the community level under the control of the community health centre; however it was fiercely opposed by the BC Medical Association, the BC Health Association, and the Union of BC Municipalities (Davidson). As soon as this restructuring was completed the *New Directions* policy was formally abandoned (1996) and replaced with a modified approach *Better Teamwork, Better Care*, which focused health care on

narrowly defined core services, outcomes measures and the provincial government’s preoccupation with developing an accountability framework...and [measuring] results achieved by health care spending. This was quite different from the 1993 emphasis on articulating responsibilities in terms of results for people [and] the needs of the community (Davidson, p. S38).

The extent of inclusion of PHC services within these *core services* in this new health care reform process was left up to the individual decision making of the 52 regional health authorities (Stone, 1999). Reform to health authority regionalization continued in 2002 when the 52 regional health authorities were consolidated into the current six health authorities (Wong et al., 2009).

Federal funding provided to BC through the Health Transition Fund (1997 to 2001) was used to implement seven primary care demonstration projects (BCMoHS, 2004b; Mable & Marriott, 2002). These projects were designed to demonstrate a primary care model that adopted an integrated multidisciplinary group medical and community services approach to a full range of care including 24 hour/seven day a week access to medical care, illness and injury prevention, and health promotion, and funded physicians on a population-based model. Implementing these projects emphasized the difficulties associated with changing existing primary care practice, including the need to stage the implementation process and recognize that reorganizing physicians into group practices takes time. However, it also found improved job satisfaction for

the health care professionals concerned, and physician satisfaction with the blended population-based funding (Mable & Marriott). These demonstration projects continued under the \$74 million provided to BC through the Primary Health Care Transition Fund (2000 to 2006) and became known as Primary Health Care Organizations (PHCO's) (BCMoHS, 2004b). The majority of this funding was provided to the health authorities to help them implement innovative solutions to improve their delivery of PHC to priority populations. This additional funding initiated at least seven additional demonstration projects, however "these projects were specific to each health authority and have had limited sustainability past 2006 when the PHC transition fund ended" (Wong et al., 2009, p. 21).

In 2007, the BC Ministry of Health Services developed their *Primary Health Care Charter* which set the direction, targets, and outcomes "to support the creation of a strong, sustainable, accessible and effective primary health care system in BC" (p.3). This charter identified seven priorities for system change: access to primary health care, access to primary maternity care, chronic disease prevention, chronic disease management, management of comorbidities, and frail elderly and end-of-life care. It set key initiatives and targets for each area from 2008 forward to 2017. Although this charter largely presents primary care as a physician controlled and delivered activity, it acknowledges the need for system level transformation to increase access and capacity, improve provider satisfaction, and obtain better health outcomes through the use of interdisciplinary teams and collaborative care; "the building of broader interdisciplinary teams will be a key focus in future iterations of the Charter" (BCMoHS, 2007, p.21). The integration of NPs into collaborative partnerships with community physicians is an example of building broader interdisciplinary teams.

In June 2010, the BC government announced its commitment “to a family doctor for everyone by 2015” through a “unique integrated model of primary and community care” (BC MoHS, 2010 p.1). This new model is described as “enhanced care planning and support with an individualized and co-ordinated personal medical health-care plan linking together various health professionals to provide better quality care” (p.1) and “hopes that this could include the broader use of nurse practitioners in integrated primary and community care” (p.2). This news release recognizes again the need for a collaborative team approach to primary care. Given the context for the majority of primary care delivery in BC, this reinforces the concept of adding NPs to fee-for-service practices.

Collaborative practice. Defining the meaning and hallmarks of collaboration, or a collaborative partnership, is vital to understanding the collaborative model of primary care being undertaken with NPs and physicians. The term collaboration, however, “has become a buzzword that too few healthcare providers can accurately define” (Way et al., 2000, p. 4). Way et al. (2000) undertook a research project to review collaborative practice involving NPs and GPs for the Ontario College of Family Physicians and the Registered Nurses Association of Ontario. They developed the following definition of a collaborative practice relationship that was subsequently adopted by Health Canada (2004): “Collaborative practice is an interprofessional process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided” (Way et al., p. 4). In this relationship the providers are equal, non-hierarchical, and not dependent on the supervision of one professional group by another. It represents neither the *physician*

replacement nor the *physician extender* model¹², recognizing the strengths and integrity of each professional partner's approach to care delivery (Way & Jones, 1994; Jones & Way, 1997). The overall purpose of the collaborative practice relationship is to “deliver comprehensive PHC to meet the needs of the practice population. Corollary purposes include maximum productivity through the effective and efficient use of the professional resources, and to enhance professional development and increase satisfaction” (Jones & Way, 2004, p. 6).

Factors influencing collaboration in the primary care environments have been classified as *interactional factors* (interpersonal relationships between team members), *organizational factors* (conditions within the organization) and *systemic factors* (conditions outside the organization) (San Martin-Rodriguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005). Important interactional factors include: (a) a shared vision encompassing common values, and a mutual understanding of the objective and desired outcome (Dicenso et al., 2003); (b) the recognition of the importance of team dynamics; (c) willingness to collaborate; (d) mutual trust, respect, and communication (San Martin-Rodriguez et al.); and (e) interdependency, and the understanding of the boundaries and expectations of the contributions of each of the professions (D'Amour, Ferrada-Videla, San Martin-Rodriguez, & Beaulieu, 2005). All of these have been identified as paramount to successful interprofessional collaboration. However, organizational and systemic factors influencing the context of collaboration are of equivalent importance if collaboration is to succeed: The three components “should not be treated separately” (San Martin-Rodriguez et al., p. 145).

¹² The NP role has frequently been conceptualized in two models: 1) physician substitution or replacement, 2) physician extender or complimentary expanded role of the nurse (Allen, 1999). The physician replacement model identifies the NP as a replacement for unavailable physician services. The extender role places the emphasis on NPs providing care that enhances or adds value to services afforded by physicians and other health care professions.

The use of collaborative practice strategies have been shown to improve the delivery of successful PHC in urban and rural centres (EICP, 2005; HCC, 2009), and to improve recruitment, retention, and delivery of health care services (HCC, 2008). This model of health service delivery is consistent with the expectations of the NP role in BC: working in collaboration with other members of the health care team, to maintain and promote the development and maintenance of health, in its broad perspective, at the individual, family, and community levels (BC College of Family Physicians (BCCFP), 2007; BCMoH, 2000; CRNBC, 2006b).

Although interprofessional collaboration is acknowledged to provide benefits such as improved delivery of primary care and increased job satisfaction, it also highlights the historical tensions and territorialism associated with the NP role in primary care practices. Numerous studies have highlighted physician concerns related to the NP's scope of practice and education, and issues associated with role clarity, medico-legal matters, and different perceptions of collaborative partnerships (Bailey, Jones, & Way, 2006; Jones & Way, 2004; DiCenso et al., 2003; DiCenso & Matthews, 2005; El Jardali, 2003; Katz & MacDonald, 2002; Way, Jones, Baskerville, & Busing, 2001; Way, Jones, & Busing, 2000). Although positive relationships have developed by way of collaborative partnerships, encroachment into the traditional domain of medical practice has also resulted in cases of animosity in practice relations, and reluctance by some physicians to accept partnership relationships with NPs (Gorman, 2009; Hallas, Butz, & Gitterman, 2004; Wilson, Coulon, & Hillege, 2005). "Bit by bit, other practitioners seeking to expand their scopes of practice are claiming a share of the pie. In the process, they are infringing on our territory" (Lague, 2008, p. 1668). These concerns highlight the need to understand the

processes that have been undertaken in the primary care practices since the introduction of the NP to develop successful collaborative practice models of primary care.

Current issues in primary care. Despite all the reform activities undertaken so far there are still a significant number of issues that have been identified as in “urgent need of reform” (CMA, 2010, p.iv) if improvements are to be made in the current provision of primary care services to the public. The recent report of the CMA (2010) continues to describe that “Canadians wait too long for care. Care providers feel overworked and discouraged. There are insufficient mechanisms to monitor system performance. Technical support needs modernizing” (p. iv). Resolving these issues is identified as requiring improved accessibility, continuity, responsiveness, quality of care, and developing a culture of patient centred and “whole person care” (CMA; Wong, Peterson, Regan, Watson, & Black, 2007).

Accessibility to primary care remains the primary issue for both patients and primary care providers (BCMoHS, 2007; College of Family Physicians of Canada/Canadian Medical Association (CFPC/CMA), 2009; CMA, 2010; Wong et al., 2007, 2009). The most recent information available (Watson et al., 2009) identified that, across the province of BC in 2005, 89% of the adult population (>12 years old) reported having a “regular family doctor” (p.48). However, these figures were based on dividing the number of individuals who reported in the Canadian Community Health Survey (2005) having a regular family doctor by the total population for each health service delivery area and health authority, and it is acknowledged that there is both significant variation within health authorities and service delivery areas, and within specific populations groups (Watson et al.; Wong & Regan, 2009; Wong et al., 2007). The problem of accessibility to a primary care provider remained a leading item on the government’s agenda in 2010 with the joint news release with the BC Medical Association (BCMA) *BC*

Commits to a Family Doctor for Everyone by 2015 (BCMHS, 2010). It is also regularly identified in both the national and BC media with frequent news stories about the 250,000 or more British Columbians who do not have a family doctor (Moneo, July 05, 2010; Nagel, June 08, 2010; 100 Mile House Free Press, July 20, 2010; Picard, June 30, 2010; Watts, March 11, 2010). These news stories also point out that “approximately 50% of the nurse practitioners able to practice in BC are currently unemployed” and “that the current pool of unemployed NPs could start providing 316,800 primary medical care visits annually to residents who lack a doctor” (100 Mile Free Press, July 20, 2010).

Improving access to primary care has been shown to be more effective in improving health outcomes for a population than relying on secondary and tertiary level specialist care (Watson & McGrail, 2009). The 2008 CMA campaign *More Doctors, More Care* (CMA, 2008), which sought to increase the supply of physicians to “meet the OECD average of doctors per population” as a solution to improving the health outcomes, came under criticism from both within the medical profession (Canadian Medicine News, March 3, 2008), and from expert health policy researchers (Watson & McGrail). In-depth analysis of this campaign undertaken by Watson and McGrail identified that there was no association between avoidable deaths and physician supply; they recommended it would be in “Canadians’ better interests that we instead focus on realizing opportunities to improve access to high-quality care” (p.26). A strong primary care system, with a rich supply of primary care providers, has been shown in Canada and internationally to reduce the incidence of all causes of cancer, heart disease, stroke, infant mortality, low birth weight, as well as increase life expectancy and self-reported health status (Atun, 2004; Macinko, Starfield, & Shi, 2003; Pierard, 2009; Starfield, Shi, & Macinko, 2005). These same reports also showed that a strong primary care system can improve population

health, reduce health disparities, and buffer the health effects of socio-economic circumstances at a lower cost than secondary and tertiary care (Atun; Macinko et al.; Pierard; Starfield et al.).

NPs have been shown in numerous studies to make significant contributions to these specific health outcomes for individuals, families, and populations (Baer et al., 1999; Mundinger et al., 2000; Newhouse et al., 2011; Quagliette & Anderson, 2002; Schreiber et al., 2003).

The recruitment of new physicians to work in primary care has been an on-going concern for a number of years. Prior to 1992, more than 50% of new medical graduates in Canada chose a career in family medicine or general practice. The College of Family Physicians of Canada recognizes this level as the minimum necessary to maintain a sufficient supply of primary care practitioners (Collier, 2010; Kasperski, 2001). However, by 2003 the annual intake into the post-graduate family practice programs had dropped to a low of 24% of new graduates (Laughren, 2005). While this number has been increasing in the past few years to reach a 20 year high of 35% in 2012 (Canadian Healthcare Network, April 19, 2012), it is still well below both the accepted minimum Canadian target, and not close to the acknowledged ratios of 60:40 or 70:30 for GPs to specialists set by many other countries (Kasperski). Although the current supply of GPs remains above 50% of the total number of practising physicians in the country (51.5% in 2008), the average age of these physicians is now 50 years and this has been increasing over the past 6 years (CIHI, 2009). All of these factors point to an impending reduction in availability of primary care physicians. Anecdotal evidence suggests that this reduction maybe somewhat mitigated by the possibility that some physicians are delaying their retirement due to the effects of the recent economic recession on their retirement income. A study has recently been commenced by the Centre for Health Services and Policy Research (CHSPR) at the University of British Columbia (UBC) to investigate this.

The declining interest by medical students in primary care medicine has been attributed to many factors including concerns about workload, lifestyle, prestige, and income potential (Lepnurm, Dobson, Backman, & Keegan, 2007; Sibbald, Bojke, & Gravelle, 2003). Provincial governments have attempted to address some of these issues through the provision of financial incentives, including specific rural area physician financial enticement programs such as the *BC Rural Retention Program* (Harbour Peaks Management, 2008). These incentives have reduced the gap in income between GPs and specialists over the past 5 years (Collier, 2010; BCMoHS, 2007); however, research has shown that factors that influence overall job satisfaction remain the most important determinant in the retention of primary care physicians.

There have been a number of studies recently undertaken in Europe, Australia, and North America to identify factors that influence job satisfaction for primary care physicians and their impact on retention, desire to relocate, career burnout, and intent to leave practice (Harris et al., 2007; Lepnurm et al., 2007; Mazzaglia et al., 2009; Sibbald et al., 2003). Time pressures and work pace were the two most frequently cited reasons for dissatisfaction among physicians. On the other hand, improved control over their work environment, a work site culture that emphasizes trust and quality care, and practitioner colleagues who have aligned values were associated with favourable physician reactions. A US study of physicians in primary care conducted by Linzer et al. (2009) found that 49% reported moderately or highly stressful jobs, 26.5% reported burnout, and 30% indicated that they were at least moderately likely to leave their practices within two years. An international systematic literature review from 1993 to 2006 (Van Ham, Verhoeven, Groenier, Groothoff, & De Haan, 2006) found that factors that resulted in decreased job satisfaction were low income, too many working hours, a heavy workload, lack

of time, administrative burdens, and lack of recognition, while diversity of work, relations and contact with colleagues, and participating in teaching roles increased job satisfaction.

The College of Family Physicians of Canada, CMA, and the Royal College of Physicians and Surgeons have undertaken a National Physician Survey every 3 years since 2004, last in 2010, which included some questions on the level of professional and personal satisfaction experienced by physicians. Although 75% of all physicians (GPs and specialists) reported being somewhat to very satisfied with their professional life, the survey also indicated that GPs felt overworked with too many patients and too many competing demands (CFPC/CMA, 2009, 2011; CMA, 2009). These findings were similar to the results of the previous surveys in 2004 and 2007 (CFPC/CMA, 2009, CIHI, 2006b; Lepnurm et al., 2007). A recent study of rural GPs (Chauban, Jong, & Buske, 2010) found that, while the majority demonstrated “a relatively positive attitude toward their rural practices, 14% of respondents indicated a plan to move from their current communities within the next 2 years” (p.105), and the improvements that would most influence physician retention in rural areas were “more reasonable hours of work”, “availability of locums tenens”, and “availability of professional backup” (p.105). This study concluded that practice and lifestyle factors were more important than cash incentives to retention for rural physicians. These findings suggest that the addition of NPs to community-based primary care practices has the potential to impact positively on the job satisfaction and the subsequent retention of these GPs.

Influences on Outcomes in Primary Care Practice

Influence of context and change processes on outcomes in primary care practices.

Context has been defined as the environment within which “some thing” is delivered or implemented, e.g. a health service, health care innovation or intervention (Abelson et al., 2007).

McLaren and Hawe (2005) describe context as “the wider situation surrounding something and how this wider situation confers meaning” (p.7). The context of a particular situation can be complex and multifaceted (Frohlich, Corin, & Potvin, 2001) because it includes the influences of a potentially infinite number of factors: economic, social, political, fiscal, historical, psychosocial, community, cultural, and organizational (McCormack et al., 2002). It is the relationships and interactions between these factors that create the contextual conditions within which organizations and individuals are expected to function, and outcomes are generated (Frohlich, Potvin, Chabot, & Corin, 2002).

Contextual factors that shape a particular situation exist on two levels, internally and externally (McCormack et al., 2002). Internally, organizational structures and factors such as workplace culture, leadership, decision-making systems, technology, staff relationships, power relationships, and desire for change and innovation define the context (Meijers et al., 2006; McCormack et al.; Rycroft-Malone, 2008; Sunstrom, De Meuse, & Futrell, 1990). It is argued that culture, “the way we do things around here”, and leadership, “the development of clear roles, effective teamwork and effective organizational structures”, are the two dominant contextual factors that impact on the internal situation and determine if outcomes will be successful (Abelson et al., 2007; French, 2005; Marchionni & Ritchie, 2007; McCormack et al.).

The external context is created through the influence of factors such as economic, social, political, fiscal, historical, community, and cultural variables. Of these factors, political and economic-fiscal variables have been found to be the most dominant factors (Abelson et al., 2007). Political factors, including historical relationships, the influence of professional associations and interest groups, the nature of issues, and the role of stakeholders have been shown to have a significant impact on defining the external context (Abelson, 2001); however,

resource constraints, fiscal and human, are often viewed as the most influential factors (Abelson et al.; French, 2005; Rycroft-Malone, 2008). The manner in which the internal and external factors are clustered together creates the uniqueness of a particular context. Each of these factors has its own dynamic interactions, on multiple levels, which ultimately impact on the ensuing outcomes (Frohlich et al., 2001, 2002; Rycroft-Malone, 2005; Rycroft-Malone et al., 2004).

In primary care settings, context has been defined as the structural environment within which the practice functions and includes three levels of influences; the health care system (factors relating to remuneration and governance structures), the practice context (factors within the community that influence the organization and delivery of care such as the characteristics of the community and availability of services), and the organization of the practice setting and its' individual and collective capacity to provide services (Hogg et al., 2008). Anderson and colleagues (2005) argue that these different levels of influences are interdependent and how they interact underpins how the organization functions. Understanding these interdependent influences and interactions, and their impact on practice relationships, is imperative if sense is to be made of why some practices respond to change, improve, and develop successful, sustained outcomes (Miller, Crabtree, Nutting, Stange, & Jaén, 2010).

Change is a modification of a system of values, perceptions of a situation, structures, or practices in a given organizational field (Denis, 2002). Lamarche and colleagues (2003c) undertook an analysis of the processes of change in primary health care organizations to understand the aspects of the change process. This analysis begins by acknowledging that, although changes in health service delivery are frequent and inevitable, little is known about the processes underlying these changes. Three aspects of change that are applicable to understanding change in the primary health care context were examined: (1) the type of change,

either *radical* involving a shift in the path of an organization, or *convergent*, an adjustment within the current structures and representation; (2) the method of change, either *top-down* involving authoritarian or coercive strategies, or *bottom-up* based on emerging strategies resulting from negotiation between local players; and (3) the pace of the change, either *slow* or *fast*. According to this analysis, the change processes that could be expected to occur with the introduction of a NP into a fee-for-service practice might be either a radical change or a convergent change, depending on the nature of the setting and the players. These change processes would need to be supported by facilitating factors such as leadership, practical and cognitive skills, and the availability of resources. Lamarche et al. identifies that for change to be successful the following is required: investment in the organization of the practice, acknowledgement of the demanding nature of the change processes, and an understanding that the change takes time and that the professionals need to experiment with the tangible meaning and consequences of the changes.

The change processes identified by Lamarche et al. (2003c) are endorsed in the findings of a study into the introduction of a NP into an Alberta primary care community practice¹³ (Reay et al., 2006). Reay et al. found that it took time for individuals to develop trust following the introduction of the NP, that time and resources were needed to establish and maintain the necessary links with the key players (both internal and external to the practice), support and guidance from a management team assisted in the development of positive working relationships, and that funding arrangements that recognized the joint benefits and costs associated with the new role were required. Although these findings are consistent with the theorized change processes, the context of this Alberta setting was a rural community clinic

¹³ This Alberta community practice was not a fee-for-service practice, it was initially funded using an alternative payment plan based on capitation funding and changed to a population based payment plan during the course of the research project (Reay et al., 2006).

funded through an alternative payment plan based on capitation. Several physicians from this practice identified “that it was only because of a comprehensive fee (rather than fee-for-service) that they could consider” (p.104) the addition of the role of the NP. This highlights again the need to explore the change processes associated with the introduction of the NP role into fee-for-service practices to understand the impact and outcomes for the practice and organizations interacting with the practice.

Practice and health system level outcomes. The majority of research related to NPs has focused on confirming their capacity to provide safe and effective primary care to individuals and families (Horrocks, Anderson, & Salisbury, 2002; Lenz, Mundinger, Hopkins, Lin, & Smolowitz, 2002; Lenz, Mundinger, Kane, Hopkins, & Lin, 2004; Mundinger et al., 2000; Ohman-Strickland et al., 2008). Although a few studies have included potential inferences of the effects of implementing a NP on the practice setting and the health care system, limited information and understanding can be gained from the findings.

A study undertaken in Ontario between 2005 and 2006 found that primary care sites in which NPs worked in collaboration with physicians resulted in higher quality chronic disease management for their patients; however, the reasons underlying these improved outcomes were unclear (Russell et al., 2009). This study postulated that the improved outcomes may be due to the NP easing the physician workload by taking over some duties usually performed by physicians, or by delivering care through organized care management activities, or by influencing and changing practice-based organizational approaches; however, none of these possibilities were explored in this study.

One Alberta study (Reay et al., 2006) found significant anecdotal evidence from interviews with other health care providers that “health care services improved” (p.103) at both the practice level and within the community services following the introduction of the NP role; however, the nature of these improvements were not identified. These health care providers identified that the NP’s approach, in comparison to that of the physicians, seemed to be more patient education focused, and involve more self-care and empowerment type of care. The physicians in this study reported that “their practice pattern had shifted to more acute illnesses and more new patients” (p.103); however, their level of support for these changes in their practice pattern was not reported in this study. These physicians also believed that there was a decrease in the number of emergency visits for certain types of patients (Reay et al.); however, without documentary evidence from the health authority this finding could not be substantiated. The implementation of a practice wide agreement on the use of clinical practice guidelines was also attributed, by the physicians, to the work of the NP (Reay et al.).

A province wide study of primary care NPs undertaken in Ontario in 2002 (DiCenso et al., 2003) examined, as one of its variables, the activities that NPs undertake in primary care and whether they were considered “valuable” by their physician partner to the practice. The findings identified that almost half of all physicians surveyed felt NPs provided valuable services through community visits, home visits, and linkages to community organizations. This study concluded that “there was no doubt about the positive contributions that NPs made to primary care practices, however the contributions needed to be better understood by both the primary care team and patients” (Di Censo & Matthews, 2005, p. 19).

An internal evaluation of a NP demonstration project involving three fee-for-service community practices in one health authority in BC in 2009 (Chorney & Clark, 2009) identified

that the addition of the NP role was associated with positive findings relating to the quality and continuity of health services provided by the practices. These positive changes particularly related to chronic disease management and anecdotal evidence of a reduction in hospital admissions and frequency of patient visits to the practice; however, these changes were not quantified or explored in this study or validated through external review.

A study undertaken between 1999 and 2000 (CNS, 2001) across three provinces (Newfoundland, Ontario, and Saskatchewan) identified conflicting outcomes following the introduction of NPs into an unknown number of fee-for-service practices. These outcomes included positive findings such as increased availability of comprehensive health care services and improved quality of care for patients, and negative conclusions that the role created a “potential for impeding physician recruitment and retention” (CNS, Section 3, p.19). This potential negative outcome is not consistent with findings from more recent studies into collaborative practice models (HCC, 2008; Chorney & Clark, 2009), and reasons for this perception were not explored in this study. However, it should be noted these three provinces exhibited important differences in their legislated scopes of NP practice and enacted roles at the time of this study (CNS) as compared to the current situation in BC (CRNBC, 2008a; MacDonald & Roots, 2008). These differences included a more limited legislated scope of practice and educational preparation which turned out to be insufficient to enact the autonomous nature of the role. This reinforces the importance of identifying and understanding the contextual variables, and their influences, when determining the potential for transferability of the findings relating to impacts and outcomes of role implementation to other settings (Frohlich et al., 2002; Gillis & Jackson, 2002).

Other studies of the impact of integrating non-physician clinicians into primary care and in-patient settings have shown that, in addition to improvement in quality of care and patient outcomes, changes occurred at the practice and health system levels. An exploratory study undertaken by Pottie et al. (2008), 12 months into a demonstration project integrating pharmacists into a collaborative care model with group family practices in Ontario, found that it was difficult for physicians to change practice patterns and methods of health service delivery. Learning to work with a new discipline in family practice settings also required time for physicians to understand their roles and expertise. However, this study also identified clinical and practice level benefits associated with having a professional colleague with a different scope of practice. Benefits included group education, community liaison, freeing up of resources within the practice, and an “enhanced sense of ‘team’” (Pottie et al., p.1715.e3). Another study of the contributions of pharmacists in primary care practices (Farrell et al., 2010) identified that the pharmacist’s contributions were initially underestimated by the physicians. Over time, however, physicians came to recognize the expertise and competence of the pharmacists in medication review, monitoring, and patient education, resulting in patient, inter-professional, and practice level benefits. Makowsky and colleagues (2009) studied working relationships with in-patient care teams after pharmacists were added to physician/NP teams and found that, although outcomes such as decision making around drug therapy, continuity of care, and patient safety were improved, the most important outcome was an increased understanding of the benefits of working as a team. This included valuing each other’s knowledge, and the contributions each could bring to overall patient care.

Laurant et al. (2009, 2010) undertook an international synthesis of studies of the impact of APNs, pharmacists, and physician assistants on quality of care and cost-effectiveness from the

time of role inception to 2008. They found that in defined areas of care these providers can maintain and in some cases improve the quality of care and outcomes for patients, and that this evidence was strongest for APN roles. Laurant's review also concluded that there was a cost benefit from these collaborative partnerships: "the evidence did not support the hypothesis that supplementary care¹⁴ increases healthcare costs: six out of the nine reviews evaluating this type of role showed a reduction in health care costs" (Laurant et al., 2010, p. ix).

Cost-effectiveness of NPs. The PHC reform initiatives described earlier in this chapter, and the re-introduction of the NP role in the 1990s, have been associated in part with a need for more efficient use of resources (in terms of cost and quality) in the provision of health care services (De Leon-Demare et al., 1999; DiCenso et al., 2007; Fooks & Lewis, 2002; HCC, 2004). One method of measuring the efficiency of health care resource use is undertaking an economic evaluation of the particular intervention and its outcomes. An economic evaluation involves undertaking a set of formal quantitative research activities to compare two or more treatments, programs, or strategies with respect to their resource use and their expected outcomes (Marshall, Demers, O'Brien, & Guyatt, 2005). Three main types of economic evaluations have been described in relation to health care programmes: cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis (Drummond, Sculpher, Torrance, O'Brien, & Stoddart, 2005; Huse, McDavid, & Hawthorn, 2006; Robinson, 1993a, 1993b). Cost-effectiveness is the most commonly used term in relation to economic evaluations of the NP role (American Academy of Nurse Practitioners (AANP), 2010; Bauer, 2010; CNA, 2002; Paez & Allen, 2006; Venning, Durie, Roland, Roberts, & Leese, 2000). The term cost-effectiveness, in the strict economic

¹⁴ Supplementary care is non-physician clinicians working to provide additional services that are intended to complement or extend those provided by physicians. The aim is to improve the quality of care and extend the range of services available to patients (Laurant et al., 2009).

evaluation use of the term, means “the ratio of cost *per unit of outcome achieved*” (Huse et al., p. 252); however, it should be acknowledged that the term is also frequently used in reports and studies that “are actually not cost-effective analyses in this economic sense” (Huse et al., p. 251; Drummond et al.). Bryant-Lukosius (2009) in her analysis of cost effectiveness studies relating to NP roles identified that a variation on cost-effectiveness analysis, *cost-consequence analysis*, is the most frequently used method of analysis. Cost-consequence analysis is a type of cost-effectiveness analysis that compares the costs and consequences (benefits) of two or more interventions; however, the consequences are presented in a disaggregated way and not combined with costs (Drummond et al.). The decision-maker is then left to apply their own weighting system to value the impact of all the consequences of the interventions, and compare these with the costs, to determine which represents the best value for money (Drummond et al.).

The NP role has been described in the literature as demonstrating cost-effectiveness for nearly three decades (AANP, 2010; Bauer, 2010; CNA, 2002). More recent studies of NP practice undertaken in Canada, US, and New Zealand have reported the cost-effectiveness of the role associated with hospitalized, long term care, and transitioning patients (Chen, McNeese-Smith, Cowan, Upenieks, & Afifi, 2009; Cowan et al., 2006; Ettner et al., 2006; Klassen, Lamont, & Krishnan, 2009; Paez & Allen, 2006; Robles et al., 2011; Sidani et al., 2006). This cost-effectiveness was attributed to a reduction in the length of hospital stay, decrease in the number of complications, decrease in re-admissions to intensive care wards, decreased in the utilization of pharmaceuticals, and a decrease in the number of transfers or visits to emergency departments and hospital admissions.

Cost-effectiveness of NP roles in primary care is less well studied. No comprehensive cost-effectiveness analysis of NPs in primary care settings was able to be located. Studies

undertaken in the US and UK described improved cost-effectiveness associated with the physician substitution model of the primary care NP role (Bauer, 2010; Curtis & Netten, 2007; Dierick-van Daele et al., 2010; Hollinghurst, Horrocks, Anderson, & Salisbury, 2006; Laurant et al., 2004; Naylor & Kurtzman, 2010; Roblin, Howard, Becker, Adams, & Roberts, 2004; Schuttelaar, Vermeulen, & Coenraads, 2011). However, these findings have been based on the difference in practitioner labour costs between medical practitioners and NPs: NPs “are usually paid less; thus substitution has the potential to decrease costs” (Eibner, Hussey, Ridgely, & McGlynn, 2009, p. 19).

Only one Canadian study on the cost-effectiveness of the NP role in community-based primary care was able to be located (Martin-Misener et al., 2009). This study showed cost savings; however, it represented a very different model of care than the model of adding a NP to a fee-for-service practice. The cost savings were the result of a significant decrease in the direct health services costs (emergency and specialist visits, hospitalizations, and use of health and social service professionals), and total social service costs (in particular travel for health care) following the implementation of a new model of care on a geographically remote group of islands in Nova Scotia. The new model of care involved the addition of an on-island NP to the existing on-island paramedic and off-island GP service. The cost savings were in comparison to the original model of care which required the island residents to travel to the mainland of Nova Scotia for all but the very limited range of services able to be provided by the on-island paramedic. The costs associated with having the NP resident on the island do not appear to be included in the analysis.

Studies from a number of different contexts of health care delivery have suggested that the most cost-effective outcomes can be obtained not by focusing on the most cost-effective

practitioner, but on the most cost-effective model of care (Bauer, 2010). Bauer, Ettner and colleagues (2006), and Boling (2009) identified that the greatest cost-effectiveness was obtained when care involved collaboration between NPs and other qualified health professionals. This improved cost-effectiveness associated with collaborative practice can be further enhanced by cost savings that have been attributed to access to regular primary care and continuity of care. Hollander and colleagues (2009), in a BC study of the utilization of health care services, identified significant cost savings to the overall health care system if patients with common chronic diseases have regular access to a consistent primary care provider. Combining these two sets of findings suggest that the collaborative practice model of adding a NP to primary care practices has the potential to lead to improved cost-effectiveness, and create savings within the current health care system.

In order to undertake a cost-effectiveness analysis of a health care program or intervention, specific information relating to the intervention needs to be substantiated. Huse et al. (2006) identify that two important criteria need to be confirmed before any type of an economic evaluation can be undertaken: (a) identifying the specific outcomes of the intervention, and (b) establishing causality between the program or intervention and the outcomes. Currently neither of these criteria is known in relation to the NP role in a collaborative practice model in fee-for service practices. This highlights the importance of identifying the outcomes associated with the NP role in this model of health care delivery.

Summary

Development of the NP role in community-based primary care practice in Canada has been slow and intermittent. The formalized NP role in BC is relatively new, and there has been only limited research on the impact of the role on the delivery of primary care in the province.

The need for significant PHC reform and renewal has been recognized at both the national and provincial levels. The future directions identified as necessary include a focus on the development of PHC teams, and new approaches to improve patient care and enable providers to work together. Primary care in BC is predominantly delivered by GPs using the professional contact model and fee-for-service remuneration. The future availability of GPs is of concern with declining interest in primary care by new graduates, and concerns with job satisfaction and retention. The potential for NPs to contribute to increasing access to high quality PHC is substantial.

Research to date has largely focused on the direct patient care aspects of the NP role to confirm their capacity to provide primary care safely and effectively to individuals and families. Little is known about how the NP role has been enacted in a collaborative practice model in fee-for-service community-based primary care settings in Canada, and how NP role implementation can create changes that impact on their practitioner colleagues, the organization of primary care practices, and the community, and local health system associated with these practices. Studies from other settings have identified that collaborative practice models can improve outcomes on many levels including: increased productivity, job satisfaction and retention; improved patient access, workplace culture and teamwork; enhanced liaison and relationships with community organizations; and improved health system outcomes, including decreased utilization of acute care services and retention of health care professionals. These findings will be investigated in relation to the NP role in community-based fee-for-service primary care practices.

Chapter 3 – Theoretical Framework and Designing the Research

In this study, the main purpose was to identify the impacts and outcomes that occurred following the introduction of a NP into a fee-for-service community-based primary care practice. These impacts were expected to occur across the multiple levels of interactions and relationships that exist internally within the practice, and externally with the local community and its health care services. These multiple levels of interaction can be viewed as a series of nested and interconnected relationships among the individuals, the group (the practice), and their environment or context: this fits with an ecological framework or approach (McLaren & Hawe, 2005).

Ecological Approach

The ecological approach identifies that there are multiple levels of influence within any environment represented by players such as individuals/families/groups/communities, and that inseparable reciprocal relationships exist both among these players and with the broader social context in which they interact (Stokols, 1996). Each of these players represents an environmental subsystem that is both affected by behaviour and can effect changes in the behaviour of the individuals that are present in that subsystem (McLeroy, Bibeau, Steckler, & Glanz, 1988). The emphasis in the ecological approach is twofold. First is on the individual, including their attributes and the behaviours they exhibit, and the context in which that individual is interacting in its broadest sense; second is on the interdependent and mutual relationships that exist between these individuals and their context (McLaren & Hawe, 2005). This approach acknowledges that behaviours and contextual influences at one level of this system will subsequently shape the behaviours and context at another level of the system and that this can occur in a reciprocal manner (Edwards, Mills, & Kothari, 2004; McLeroy et al.).

The impacts and outcomes that occur will be determined by the complex interactions between the behavioural, biological, cultural, social, environmental, economic, and political factors in play at each level (Edwards et al.). Within an ecological framework there are multiple levels of action occurring and at each level there is a possible target for influence and outcome change (Green & Kreuter, 1999; McLeroy et al.).

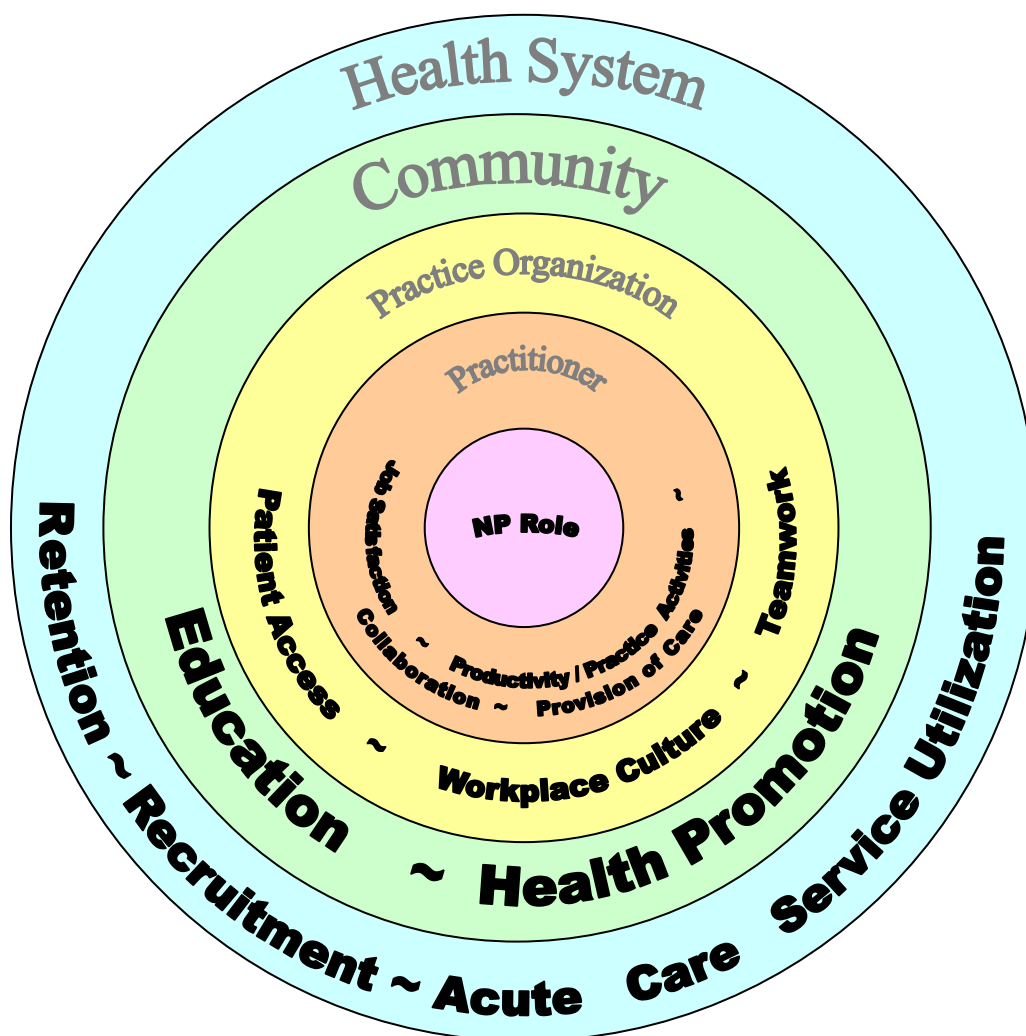
The ecological approach has been identified by many researchers as a favoured approach for researching multilevel interventions with complex co-dependent patterns of relationships (St. Julien, 2011; Trickett, 2009). This is because it combines two elements, the intervention (in this case the NP role) and its “attempts to incur change at two or more levels” (Nastasi & Hitchcock, 2009, p. 361). Green (2006) identifies that this approach is thoroughly consistent with multilevel interventions designed to address chronic health issues and concerns. The advantage of using an ecological model to facilitate understanding and analysis of multilevel behavioural changes is that it divides the environment into analytical levels: This then focuses attention on the different types of influences and interventions that are occurring at each analytical level (McLeroy et al., 1988). The behaviours exhibited at each level become the outcomes of interest.

Conceptual Framework

The development of a general framework to depict the multiple levels of the primary care environment, their relationships, and potential or expected impacts and outcomes was undertaken using an adaptation of Bronfenbrenner’s (1977) ecological typography. Bronfenbrenner’s typography identifies four different levels of systems; micro, meso, exo, and macrosystem levels. Each of these levels represents a different subsystem within the environment in which connections and relationships influence, either directly or indirectly, the outcomes of that subsystem as well as those of associated subsystems (McLaren & Hawe, 2005). The levels in

Bronfenbrenner's typography were adapted to depict the levels of expected relationships identified within community-based primary care practice. In the initial framework the central focus is the NP role, depicted in the centre of the nested levels of relationships. Expanding out from the centre are the levels of relationships, and potential areas for influence, that introduction of the NP role was expected to have in the fee-for-service primary care context. The *micro* level refers to the practitioners within the practice setting, the *meso* level denotes the practice organizational level, the *exo* level signifies the community organizations that interact with the practice, and the *macro* level denotes the services in local health care system that have linkages with the practice. Possible impacts and outcomes for the fee-for-service context were identified from the literature related to the introduction of the NP role into other types of community-based primary care practices; these included factors known to impact on the overall success of primary care delivery. These impacts and outcomes were categorized according to these levels of relationships. Possible impacts and outcomes identified for the practitioner level included: improved job satisfaction, increased workplace productivity, and changes to workplace activities to enhance practise in areas of personal expertise; improved provision of care to the practice population including enhanced continuity, co-ordination of care, and chronic disease management; and an increase in interprofessional collaboration. At the practice organization level possible impacts and outcomes included enhanced patient access, teamwork and relationships, and workplace culture. Possible impacts and outcomes at the community organization level included the implementation of community education and health promotion programs. At the health system level, possible impacts and outcomes included improved recruitment and retention of health care practitioners, in particular GPs, and reduction in acute care service utilization.

Figure 1. Initial Conceptual Framework



This framework was used to organize and structure both the data collection and the analysis of the data. The levels depicted in the framework were reflected in the types of participants recruited for participation in this study and in the structure used to guide the interview questions for these participants (described in Chapter 4). The potential impacts and outcomes identified for each of the levels were used in the data analysis to assist in identifying the various variables that might exist at each level. The analysis also involved exploring for causal links and patterns

of connections associated with these variables both within and among the identified levels. Because very little was known about the NP role, and its impact in a community-based fee-for-service practice, the initial framework did not identify any connections among these possible outcomes at the various levels. Confirmation of the actual outcomes resulting from the introduction of the NP role at each level, the influences of context on these outcomes, and identification of patterns among the outcomes at different levels emerged as the research study progressed and data were analysed.

Design of the Research

The purpose of this study was to identify the impacts and outcomes associated with the introduction of the NP role into fee-for-service community-based primary care practices. The specific aims were to: (a) describe the enacted role of the NP in fee-for-service primary care practices; (b) identify and describe the impacts that have occurred at the different levels of relationships associated with the practice since the introduction of the role, and (c) understand the outcomes created by these impacts for the practitioners, the practice, the community, and the health care system. To meet the purpose and aims, a multiple case study design using mixed methodologies was selected as the approach for the study (Teddlie & Tashakkori, 2009; Yin, 2009).

A multiple case study design was chosen as the most appropriate methodology for a number of reasons. Yin (2009) argues that case study is the design of choice if “you want to understand a real-life phenomenon in depth, but such understanding encompasses important contextual conditions” (p. 18). Yin (1999) also asserts that case studies can tolerate conditions “whereby the boundary between a phenomenon and its context is not clear” (p. 1211) and *the case* and its context may change over time. Case study is also identified as particularly relevant

to health services research as it can address the complexity associated with the implementation of new interventions in health care (Walshe, Caress, Chew-Graham, & Todd, 2004).

Yin (2003b, 2009) and others (Baxter & Jack, 2008; Bergen & While, 2000; Luck, Jackson, & Usher, 2006) argue that the use of a multiple case study design is a more robust design than a single case design because it allows for comparison across cases which can support analytical generalization. Stake (2006) also supports the use of multiple cases to examine how a phenomenon or event performs in different environments. The utilization of multiple cases within a case study design enables the similarities and differences within and among the cases to be identified and the conclusions strengthened through a form of “replication logic analogous to that used in multiple experiments” (Yin, 2009 p. 54); however, this outcome is dependent on case selection that is carefully undertaken (Yin, 2003b). This multiple case study design allowed for the creation of a comprehensive picture of the NP role in fee-for-service family practice, and its associated impacts and outcomes, in the context of different practices and communities.

The specific aims of this study were addressed through the combination of four types of case study: exploratory, descriptive, explanatory, (Yin, 2009), and interpretive (Merriam, 1998). Exploratory case study is used in situations which the phenomenon or event has no clear set of outcomes, and evaluation of the situation, in its context, is required to define questions that may be applicable for further study (Baxter & Jack, 2008; Gangeness & Yurkovich, 2006). Descriptive case study presents a complete portrayal of a phenomenon, taking into account the perspectives of a wide range of participants and the larger context in which the phenomenon occurs (Anderson et al., 2005; Gangeness & Yurkovich; Hancock & Algozzine, 2006). Explanatory case study is used to explain presumed causal links to determine how events occurred and which ones may influence particular outcomes (Hancock & Algozzine; Yin).

Interpretive case studies contain rich thick descriptions which are used to “develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to the data gathering” (Merriam, p. 38). The level of abstraction and conceptualization in interpretive case studies may range from suggesting relationships among variables to constructing theory, with the model of analysis being inductive (Merriam). Merriam acknowledges that although tentative hypotheses or expectations of the phenomenon can initially guide the study, other variables and hypotheses are allowed and expected to emerge throughout the study: “The process is one of constant refinement” and “testing each new incident” (p.160) to formulate an explanation of the phenomenon under study. Combined together these components provided the opportunity to address the broad picture of the NP role, the changes that have occurred since the introduction of the role, and the outcomes from these changes.

These different components of the case study were combined in the following manner. The exploratory component (Yin, 2009) was utilized to explore the changes that have occurred at the practitioner, practice, community, and health system levels; the descriptive component (Yin) described the enactment of the NP role; the explanatory component (Hancock & Algozzine, 2006) was used to explain, to some extent, how events occurred and which ones influenced particular outcomes; and the interpretive component (Merriam, 1998) was used to: (a) confirm the conceptual categories of outcomes affected by the introduction of the NP role; (b) support or challenge the few existing theoretical assumptions about the enactment of the NP role (as identified in the propositions described later in this chapter); and (c) document any other relevant findings. Consistent with the mixed methodologies approach to the design, both qualitative and quantitative data were collected to identify the changes that have occurred and the resulting outcomes (Teddlie & Tashakkori, 2009).

Case study's unique strength is its ability to deal with the phenomenon and its context using a full variety of data sources for evidence – documents, artefacts, interviews, and observations (Yin, 2009; Zainal, 2007). This ensures that the situation to be understood is not explored through one lens, but rather a variety of lenses allowing for multiple facets of the phenomenon to be revealed (Baxter & Jack, 2008). One of the key interests in a case study is “interpretation in context” (Cronbach, 1975). All of these facets of case study research brought additional strength to its choice as the methodology for this study.

This study was shaped by a pragmatic worldview (Creswell, 2009): “The philosophical orientation most often associated with mixed methodologies is pragmatism” (Teddlie & Tashakkori, 2009, p. 7). The pragmatic worldview refers to theoretical perspectives that emphasize the practical, giving primacy to usefulness over theoretical knowledge (Seigfried, 1998). The roots of pragmatism stem from the historical works of philosophers Peirce, James, and Dewey, with more recent contributions from Quine, Sellers, Rorty, and Cherryholmes (Creswell & Plano Clark, 2007; Johnson & Onwuegbuzie, 2004). Pragmatism views knowledge as both being constructed, and based on the reality of the world that one experiences and lives in (Cherryholmes, 1992). The knowledge developed is not value free, it is derived from the historical context as well as being shaped by cultural and shared values; differences in perspectives are appreciated and provide a basis for problem solving and on-going revisions of understanding (Teddlie & Tashakkori; Wuest, 2007). The major characteristics of pragmatism are the rejection of the either-or choice between constructivism and post positivism, and using whatever means works on “the road to inquiry” (Cherryholmes, p.16).

The use of a pragmatic approach permits the researcher to view an event from many perspectives using multiple lenses, and supports the use of mixed methodologies which combine

qualitative and quantitative methods (Creswell & Plano Clark, 2007; Miles & Huberman, 1994; Teddlie & Tashakkori, 2009). This pluralistic approach recognizes that outcomes are created by the interplay of the actions, situations, and consequences that influence the players and their relationships; this supports the concurrent use of an ecological framework (St. Julien, 2011). The pragmatic approach also supports the identification of causal processes and the construction of knowledge about these causal relationships (Burke Johnson, 2009; Howe, 2012; Miles & Huberman). Pragmatism allows for both subjective and objective knowledge to be used to determine the value of a phenomenon or event based on its practice impact or outcomes thereby helping to reduce the theory-practice gap that can exist (Weaver & Olson, 2006). Finally, the pragmatic approach reinforces the concurrent use of exploratory, descriptive, explanatory, and interpretive case study elements and the use of both inductive and deductive research approaches (Teddlie & Tashakkori).

Pragmatism views inductive-deductive reasoning as a continuum or cycle in which either or both can be used depending on the question and context (Johnson & Christensen, 2004; Teddlie & Tashakkori, 2009). This fits with the use of Merriam's (1998) interpretive style of case study which involves deductive tentative hypotheses analysed inductively to challenge or support existing and new outcomes. The qualitative aspects of the exploratory, explanatory, and interpretive components were undertaken through an open-ended inductive approach (Atia & McIlvain, 1999; Teddlie & Tashakkori). As recommended by Bergen and While (2000), and Yin (2009), this approach was guided by a clear purpose and aims for the study, and a conceptual framework developed from findings in other settings where the NP role had been introduced with different funding models (Atia & McIlvain; Miles & Huberman, 1994); however, identification of what was different in the fee-for- service context was the paramount focus. This inductive

approach begins with observations of specific situations to detect patterns and regularities, which can be formulated into some tentative hypotheses that can be explored. The end result is the development of general conclusions or theories (Thomas, 2003; Trochim, 2006). Trochim recommends this approach because, by its very nature, it is most suited to qualitative exploratory, explanatory, and interpretive research. The quantitative exploratory components, and the descriptive component, were guided by deductive approaches that were represented as theoretical propositions.

Propositions

Yin (2009), Miles and Huberman (1994), and Bergen and While (2000) argue that propositions play an important role as they direct attention to what needs to be examined in case study situations in which theoretical knowledge exists. Propositions have been defined as “statements of proposed relationships between two or more concepts in a theory. Propositions link concepts of a theory together so something can be described, explained, or predicted” (Gillis & Jackson, 2002, p.53). Each proposition serves to guide and focus the data collection, and define the direction and scope of the study (Baxter & Jack, 2008; Yin 2003a, 2009). Although propositions are statements of expected outcomes, they “are not intended to predict study results: instead they are a way for the researcher to expose any preconceived beliefs about the topic” (Gangeness & Yurkovich, 2006, p. 11).

Based on the review of the literature, the following propositions were developed relating to the quantitative exploratory component, the descriptive component and aspects of the explanatory and interpretive components of the case studies.

1. Background : The enacted role of the NP in community-based primary care practices has been identified to have three foci (individual and family focused direct care, population focused activities, and professional practice activities) (Martin-Misener, 2006; Reay et al., 2006) consistent with the CNA ANP framework (CNA, 2008) and NP core competency framework (CNA, 2010); however, the context of the studies used to identify these foci were either different from fee-for-service practices, or were not specified. This study will describe the different components of the enacted NP role in fee-for-service practices.

Proposition: The enacted role of the NP in fee-for-service practices will have three foci. Individual and family focused direct care activities will be the major focus. Population focused activities will result in an increased connection between the practitioners in the primary care practice and the health needs of the community, and new linkages to health-related community organizations will be established. Professional practice activities of the NP will result in increased educational and research activities in the practice, and changes in the administrative functioning of the practice.

2. Background: The introduction of the NP role into fee-for-service community-based practices has been identified to improve the management of chronic diseases within the practice population (Chorney & Clark, 2009; Russell et al., 2009). This study will describe the changes in chronic disease management for the practice population.

Proposition: The introduction of the NP role in fee-for-service practices will result in improved chronic disease management for the population served by these practices.

3. Background: The introduction of the NP role into community-based practices has been anecdotally identified to decrease appointment wait times for the practice population (CHSRF, 2010), decrease the number of emergency visits (CHSRF, 2010; Reay et al., 2006), and decrease hospital admissions for the practice population (CHSRF, 2010; Chorney & Clark, 2009). This study will quantify changes in access, and frequency of acute care utilization, for the practice population.

Proposition: The introduction of the NP role in fee-for-service practices will result in improved access to the practice, and a reduction in the number of visits to acute care services, for the population served by the practice.

These propositions, the conceptual framework, and the purpose and aims of the study were used to guide the data collection and analysis for the study. Table 2 summarizes how the different components of the case study, the study aims, methodologies, and the guiding structures were used to form the research design.

Table 2. Summary of Research Design

Case Study Component	Study Aims	Methodology	Guiding Structure
Exploratory / Explanatory / Interpretive	Changes at the Practitioner, Practice, Community, Health system levels	Qualitative	Conceptual Framework
	Changes at the practice & health system level	Quantitative	Propositions
Descriptive / Interpretive	Describe the enactment of the NP role	Qualitative / Quantitative	Propositions

The next chapter describes how these elements of the research design were implemented in the methodology of the study.

Chapter 4 – Implementing the Research Methodology

This chapter describes how the methodology was used to undertake the study to identify the impacts and outcomes that occurred following the introduction of the NP role into fee-for-service primary care practice. This description includes the background to the cases, the case selection, the data sources, and the data analysis.

Defining the Case

Defining the case has been identified by many authors to be one of the greatest challenges of case study research (Baxter & Jack, 2008; Luck et al., 2006; Merriam, 1998; Miles and Huberman, 1994; Yin, 1999, 2003b). Miles and Huberman define a case as “a phenomenon of some sort occurring in a bounded context” (p.25). The manner within which a case is bounded has been described differently; Creswell (2009) and Stake (1995) describe it as bounded by time and activity; Miles and Huberman suggest that the boundaries are the context within which the case is situated, e.g. only patients from a particular facility who experienced the specific phenomenon.

In this study, the case was described using Creswell (2009) and Stake’s (1995) recommendations and was bounded by the enacted role of the NP in the practice (activity) and time. The enacted role of the NP was defined using White et al.’s (2008) interpretation as the actual day-to-day activities that the NP performs while undertaking his or her role. The case was defined as the community-based primary care practice in which the NP practised. It included all relationships internally within the practice, and externally with community organizations and the local/regional health care system, which were affected by the enacted role of the NP. The participants included the NP, other practitioners and staff who worked at the practice, and any

practitioners or staff members from identified external organizations related to the practice. The local/regional health care system included the acute care, community, and administrative sectors of the health authority. To identify the changes that occurred with the enactment of the NP role, the time boundaries for each case began one year before the NP role was enacted in each of the practice settings and continued through to the end of the data collection period, November 2011.

Background to the Cases

One of the regional health authorities in the province had received funding from the provincial government to implement approximately 15 NP positions. These NPs had been educated to be family primary care providers. The health authority decided to place them in settings in which the NP could strengthen the provision of primary care services in the community; however, within their jurisdiction they had only a small number of community primary care service sites, not enough to absorb all these new NP roles. The vast majority of the primary care services were delivered through fee-for-service physicians working in group primary care practices (Wong et al., 2009). To achieve their desired aim, a pilot project was created; health authority salaried NPs were *embedded* to work in a collaborative practice model with fee-for-service GPs in selected communities within the health authority. To implement this NP/GP collaborative practice model of primary care, a call for proposals was made. Interested fee-for-service GP practices were asked to submit applications to the health authority to participate in this program. Initially the health authority had approved funding for two NP positions; however, the response from the application process was so strong that the number of funded NP positions was increased to three and later four. The project commenced in 2007 in two sites, the third site was added in 2008, and the fourth in 2010. An internal program evaluation involving only the first two sites was undertaken in 2008. This qualitative evaluation

explored the impacts of the NP role in three areas: access and quality of care, provider and patient satisfaction, and integration of the role. The findings were that the NP role improved access to, and patient satisfaction with, their care, and provider satisfaction. The initial funding for these NP positions was for 18 months; it has subsequently been extended indefinitely, however, no further funding has been made available to increase the number of positions.

According to health authority documentation there were no specific expectations, other than “to strengthen the provision of primary care”, associated with the introduction of the NP role in these sites. In their application, each site was asked to specify their reasons for wanting to have the NP role in their practice and to identify priority goals that they expected the role to address. Each case site identified different priorities and goals for the role. One participant in this study expressed the view that there were some overriding expectations associated with these NP roles, including long term financial savings for the health authority, improved patient care for the public, and increased understanding and appreciation of the role by the medical community. I was unable to confirm these expectations in the available documentation from the health authority. These expectations are described in the following quotation:

We were trying to do something creative that actually links those two worlds, the health authority world and the fee-for-service physician practice world. ... We really are convinced that this model will save health authority dollars in the long term by helping to create healthier populations, ... by reducing expenses over on the health authority side, by preventing some emergency admissions, keeping patients in their homes, helping to improve the management of complex chronic diseases, and so in the end the health authority benefits. It is a long term payback but in the end the health authority benefits.

According to this participant there were other desired goals as well focused on patient and provider outcomes. These included: improved patient access to primary care; improved patient engagement with their primary care providers; a more comprehensive approach to the

management of chronic diseases; and the demonstration of a different approach to primary care that would hopefully result in an increased acceptance of the NP role and the value of interprofessional collaborative practice by the medical community. This participant also postulated that if these impacts of the NP role could improve the job satisfaction of the GPs, this may lead to improved retention and even the possibility for improved recruitment of new GPs. The expectations identified by this participant represent outcomes of NP role implementation that have been previously identified in the literature (Chorney & Clark, 2009; DiCenso et al., 2003; Reay et al., 2006; Russell et al., 2009).

Case Selection

Three community-based primary care practices that were a part of this project were approached to participate in this study. Purposeful and maximum variation sampling (within the constraints of the project) were used to select the initial practices that were contacted to participate in the study. In purposeful sampling, defined by Maxwell (1997), “particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices” (p.87). Maximum variation sampling (Teddlie & Tashakkori, 2009) involves “selecting a wide range of cases to get full variation on the dimensions of interest and to generate a broad diversity of comparisons” (p.188). The practices initially identified were selected because they represented the widest range of variation possible in this project given the relatively small number available for selection, and they possessed similarities and differences in their organizational and contextual characteristics (Bergen & While, 2000; Walshe et al., 2004). The context of each practice was different; each was situated in a different community with diverse characteristics and populations. They represented two smaller rural communities with less than 15,000 persons and one urban community with a

population of more than 100,000. The practices varied from small group practices with three to four GPs to a larger group practice with eight practitioners. However, the large group practice from the urban community declined to be involved. As a result, a second smaller practice from the same rural community as one of the other participating practices was approached and they agreed to participate in the study. The inclusion of this third rural practice resulted in a violation of the original planned selection process of purposeful and maximum variation sampling; instead a pragmatic approach was followed which used the available cases sites within the project. The NPs and GPs represented both genders and in some practices other health care professionals were included in the practice. All cases were similar having one NP working in a collaborative relationship with at least one GP member of the practice for at least two years.

Recruitment and Ethics Approvals

The senior health authority staff person responsible for the introduction and implementation of the NP/GP collaborative practice model of primary care was contacted during the proposal development phase of this research and expressed interest in participating in this research study. This individual agreed to approach the community-based primary care practices participating in this project to facilitate access to, and recruitment of, these practices to this study.

Research ethics approval was obtained from the University of Victoria (UVic) Human Research Ethics Board (HREB) and from the research ethics board of the health authority. The university ethics approval was required for research being conducted by their students and covered the data collection from the privately employed and self-employed participants in this study; this included GPs and practice staff from the primary care practices, and any other participants that were from non-health authority organizations. The health authority ethics

approval covered data collected from employees of the health authority, which included the NPs, community health services staff, and health authority level staff, as well as service utilization data.

The ethics approval process was undertaken in two steps. The first step involved approval for the recruitment of the primary care practices, qualitative data collection from the interviews, observations, field notes, and documentation, and quantitative data collection (frequency of utilization of acute care services) from the health authority. Following the recruitment of the practices to the study, the researcher met with the practitioners and staff in each practice to determine what archival records were available, how these could be appropriately accessed, and the data they could contribute to the study. A modification to the original ethics approval (step two) was then obtained from both the UVic HREB and the health authority to cover the collection of these data from the practice sites (Appendix A).

An information letter about the study and invitation to participate was sent to each of the selected practices by the health authority (Appendix B). All staff members were given the individual choice to participate or not. Those members of the practice agreeing to participate signed a consent form (Appendix C). Recruitment of the participants from the community and local/regional health care sectors was undertaken through snowball sampling in which the NP and practice staff were asked to nominate appropriate participants based on their particular involvement with the NP (DiCenso, Guyatt, & Ciliska, 2005; Gilchrist & Williams, 1999; Gillis & Jackson, 2002). Following identification of appropriate participants, an informational letter was provided to them and written consent obtained before any data collection was undertaken (Appendices D & E). In some cases, a face-to-face meeting was not possible and the interview was held by telephone, for which telephone consent was obtained.

Participants

A total of 25 individuals participated in the data collection relating to the three case sites. Table 3 summarizes the participants from each case site. Some participants (the health authority representative and 2 community based health care providers) had direct involvement with more than one case site; as a result they are included as a participant in more than one case.

Table 3. Participants per Case

Participant	Case 1	Case 2	Case 3
General Practitioners	3	4	1
Nurse Practitioner	1	1	1
Other Practice Staff (RNs/Medical Office Assistants (MOAs))	2	3	2
Community- based Health Care Providers (Social Workers, RNs, Dieticians)	2	3	2
Health Authority Representative	1	1	1
Total Participants	9	12	7

Data Sources

One of the major strengths of case study research is the use of multiple data sources within the real-life context to generate study data that is strong and comprehensive (Gangeness & Yurkovich, 2006; Yin, 2009). Multiple data sources corroborating the same fact or phenomenon is known as data triangulation (McDonnell, Lloyd Jones, & Read, 2000; Merriam, 1998; Yin). This triangulated data can include integrating qualitative and quantitative sources to facilitate a holistic understanding of the particular case (Baxter & Jack, 2008; Luck et al., 2006). Triangulated data also have the benefit of addressing potential problems with rigour because

“each method [is] adding a different piece to the jigsaw” (McDonnell et al., p. 387) and essentially provides multiple measurements of the same event. The result is a convergence of evidence (Yin).

Yin (2009) identified that potential data sources for a case study may include documentation, archival records, interviews, physical artefacts, direct observations, and participant-observation. In this study, the following data sources were used: individual interviews, direct observation, field notes, archival records, and documentation. These data sources were chosen to address the specific aims of this study (McDonnell et al., 2000; Rosenberg & Yates, 2007). These aims were to identify and describe: (a) the different components of the enacted NP role; and (b) any changes that have occurred since the introduction of the role at the practitioner, practice, community, and health authority level at each of the three sites. The actual data collected relating to each of these aims is summarized in Table 4 (pages 70-71).

The components of enacted nursing roles have been identified in other studies using observational work measurement techniques and self-reported measures (Burke et al., 2000; Gardner et al., 2010; Koren et al., 2010; Pelletier & Duffield, 2003; Sidani et al., 2000). Observational work measurement techniques include time and motion studies and work sampling (Burke et al.; Pelletier & Duffield). These techniques are not as useful, however, when a study involves only a small number of individual practitioners in different contexts, or in situations in which one-to-one observation of practitioner/patient encounters by the researcher is not appropriate for reasons of privacy and confidentiality (Pelletier & Duffield). Self-reported measures can involve survey questionnaires (Koren et al.; Sidani et al.) and individual interviews

Table 4. Study Aims and Data Collection Sources

Study aims	Level of Organization	Data Sources	Types of Data Collected
Identify components of the NP role in each practice setting (Enacted SOP / Context)	NPs	Individual interview Field notes/Direct observation	Self – reported work activities - Description of normal day/week /activities - Breakdown of work activities
	GPs and other practitioners	Individual interview(s) Field notes	Expectations of role & responsibilities Reported work activities -Description of normal day/week /activities
	Other practice staff	Individual interviews(s) Field notes/Direct observation	Expectations of role & responsibilities Reported work activities -Description of normal day/week/activities
	All participants	Archival records Practice documents	Practice schedules (pre & post NP role as applicable) Documents relating to NP role
	Practice level	Direct observation Field notes/Direct observation	Context and practice activities Interaction & group processes within the practice
Identify changes that have occurred (Change processes/ Outcomes)	<i>Practitioners Level</i> - NP - GPs - Other practitioners	Individual Interview(s) Field notes/Direct Observation Archival records	Description of changes Outcomes from changes Pre and post NP role
	<i>Organization of practice</i> - Other practice staff	Individual Interview(s) Field notes/Direct observation	Description of changes Outcomes from changes
	Organization of practice	Archival records Practice documents	Pre and post NP role Access to care (as applicable to each case) - # Pt./ day, Practice volume - NP Pt. volume - Wait times for patients - # home visits

Table 4 – Study Aims and Data Collection Sources (cont'd)

Study aims	Level of Organization (3 Fee-For-Service practices)	Data Sources	Types of Data Collected
Identify changes that have occurred (Change processes/ Outcomes)	<i>Community organizations</i> interacting with practice	Interviews with key informants	Expectations of role & responsibilities Description of changes
	Community organizations	Documents	Relating to community programs /events /health promotion/ education
	<i>Health System level –</i> Local acute care system	Archival records Health authority data	Emergency/admission statistics for each practice (Pre and post NP role) 'Visit history records' for high users of emergency services
	Community health services	Interviews with key informants Field notes/Direct observation	Expectations of role & responsibilities Description of changes
	Health authority level	Interviews with health authority staff Field notes/Direct observation	Expectations of role, responsibilities Description of changes
	Health authority level	Documents	Relating to health authority expectations of role, evaluation reports Relating to community health programs

with key informants (Pelletier & Duffield; Yin, 2009). Survey questionnaires require an appropriate sample size (Gillis & Jackson, 2002), and their focus on answering “how many” and “how much” is often not relevant in case study (Yin, 2009). Key informants are individuals who share information with the researcher to enhance the researcher’s understanding of the issue. Gilchrist and Williams (1999) described them as individuals who “possess special knowledge, status, or communication skills, who are willing to share their knowledge and skills with the researcher, and who have access to perspectives or observations denied the researcher through other means” (p.73). However, self-report methods also impose a burden on respondents, and can be subject to reporter and researcher bias (Urden & Roode, 1997) and inaccurate recall (Gangeness & Yurkovich, 2006), especially if a significant level of detail is required for the number and description of the individual activities (Burke et al.). Self-reporting of activities was considered appropriate for quantifying the major categories of activities and the general time allocation for different activities; however, it is acknowledged that there will be some difference (fewer activities reported) when compared to the results of time and motion studies (Burke et al.).

Because this study involved a relatively small number of individual practitioners in settings in which direct observation of work activities with patients was not appropriate, and because precise details of the work activities were not required, key informants interviews were used as the primary data collection source. The interview limitations identified above were addressed with efforts to reduce the time burden on the participants, and data triangulation was used to provide multiple ways of gathering data on the same events thus minimizing bias and recall concerns.

Interviews. The key informant interviews were semi-structured. Miller and Crabtree (1999) describe semi-structured interviews as

...guided, concentrated, focussed, and open-ended communication events that are co-created by the investigator and the interviewee(s) and occur outside of the stream of everyday life. The questions, probes, and prompts are written in the form of a flexible interview guide (p.19).

These interviews were used to explore and describe the work activities that comprised the NP's normal day and week to identify the components of the NP role in each of the work settings. The NPs were asked to self-report their daily and weekly activities using a standardized format, and the GPs and other practice staff were asked to describe their understanding of the NP's role and responsibilities in each practice setting. Data on positive and negative changes that have occurred in the practice since the introduction of the NP role were obtained through interview questions relating to the functioning of the practice, team work, patient access, work satisfaction, and relationships with other organizations and the local hospital sector. Interviews were undertaken with the NP, GPs, practice staff, and staff from the other identified organizations. Semi-structured interview guides specific to each type of participant (Appendices F - J) were used to guide the data collection process (Miller & Crabtree) and ensure, as much as possible, consistency in data collection between sites (Yin, 2009). Due to the inductive nature of this inquiry, flexibility in questioning occurred as required to address the contextual variations between the different sites.

Direct observation. Direct observational data describes the context and brings reality to the study (Gangeness & Yurkovich, 2006; Yin, 2009): "observations provide more objective information related to the research topic" (Hancock & Algozzine, 2006, p.46). This was particularly important in presenting a complete description of the case. However, this type of data has potential weaknesses including "the impact of 'being watched', which may influence normal activity" (Gangeness & Yurkovich, p. 15), and the influence of the personal role and biases of the researcher (Hancock & Algozzine). Minimization of these biases can be enhanced

by seeking data validation, and creating a collaborative dialogue between the researcher and the observed participants that allows for multiple, even contradictory, voices to be described (Angrosino, 2005). Direct observational data of interactions with patients were not collected; instead observational data included the physical arrangements at the practice site, interactions between the practice staff and others, and informal meetings at the practice.

Field notes. Accounts of observations were recorded as field notes (Merriam, 1998). These notes included descriptions of the setting, people, and activities, as well as direct quotations or the substance of what people said (Hancock & Algozzine, 2006). An important component of field notes is the observer's comments including their "feelings, reactions, hunches, initial interpretations and working hypotheses" (Merriam, p. 106). These comments can represent preliminary data analysis (Merriam; Yin, 2009). Field notes were created from both interviews and direct observation sessions.

Archival records. Archival records can take the form of organizational records, statistical data, service data, maps and charts, and survey data (Merriam, 1998; Yin, 2009). These records played an important role in identifying, and subsequently quantifying, whether the anticipated changes (as identified in the literature and reflected in the research propositions) occurred. This type of data was used to corroborate and substantiate the data obtained through the interview process. Archival practice records were obtained relating to practice schedules, number of patients seen per day, overall practice volume, and wait times for patients' scheduled visits. It had been proposed that records relating to chronic disease management¹⁵ within the practice population would be obtained. These records were to be obtained from the practice's

¹⁵ Chronic disease management (CDM) indicators including the number of patients being monitored by the 'Chronic Disease Management Toolkit', the use of group visits for CDM and frequency of these visits, the number of patients with CDM indicators such as A1C, BP, etc. within acceptable guidelines had been planned to be used to identify and describe if there had been any changes in CDM for the patients of the practice since the introduction of the NP role.

electronic record database. Two practices indicated that they did not keep any data relating to chronic disease management for their patients. One practice had been keeping and actively using this type of data in their patient management for a number of years and they agreed to provide this data to the study. However, this practice changed their electronic medical record (EMR) system part way through the data collection; they discovered, after completing the changeover that they were unable to access any records other than the actual patient chart and the billing records from prior to the changeover date. This made it impossible to undertake any review of the impact of the NP role on chronic disease management in this clinic.

Records were also obtained from the health authority to determine frequency of utilization of acute care services (emergency and admission to hospital) by the patients of each of the three practices. The number of occasions of service¹⁶ in the local emergency departments and the urgent care centre, and the number of admissions to local hospitals, were sought for the GPs from the three practices who worked with the respective NPs. These records were obtained from the health authority's central health information management section. This data came from the emergency admission record used at health authority's emergency departments and urgent care centre in the regional area, and from the hospital admission records. The *family physician cell* on these records was used to identify patients from the particular case sites. The GP's name was used because the NPs involved in this case study do not have hospital admission privileges with the health authority and are not allowed to have their names entered into hospital health records as "family physician" (key informant -identity removed to protect confidentiality, personal communication, Dec. 21, 2010). If a patient identified that the NP was their primary

¹⁶ Occasions of service – One method of measuring the utilization in emergency departments is by counting occasions of service. Each examination, consultation, treatment or other service, counts as one occasion of service. This method does not indicate how many patients were treated, or how many times the same patient sought treatment, only the number of services provided.

care provider he or she would be recorded for admission purposes under the name of one of the GPs who worked from the same clinic as the NP. Because one of the aims of this study was to identify changes at the practice level in the frequency with which their patients sought acute care services, it was not relevant whether the patient was receiving care solely from the NP or whether care was influenced by the collaborative relationship between the NP and the GPs in the practice.

These health authority records were obtained for two time periods. The first period was a seven month period commencing between seven and eleven months before the introduction of the NP, January to July 2007 or 2008 respectively. The second period was the same seven months of the year 2011. To account for any seasonal variations that might impact on the utilization of emergency services, and to allow for both within-case and cross-case analysis (as described later) the same seven calendar months were chosen for each time period (January to July). These data collection periods were designed to allow identification of any changes in the volume or frequency of service provision from “before” to “after” the introduction of the NP. At the time of this study, all of these NP roles had been established for three to almost six years; they were therefore within the acceptable three to five year time period recommended for the benefits of the role to be assessed (Bryant-Lukosius & DiCenso, 2004; Brykczynski, 2005). Qualitative evidence had also already identified that primary care practices from this particular collaborative model of primary care were “experiencing fewer emergency room visits, fewer hospital admissions, and improved access to care – often same-day or next-day access. ... [and most have] increased its patient volume” (CHSRF, 2010 p.4).

Documentation. Documentation is one of the main sources of data in almost all case studies and can include letters, announcements and other notes, agendas and other written reports

of events, meeting minutes, administrative documents, formal studies and evaluations, and news clippings and media reports (Hancock & Algozzine, 2006; Yin, 2009). However, documentation as a source of information is not without weaknesses; these can include the quality, validity, and reliability of the document itself, difficulty of access, and the biases of selection by the researcher (Gangeness & Yurkovich, 2006; Merriam, 1998; Yin). In this study, documents were collected from the practice, community, and health authority levels. Documents were selected to be reviewed if they related to the NP role in the primary care practice. These documents included: the applications submitted by the practices to the health authority, internal briefing notes used within the health authority relating to the NP role, health authority strategic plans, planning frameworks, and program evaluation reports; newspaper articles, TV clip and radio interview relating to the introduction or practise of the NP in the particular setting or community; conference posters and conference presentations relating to the role; and letters from participants to the health authority and government. As much as possible similar documents were obtained from each site as identified in Table 5.

Table 5. Summary of Documents Collected from Cases

Documents	Case 1	Case 2	Case 3
Documents from Health Authority (application, reports, memos)	2	5	5
Newspaper, TV & Radio clippings	4	2	4
Conference presentations	0	1	3
Letters	0	1	1
Government Documents	0	2	1

Data Collection Procedures

A total of 25 key informant interviews were undertaken across the three cases. In some situations the same individual was interviewed in relation to two or all three cases. Interviews with key informants lasted from 10 to 90 minutes with the average being 55 minutes. They followed the semi-structured interview guide developed specifically for each type of participant (Appendices F - J). The majority of these interviews were face-to-face. Telephone interviews were only used with participants from outside of the fee-for-service practices whose work site was located too far away or who were on holidays during the times of the onsite data collection. This included participants from community organizations and community health services. Interviews were conducted in a private location at the work site convenient to the practitioner or staff member. To ensure confidentiality, all participants in these interviews were asked to not discuss their participation in these interviews with others (Creswell, 2009; Teddlie & Tashakkori, 2009). These interviews were digitally audio taped and field notes, describing the setting, my feelings and reactions, and any other relevant information (Creswell & Plano Clark, 2007), were recorded as soon as possible after each interview to facilitate the best recall and quality of the notes (Aita & McIlvain, 1999). A total of 36 pages of hand written field notes were generated for Case 1, 34 pages for Case 2, and 28 pages for Case 3. The field notes were documented using a common observational protocol form involving *descriptive notes* from the setting and event, and *reflective notes* of the researcher's thoughts and impressions (Creswell, 2009) (Appendix K). Digital audio tapes from the interviews were transcribed verbatim by the researcher into written digital files for data analysis.

Direct observational techniques were used in the practice settings to collect contextual and interactional data, and information about specific activities and events relating to the enacted

role of the NP. There were no additional individuals other than those directly participating in the study in the observational field. For each case site, a total of 4.5 days of observation occurred over two separate visits approximately two months apart. The data from these observations were recorded as field notes using the same observational protocol form involving descriptive notes and reflective notes (Creswell, 2009) (Appendix K).

Archival records, as previously described, were requested from the practices and the health authority. To ensure confidentiality, practice staff aggregated the data and removed any identifying information relating to patients before the data were provided (Creswell, 2009; Teddlie & Tashakkori, 2009). Health authority staff removed any information that could be used to identify patients before providing the data.

All data collected through these processes were stored in either password protected memory sticks kept in a locked data safe or in locked filing cabinets in the researcher's work office. Data were kept strictly confidential and discussed only within the researcher's doctoral committee. Data will be kept for a period of five years and then destroyed.

Data Analysis

The qualitative and quantitative data collected in this study were analysed using a parallel mixed data analysis strategy (Teddlie & Tashakkori, 2009). Parallel mixed data analysis involves two separate processes; first the qualitative and quantitative components are analysed separately using appropriate thematic analysis and descriptive/inferential statistics respectively, then the two components are integrated to form meta-inferences or conclusions generated through the integration of the inferences obtained from both components of the study (Teddlie & Tashakkori). This process allowed the two databases to form a complete picture of the enacted role of the NP and changes that have occurred as a result of the implementation of the role at the

study sites (Creswell & Plano Clark, 2007). Creswell (2009) defines the combining of the qualitative and quantitative data to determine whether there is convergence, differences, or some combination, as a concurrent triangulation strategy. This enhances the rigour of the study (Yin, 2009). *Within-case analysis*, to explore and describe the case, was undertaken for each case and then *cross-case analysis* of the three cases was undertaken to identify similarities and differences among the cases (Miles & Huberman, 1994; Teddlie & Tashakkori).

A case study database (Yin, 2009) was developed to manage, categorize, and organize the transcribed interviews, field notes, documents, and raw data archival records. The database or management system was undertaken using NVivo software and established a commonly structured storage and retrieval system with cross-referencing and indexing (Miles & Huberman, 1994). The use of a “database markedly increases the *reliability* of the entire case study” (Yin, p.119) and is a major component of developing a *chain of evidence* that enables “the derivation of any evidence from initial research questions to ultimate case study conclusions” (Yin, p. 122).

Data collection, analysis, and interpretation occurred concurrently. Miles and Huberman (1994) recommend this approach:

It helps the field-worker cycle back and forth between thinking about the existing data and generating strategies for collecting new, often better, data. It can be a healthy corrective for built-in blind spots. It makes analysis an on-going, lively enterprise that contributes to the energizing process of fieldwork (p. 50).

An iterative and cyclical analysis process “consisting of concurrent flows of activity: data reduction, data display, and conclusion drawing/verification” (Miles & Huberman, p. 10) was used.

The qualitative data from the interviews were transcribed verbatim and then imported into NVivo 7 and later transferred to NVivo 9 (QSR International, 2010; Richards, 2006).

Documents and qualitative data from the archival records were summarized for their context and significance using a template organizing style (Crabtree & Miller, 1999). The descriptive and reflective field notes were imported into NVivo (Richards). All the qualitative data were then read and re-read to develop a preliminary understanding of the data (Creswell & Plano Clark, 2007). Data reduction was undertaken by *coding* or attaching labels to ‘chunks’ or segments of the material in order to organize and assign meaning to the data (Creswell, 2009; Miles & Huberman, 1994; Zainal, 2007). Because little was known about the NP role in fee-for-service settings, the constant comparative method (Glaser & Strauss, 1967), which compares incident to incident, incident to concept, and concept to concept, was used to identify the emerging concepts, patterns, themes, and trends (Miles & Huberman). The constant comparative method was chosen to be used because it takes one piece of data, from any source (interviews, observations, documents), and compares it to other pieces that are similar or different, examines it critically, and draws new meaning from the data (Dye, Schatz, Rosenberg, & Coleman, 2000; Glaser, 1965). The tree node structure of NVivo 7 was used to sort and manage the emerging concepts and themes and relate them to the levels of the conceptual framework (Richards). Memos were kept of ideas or decisions made during the analysis (Glaser & Strauss; Miles & Huberman).

The qualitative data relating to the cases were initially analysed to identify key concepts. These concepts were then grouped into categories. The categories were then grouped into main areas reflective of the study’s conceptual framework. Each of these main areas had identified subsections. Table 6 identifies the breakdown of these levels of the data analysis from each of the cases.

Table 6. Data Analysis – Case 1, 2 & 3

Levels of Analysis	Case 1	Case 2	Case 3
Key Concepts	56	45	39
Categories	25	23	21
Main Areas	5	5	5
Subsections of Main Areas	4 - 7	3-6	3-5

Quantitative data from the health authority was analysed to determine whether any significant changes had occurred in the frequency of acute care services utilization since the introduction of the NP role. Data from two time periods, one before the NP role (either 2007 or 2008 depending on the practice) and the second from the year of the study (2011), were used. The data for the two time periods came from the same calendar months of the years (January to July) to control for any seasonal variation in emergency usage or hospital admission. The data for the two time periods provided by the health authority included 10,063 emergency presentations and 1,461 hospital admissions. These data were sorted and then entered into SPSS version 17 for analysis (Pallant, 2007). Each case had a different number of patients in their practice volume for the two time periods, and in one case a different number of practitioners, therefore, to allow for comparison, all data were standardized to the number of emergency visits or hospital admissions per 100 patients. The number of emergency occasions of service was calculated on a monthly basis for each practitioner and then totalled for each time period. The admission data were sorted to remove all but admissions from the emergency departments. Then the number of admissions from emergency was calculated on a monthly basis for each practitioner, and a total for the practice, for each time period. The data were then analysed to create descriptive statistics. The following statistics were created for both the before and after

data; mean number of emergency visits per month per practice, mean number of visits per month per practitioner, and the mean number of admissions per month per practice. These data were then used to calculate the percentage change between the before and after data. Bivariate analyses of before and after means at the case level were undertaken using paired sample t-tests. Depending on the number of practitioners at each site between seven and 28 paired samples were included in the analysis for each site.

After the two types of data had been analysed independently they were integrated to form meta-inferences within each case analysis (Teddlie & Tashakkori, 2009). Then the next steps proposed by Miles and Huberman (1994) and Yin (2009) of developing data displays leading to conclusion drawing and verification were used as the strategy to proceed with the completion of the data analysis. Data displays involved creating matrices and models using the variables identified in the data reduction (Miles & Huberman; Rosenberg & Yates, 2007). Conclusion drawing and verification involved “noting regularities, patterns, explanations, possible configurations, causal flows, and propositions” in the models to determine meaning and then assessing them for their plausibility, strength and “‘confirmability’ – that is, their *validity*” (Miles & Huberman, p.11). The models developed represented “causal networks” (Miles & Huberman, p.155) at the individual case level and the relationships among the variables were represented by directional arrows displaying causal influences. The development of these causal networks involved a deductive/ inductive approach, which emphasized an initial conceptualization of the preliminary network and then cycling back and forth between the two approaches until the final version was built (Miles & Huberman). Causal network diagrams were developed for each level of relationships identified in the conceptual framework and these diagrams are included in the findings of each of the cases.

Miles and Huberman (1994) point out that the conventional view of qualitative research is that it is only useful for tentative explanation and that causal attributions can only be made in quantitative studies using, in particular, experimental designs. They “consider this view mistaken” (p. 147), arguing instead that qualitative research helps open up the black box of the intervention, in this case the introduction of the NP role, to understand how and why something has happened. Others have also argued cogently that causal explanation can be achieved with qualitative research (e.g., Campbell, 1979, 2003; Yin, 2009; Glaser & Strauss, 1967; Glaser, 1978). In grounded theory, for example, the research explains a social process by identifying the causes of an action, the conditions necessary for that action to occur, the context in which it occurs, the consequences of the actions, and any intervening conditions; Glaser refers to this as the 6-C model (Glaser, 1978). In this study, I draw particularly on the methodology of Miles and Huberman as described in the previous paragraph.

Cross-case analysis of the three cases was then undertaken to identify similarities and differences among the cases (Miles & Huberman, 1994; Teddlie & Tashakkori, 2009). The cross-case analysis followed Miles and Huberman’s “causal network analysis” (p.228) approach based on the causal networks developed for each case. “Causal streams” (p.228) or patterns of flow of variables from the initial actions to the outcomes were isolated from each case and then matched and compared across the cases through the use of an “antecedents matrix” (p.234). This matrix identified both comparability and variability between the cases. The antecedents matrix and cross-case causal networks models for each level of relationships are included in the cross-case findings. The types of causal relationships displayed in these models are not intended to represent the perspective of causality that focuses on a systematic mechanical relationship of comparison commonly presented as “x caused y” (Howe, 2012; Maxwell, 2004). Instead they are

designed to develop “knowledge about causal relationships” and “refer to the investigation of causal effects” (Maxwell, p.5) which explain how and/or why some events and situations influence others.

In the cross-case analysis at the health authority level, one-way between group analyses incorporating analysis of covariance (ANCOVA) were used to compare across the three cases the post NP (2011) mean number of emergency visits per month and the mean number of admissions per month, to determine if there were any statistically significant differences between the cases after the introduction of the NP role (Gillis & Jackson, 2002; Howell, 2004; Pallant, 2007). ANCOVA was chosen due to the need to control for the pre-existing differences between the cases. Each of the cases’ practice population was different in terms of demographics, levels of morbidity and chronic disease, and each case had different practitioners. These differences were controlled for through the use of a covariate variable. This variable was the pre-NP (2007/8) mean number of emergency visits per month (per 100 patients in the practice), or the mean number of admissions per month (per 100 patients in the practice). Due to the need to have equal group sizes across the three cases for the ANCOVA calculations, the practice totals for each of the seven month periods were used rather than the total per GP (as the number of GPs per case were different). These described analytical processes created a documented and auditable trail of evidence to conclusions throughout the within-case and cross-case analysis.

Rigour

Rigour in both qualitative and quantitative research refers to the quality or trustworthiness of the data and results; however, this is approached differently with the two types of research (Creswell & Plano Clark, 2007). Yin (2009) recommends that quality in case study research be assessed through the use of four criteria: construct validity, internal validity, external

validity, and reliability; criteria that are generally associated with quantitative research (Teddlie & Tashakkori, 2009). Lincoln and Guba (1985) described trustworthiness in qualitative research through the use of four different criteria: credibility, transferability, dependability, and confirmability. Teddlie and Tashakkori propose that quality assessment with mixed methodologies be related to the *inferences*, “conclusions and interpretations that are made on the basis of the collected data in a study” (p.287), and that this assessment should be made through *inference quality* and *inference transferability*.

Inference quality is an umbrella term denoting the standards for evaluating the quality of conclusions that are made on the basis on research findings. Inference quality includes the QUAN terms *internal validity* and *statistical conclusion validity* and the QUAL terms related to *credibility* and *trustworthiness*.

Inference transferability is the degree to which these conclusions may be applied to other similar settings, people, time periods, contexts, and theoretical representations of the constructs. It corresponds to *generalizability* and *external validity* in QUAN research and *transferability* in QUAL research (Teddlie & Tashakkori, p. 287).

Although this research was based on both Yin’s (2009) and Miles and Huberman’s (1994) case study methodology, the use of Yin’s recommended criteria for assessing quality did not fit well with the types of data collected in this study. Instead Teddlie and Tashakkori’s (2009) “integrated framework of inference quality that incorporates both” (p.300) qualitative and quantitative standards, and inference transferability has been used. This integrated framework is based on two aspects of quality: design quality and interpretive rigour.

The first aspect, design quality, refers to the degree to which the researcher has selected and employed the most appropriate methods for answering the research questions (Teddlie & Tashakkori, 2009). This includes: the suitability of the design, whether it was implemented with fidelity to the methodological requirements, the consistency and cohesiveness of the design components, and the adequacy and appropriateness of the analytical techniques. The second

aspect, interpretive rigour, is concerned with “the degree to which credible interpretations have been made on the basis of the obtained results” (p.303). The criteria for assessing this included: (a) consistency in the interpretation of the conclusions based on the inferences being appropriate to the strength of the available evidence, (b) consistency with current theoretical knowledge, (c) agreement in the interpretation of the conclusions, (d) defensibility and plausibility of the conclusions, (e) the degree to which the inferences effectively integrate the findings from the different methodologies used in the study to create meaningful conclusions, and (f) the degree to which conclusions satisfy the initial purpose(s) of the research.

The second part of Teddlie and Tashakkori’s (2009) quality assessment is inference transferability. According to these authors, issues of transferability come into consideration only when “you are confident that your inferences are well conceived and credible” (p.311), however to be of value, all research with high quality conclusions should have some degree of transferability. Four different types of transferability are identified: (a) ecological transferability, the extent to which the study’s inferences and recommendations might be applicable to other contexts or settings; (b) population transferability, the degree to which the study’s inferences and recommendations are applicable to other individuals, groups, or entities; (c) temporal transferability, the extent to which the recommendations may be applicable in the future; and (d) theoretical/conceptual transferability, the degree to which the findings can be replicated if the main theoretical constructs were defined, observed, and measured differently.

The design quality aspects of inference quality have been addressed in this study by close adherence to the methodological procedures outlined in Yin’s (2009) description of case study research. The study data were collected by way of five sources (individual interviews, direct observation, field notes, archival records, and documentation) from three different sites to

identify and describe the different components of the enacted NP role and the changes that have occurred since the introduction of the role. The use of multiple sources of evidence is considered to be the key to addressing this aspect (Baxter & Jack, 2008; Rosenberg & Yates, 2007; Yin, 2009). As described in the study's methodology, documentation of the processes of this study was undertaken through the use of an audit trail detailing how the data were collected (Merriam, 1998). Analytical processes followed the methodologies proposed by Miles and Huberman (1994).

The interpretive rigour was addressed through within case analysis, and then cross-case analysis, in which attempts were made to match emerging patterns and identify a "typical story" (Miles & Huberman, 1994, p. 204) of the changes identified since the enactment of the NP role. Congruence of these results "indicates increased confidence in the findings" (Aita & McIlvain, 1999 p. 258). Alternate explanations or plausible rival justifications were investigated in an effort to increase the level of certainty of the final conclusions (Yin, 1999). Final inferences and conclusions were compared to existing theory from other contexts to determine consistency or identify new knowledge. The development of a chain of evidence (Yin, 2009) allowed readers to trace the steps from the study questions through the case study database to the conclusions in this report.

Inference transferability was addressed after the final conclusions had been reviewed for credibility. The thick descriptions of the case studies and their contexts allowed for identification of the appropriate types of transferability that were applicable to this study's findings. The findings from this study are expected to have ecological transferability; this would be to other types of primary care sites where the NP role has been established. The findings should also have population transferability to other entities where a collaborative practice model

between a NP and GP exists. Temporal transferability is also expected to occur because it seems reasonable to believe that the findings and recommendations from this study should be applicable for many years to come. Some theoretical/conceptual transferability should also be expected to occur because some of the same, or similar, findings would be expected if the methods of observation were changed to include the perspectives of patients and/or community members.

Presentation of the Case Findings

The results of the data analysis from the three cases, and the cross-case analysis, are presented in the next four chapters. Chapter 5 presents the findings from Case1. The findings from Cases 2 and 3 are presented in Chapters 6 and 7 respectively. Following the presentation of the case findings, the cross-case analysis is presented in Chapter 8.

Chapter 5 – Findings – Case 1

In this chapter, and the following three chapters, I present the results of the data analysis from the three cases and the cross-case analysis. In all of these chapters, the findings are organized and presented in five major sections structured to reflect the aims of this research, and the levels of the ecological conceptual framework: NP role, practitioner, practice organization, community, and health system (see Figure 1, p. 53). The health system level in these settings equates to the regional health authority and is referred to as the health authority. I begin each chapter with a description of the context of the particular practice setting and then proceed with the five sections. In the first section, *Introduction to the NP role*, I describe the specific characteristics of the NP role including the initial expectations for the role, the actual activities that represented the enactment of the role, and any differences that may have occurred between these. In the next four sections, I explore how the introduction and specific actions of the NP has affected the practice's internal (practitioner and practice organization) and external (community and health authority) interactions and relationships. Within each of these sections, I begin with a very brief overview of the NP actions, and then the network of impacts and outcomes resulting from those actions, followed by a causal network diagram that graphically represents these elements. I then provide a more detailed analysis of the findings, organized in sections that map onto the diagram. Finally, the findings for each case are depicted in evolving versions of the conceptual framework.

In the analysis of the cases, certain types of contextual factors were found to affect the impacts and outcomes of the NP role; however, these were very similar across all three cases. As a result these contextual factors and their influences on the cases will be presented in the cross-case analysis rather than within the individual case discussions.

Chapter 8 presents the findings of the cross-case analysis to identify similarities, differences, and explanations for these among the cases. The causal streams identified from each case are matched and compared and then the overall findings are presented in a final version of the conceptual framework and related to the propositions underpinning this study.

To protect the confidentiality of the study participants in this analysis, the NP participants have been given gender neutral pseudonyms. Quotations from participants only refer to the particular type of role of the participant if it's necessary to understand the meaning of the statement. The use of pronouns (his/her, he/she) is only to assist in the flow of the text; it does not denote the gender of any particular participant. The genders of participants, both NPs and GPs, may have been altered across cases to limit the extent to which cases might be identified. The remainder of this chapter presents the findings from Case 1.

Practice Context.

Case 1 was located in a small regional town with an urban population of approximately 7,500 and a surrounding rural population of approximately 8000. The population was predominantly middle class Caucasian with the main sources of employment being forestry, mining, and tourism. At the time of data collection there were three GP clinics operating in the town with a total of nine physicians. The community had been experiencing a shortage of physicians for more than seven years and had been unsuccessful in their recruitment attempts. In 2002, the health authority downgraded the local hospital from a 30 bed in-patient facility with some surgical services to a 12 hour/day urgent care centre and community health centre; all in-patient services were relocated to hospitals in two communities each 30 to 40 kilometres away.

The NP role was implemented in 2008 in the largest GP clinic in the community. This clinic had two separate office sites located approximately seven kilometres apart in communities

that historically had been separate towns. The offices were linked through a long standing business partnership and shared business and financial arrangements including common computer resources, a common Medical Services Plan (MSP)¹⁷ billing arrangement, and a common Saturday morning ‘drop-in’ clinic for patients. Each office had its own dedicated physicians and office staff: they rarely provided any services at the other office site except when it was their turn to provide service to the Saturday morning drop-in clinic. All Saturday clinics were held at office two. Patients of the clinic could be seen at either office site due to the shared EMR system; however, few patients chose to do this. Only the physicians (all) from office one participated in the application to the health authority to become a part of the NP/GP collaborative practice program; the physicians from office two did not want to participate. However, as explained later in this description, the NP was working at both offices at the time of data collection.

The complement of staff at the clinic (both offices) included five GPs, one NP, and a support staff of six medical office assistants (MOAs) and a part-time office manager. The NP in this case has been given the pseudonym Tristan. The practitioners (GPs and NP) represented both genders in a fairly equal ratio. All of the GPs had been practising at this clinic for more than 10 years, some had been in this practice for more than 30 years. The only other health care professionals that came to the clinic to provide services were the regional psychiatrist and a health authority mental health social worker; they came once every two weeks as part of the collaborative community mental health program. This collaborative community mental health program was established approximately one year after the NP role was implemented in the

¹⁷ Medical Services Plan (MSP) is the provincial government run payment service for all fee-for-service physicians. Each physician paid through this plan must have access to an approved electronic system to submit their payment claims to the provincial government.

practice. Tristan was supportive and participated in this program but had no direct role in its implementation.

Office one was located in a small commercial building near the downtown centre. It had facilities for three practitioners to work concurrently, with multiple examination rooms, practitioner offices, a large waiting room and reception office, the clinic's business office, and a staff lounge at the back of the building. Office two was located in its own building on a quiet side street near the intersection of the two regional highways. It had three practitioner offices, four examination rooms, a large waiting room and central reception office, and a staff lounge at the back of the building. During observations at the two office sites, office one was noted to have a steady flow of patients with two to three patients present in the waiting room most of the time; office two was noted to have fewer patients with no patients kept in the waiting room for any length of time.

The clinic had implemented an EMR system approximately four years previously. One year ago the clinic changed their EMR system to the one that had been chosen by the local Division of General Practice¹⁸ as the common EMR for all primary care practices in the division's catchment area. However, this created some problems for this research because practice records from prior to the changeover date in 2010 could not be accessed. This clinic did not use their EMR for purposes such as tracking chronic disease management indicators or creating practice statistical data. The EMR was used solely for patient charting and sending required billing reports to MSP. In this research, I also observed that there were problems with

¹⁸ The Divisions of General Practice are an initiative of the BC Government / BC Medical Association through the General Practice Services Committee to support family physicians in BC communities to work together, enhance their practice and address gaps in patient care. The divisions are geographically based and each division works with its regional health authority to establish community infrastructure, support GPs to organize themselves and to work as a group to enhance the provision of care through collective shared responsibility and to expand service offering for patients in their community and regional area (MacCarthy, 2009).

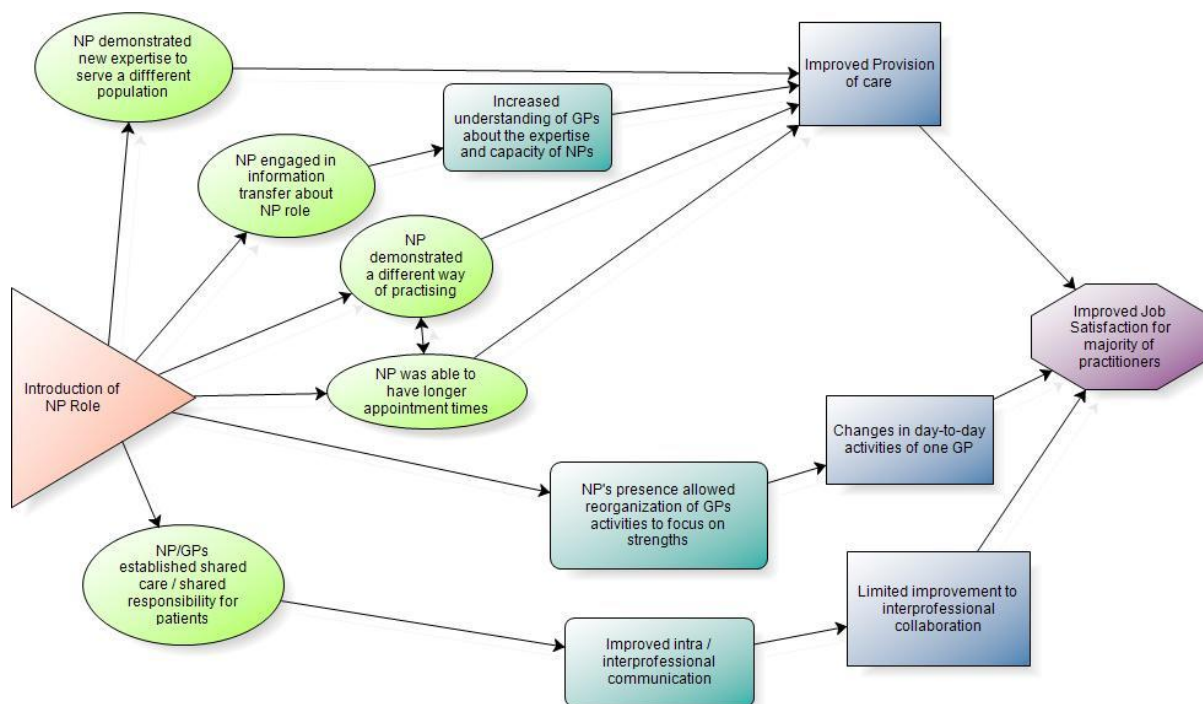
some aspects of how data had been entered into the EMR, which resulted in significant manual data retrieval being required to obtain practice statistics. These challenges will be discussed further as they apply to the findings in the different sections of this case presentation.

Tristan was embedded at office one and remained solely at this office for her first 18 months of practise. At that time, one of the physicians from office two left the practice and the remaining physicians were in need of additional help to prevent the office from closing on some days when there were no GPs available. Tristan was initially asked to ‘help out’ by working from office two on a few occasions. In the ensuing months Tristan went on extended leave and was replaced by a locum NP. During this time, the locum NP became a more frequent practitioner at office two providing relief whenever one of the GPs was not available. When Tristan returned to work, practising from office two had become “sort of an established thing that was happening”; approximately 30% of Tristan’s practise time was now being spent in this office. This 70/30 time split between the two offices continued for the next 15 months and through the first half of the data collection, at which point a new physician was recruited for office two. This GP started work before the data collection was completed. After the new GP took up practise in office two Tristan returned to working almost exclusively in office one. Whenever Tristan was practising from office two she saw both her own patients and overflow patients from the GPs based at the second office, however some of Tristan’s own patients preferred to be seen only at office one. The impact of this change in practice location will be discussed further in the section relating to changes at the practice organizational level. With the exception of this specific discussion relating to the change in practice location, where the practice location will be specified as office two, all other findings presented in this case are

associated with Tristan's practise at office one. Office one is referred to as the practice for the remainder of Case 1's findings.

The next section begins the presentation of the case findings organized by the relationship levels of conceptual framework. Although in this framework there are five defined levels, the actions, impacts, and outcomes at each of these levels are interrelated and overlapping creating simultaneous or concurrent outcomes at more than one level; there is no clear separation or demarcation of the boundaries between the levels. This is expected in an ecological framework. The first section, *Introduction of the NP Role*, describes the characteristics of the NP role and how it was enacted in the practice. The next section, *Changes at the Practitioner Level*, presents how the actions of the NP created changes for the practitioners, and the impacts and outcomes that occurred as a result of these actions. These impacts included changes in: (a) aspects of how care was delivered to patients which resulted in improved provision of care, (b) the day-to-day activities undertaken by one of the GPs, and (c) the intra and interprofessional communication among the practitioners; however, little change was noted in their interprofessional collaboration and teamwork. Overall, these impacts resulted in the outcome improved job satisfaction for most of the practitioners. The causal network diagram on the next page (Figure 2) depicts both these levels; the introduction of the NP role and the actions, impacts, and outcomes it created at the practitioner level. The narrative that follows this diagram first discusses the introduction of the NP role and then explains these actions, impacts, and outcomes.

Figure 2. Case 1 - Introduction of the NP Role and Changes at the Practitioner Level



Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangles (Green/Blue)	= Initial impacts of NP actions
Square Rectangles (Blue)	= Impacts of NP actions
Octagon (Purple)	= Outcomes of NP actions

Introduction of the NP Role

This section presents the specific characteristics of the NP role and how it was enacted in this practice. First, I discuss the goals for the NP role as identified in the practice's application to the health authority, as well as any initial expectations identified by the NP, practitioners, and staff at the clinic. Following this, the actual role is presented including the specific characteristics that the NP brought to the role and the activities she undertook to enact the role. Finally, I examine any differences between the initial expectations and actual role.

Expected NP role. According to the practice's application to the health authority, the NP role was to address six goals. These were to: (a) improve timely access to acute and chronic care, and preventative health maintenance; (b) improve quality of care; (c) improve job satisfaction for doctors, nurses, and MOAs; (d) increase "shared care" and team work; (e) increase networking with other health care providers; and (f) improve appropriate use of the urgent care centre. There was no identified patient population or specific focus for the role. Instead, the application placed emphasis on the shortage of primary care providers at the practice, their inability to meet increasing patient demands, and dissatisfaction, acknowledged by both practitioners and patients, with the existing situation. Enhanced patient care through "cooperative and effective teamwork" was identified as the expected outcome.

The study participants described differing initial expectations for how this NP role would be enacted. All participants, both from the practice and community, stated they felt the NP role was introduced to help improve the effectiveness of care delivery to patients; however, they differed in what they thought this meant and how they expected that this would happen. The following quotations highlight different types of participants conflicting initial expectations.

Tristan will be working to full scope family practice... don't really know what that will look like, whether it will be a largely dedicated practice or a largely collaborative model where we all share the same patients, but it will be something like that.

Tristan would go into the clinic, begin to be a part of the primary care team, focus on those needs that are already identified... but once Tristan is in that clinic she is going to see the population and might say "wow, that is a little bit of the need but a huge need is over here." So we supported that the NP needed to be a part of the role description once she was in the clinic.

We were naïve in that probably, initially, we had the concept of a physician assistant role that the nurse practitioner would play, and probably after we got involved we had a better understanding of what nurse practitioners do. Basically we acquired more of a peer rather than someone who was going to help us out with provision of care to our patients.

We thought Tristan's role would assist with the management of chronic disease patients in the practice...The NP could work under us and take over the education, follow up, and other aspects of their care, and then report back.

We will have someone do all our Pap's, and you know see some of the overflow, and they can kind of get all the chronic disease management sorted out and make sure everyone is coming in every 3 months and fill out all the forms...

I initially thought the NP would be a support for the staff, somebody who could give shots, and be more of a nursing person, you know be more of a support to the front lines.

It was evident from these quotations that there were very different levels of understanding of the NP scope of practice and what role the NP would play in the practice. The initial expectations of the NP role appeared to lie somewhere between the NP being a physician assistant¹⁹ and a practice nurse²⁰. This may be attributed, in part, to their limited previous experience with both the NP role and other nursing roles in primary care. Although this practice had taken NP students for practicum placements prior to the implementation of this NP role, they had never worked with an autonomous NP who could work to the full scope of NP practice and did not require supervision. Despite the practice indicating that one goal was to improve nurses' job satisfaction, they had no nursing roles; they were inexperienced with how patient care could be improved through the efficiencies and benefits afforded by a role such as a practice nurse. This general lack of experience with nursing roles, and with working in an interprofessional practice setting may have contributed to their initial expectations for how the NP role would function.

¹⁹ Physician Assistant Role – Physician assistants (PAs) are general health care providers who have a scope of practice that is unique among all other health care disciplines. A PA is not an autonomous practitioner; all tasks must be delegated to the PA by a supervising physician. The type of work delegated, and the extent of the direct supervision provided to the PA is dependent on the physician's assessment of the PA's individual competencies, skills and experience in the practice setting. (Mikhael, Ozon, & Rhule, 2007).

²⁰ Practice Nurse Role - A practice nurse is employed by a physician practice to undertake nursing duties in their practice setting. In most cases the nurse is a registered nurse; however they may be a licensed practical nurse. The duties of this individual are determined by their employer and depending on the determined scope of their practice the physicians may have some legal responsibility for their practice.

The actual NP role in this setting was quite different than these pre-implementation expectations. The following section describes the enacted NP role.

Actual NP role. Tristan was an experienced RN with specialized education in mental health, addictions, and HIV care. Prior to becoming a NP she had worked in both hospital and community settings, however she was more experienced in the community setting. She had graduated from one of the BC Master of Nursing NP programs and this was her first NP position. Her enactment of the NP role included four types of activities: primary care, educational, administrative and management, and research. Table 7 summarizes these role activities and the estimated amount of time spent in each activity as recalled by Tristan.

Table 7. Case 1 – NP Role Activities

NP Role Activity	Percent (%) of Time Spent on Activity
Primary Care in the Clinic Setting	85%
Primary Care in the Community Setting	3%
Educational Activities with groups of patients in any setting	0 - 1%
Educational Activities with students and peers	3%
Administrative and Management Activities – relating to practice functions	3%
Administrative and Management Activities – relating to NP role (including time spent in meetings and roles in professional associations, etc...)	5%
Research Activities	1%

Primary care. The provision of primary care was the principal activity undertaken by Tristan. The majority of this care took place in the practice setting where Tristan spent approximately seven hours per day providing care to 16 to 20 patients per day. She provided episodic care, women's health care, and chronic disease management to general and marginalized populations, fragile seniors, paediatric patients, and obstetrical patients up to 20 weeks gestation. This reflected full scope family practice consistent with that expected by the CRNBC (CRNBC, 2008a, 2011). Tristan estimated that she was the primary care provider for between 400 and 500 patients. Practice volume statistics revealed the actual figure was 381²¹ patients. In addition to her family practice role, because of her specific expertise in mental health, addictions, and HIV care, she was "known as the HIV 'go to' in the area." Community organizations and GPs in the region were referring patients with these conditions to Tristan for this specialized care. Patient appointments with Tristan were generally booked for 30 minutes; however this could be changed to two 15 minute appointments by the reception staff depending on the nature of the patient's presentation or the need to accommodate more patients on short notice. One participant summed up the extent of Tristan's primary care practice as:

Tristan is actually amazing. The only thing that Tristan does not do in our office is write narcotic prescriptions, other than that Tristan will see a patient who is ill, in an emergency situation, who has phoned and there isn't anyone else available. Tristan will see that person and treat them and follow up with them if they want, just like a doctor would.

Tristan also provided primary care in the community setting. This community-based care included visiting the youth centre, long term care facilities to see frail elderly, as well as weekly

²¹ Confirming the actual size of the NP's practice proved more difficult than initially anticipated as the EMR did not correctly attribute patients to the NP. The NP had to manually go through the practice records and reallocate the patients that belonged to her. This figure may be an under estimation of the total number of patients for whom she was the primary care provider as this task was time consuming and difficult for her to complete with all her other commitments.

visits to the local soup kitchen/drop-in centre to provide a contact point for primary care for marginalized individuals. Tristan described these marginalized individuals as:

Generally poverty stricken, perhaps with mental health and addiction problems, who may be disillusioned with the traditional health care system, don't access it due to past experiences, rarely go to emergency unless it is a real emergency, don't have a primary health care provider. I would often see people only there [drop-in centre] from week to week, and then people will feel comfortable and make an appointment and see me in the traditional clinic setting after that, although for some people it is still like that there after a year or two.

Tristan's commitment to providing primary care in the community was reflected in one participant's comment: "Tristan has gone out of her way to be in the community."

Tristan's primary care practice had two foci, general family practice and marginalized individuals; this benefitted both her and the community. She identified that "seeing only the marginalized population with their associated issues would lead to burnout"; however, having this diversified practice provided her with a balance that a solely mental health and addictions type of practice population could not have. Tristan also identified that there were not sufficient numbers of marginalized patients in the area to justify a full time dedicated position; however, there was clearly a previously unmet need that was now being filled.

Administrative and management activities. Administrative and management activities comprised the second largest area for Tristan's enacted role. The majority of this time was spent in meetings and other professional activities directly related either to the development of the NP role or the delivery of primary care services in the regional area. Tristan had chosen to become involved in the local Division of General Practice²² and had taken on a leadership role within that

²² This particular Division of General Practice had developed a constitution which included both GP and NPs as members of the division and had encouraged NPs to take on leadership roles within the Division if they desired. All the NPs in the regional area were members of the Division of General Practice.

organization. The following quotations demonstrate the value placed on this activity by Tristan's GP colleagues.

Tristan has taken on a pretty leading role; it has been impressive both for the nurse practitioners' voice and for all the rest of us to interact with somebody besides ourselves.

This is a perfect example. [GP] is quitting practice. [GP] has 70 of the 90 methadone people under [his/her] care. The reaction from other people would be Oh we need someone to do methadone, nobody wants to do that because clearly from my vantage I would know that population group is harsh, challenging to work with, you have to have a certain style, and you have to have a very durable front office staff to cope with these people. So Tristan has said, I would like to see a bit of a more of a global approach, this is going to happen, what are we going to do about this? Tristan has brought it up at the divisions and is championing it at that level. Tristan is interacting on that level with a couple of the other physicians, trying to come up with solutions before [date of retirement] and is being proactive. That is refreshing.

In addition to this professional role activity, Tristan also participated in the executive of the NP professional association. The majority of participants commented that these activities were valued additional components of the role and represented a refreshing change in the local area.

The other type of administrative activity involved managerial and administrative functions within the practice. All relevant participants identified that Tristan contributed what she felt was required to help maintain the day-to-day running of the practice. This included attending staff meetings and providing input to decisions that affected the practice as a whole; however, these participants noted that this was not a significant or particularly dominant part of Tristan's practice.

Educational activities. The educator role comprised a small part of Tristan's activities. The main types of educational activities undertaken included being a preceptor to NP students from the university programs in the province, teaching RN students from the local nursing program, and occasionally having RN students spend time with her to learn about the NP role

and from her personal expertise. Educational time was also spent with peers in continuing professional education.

Tristan stated that providing education to groups of patients was a very small part of her role, between zero and one per cent of her time. However, other participants commented that they thought that Tristan spent “quite a bit” to “a lot of time” involved with community programs that provided education to groups of people. These education sessions involved informal to semi-formal talks on subjects deemed relevant to youth and marginalized populations at the youth centre and the soup kitchen/drop-in centre. This reason for this difference is unclear; it may be a result of different expectations for involvement in these types of activities, and the other participants’ past level of exposure to this type of activity.

Research activities. The research component of the role had received limited attention prior to this study; this was the first such activity that Tristan was able to recall participating in since taking up the role. She acknowledged this was not due to a lack of interest, but rather a lack of time, given all her other competing responsibilities. Tristan was very quick to respond when the opportunity to participate in this research arose; she was responsible for organizing the involvement of the practice, and then devoted significant amounts of time to participate in the data collection. Due to the challenges with the EMR, Tristan personally searched the practice records to obtain the necessary information for the quantitative analysis to substantiate the interview findings. Without this interest and involvement, this study would not have been possible.

Role enactment. Despite the differences between the practice’s expectations for the role and the way the NP actually carried out the role, three years after introduction the participants

clearly appreciated and valued the NP role as it had played out in their practice. Practice members acknowledged that, although many of the needs that they had initially expected the NP role to address remained unresolved, this was offset by a greater understanding of what the actual NP role and scope of practice was, and recognition that the NP role could not have been expected to be the solution to some of these problems.

The activities that Tristan undertook in her practise had impacts on the other practitioners who practised from this office and the care they provided to patients. The following section identifies the actions of the NP that created changes, and then describes the impacts and outcomes that occurred as a result of these actions. (Please refer to p.96 for the diagram of these actions, impacts, outcomes and relationships).

Changes at the Practitioner Level

NP actions. The NP undertook a number of actions in the practice. These actions included: (a) bringing a new and different professional expertise to the practice setting, (b) demonstrating to the other practitioners in the practice the capacity and expertise associated with the NP role, (c) demonstrating a different approach to primary care which was more holistic and patient centred, (d) being able to have longer appointment times with patients, and (e) providing the means by which patient care could be shared between the NP and the GPs. These actions were initially described in the role activities presented in the previous section and will be explained further as they relate to the specific impacts they created for other practitioners in the practice.

Impacts.

Provision of care. The provision of care changed through: (a) the new and different expertise brought by the NP, (b) the different way she practised, (c) the more time that she was able to spend with patients, and (d) information transfer that increased the GPs' understanding about the NP role.

New and different professional expertise. Tristan brought a new and different professional interest and expertise to the practice; caring for marginalized populations, who were often also in need of specialized care in the areas of mental health and addictions, Hepatitis C, and HIV. This complemented and enhanced the existing knowledge and skills available from the other practitioners. GPs and other practitioners described the importance of this different professional expertise in enhancing the overall provision of care available in the practice.

Tristan has a different knowledge base than I do and a different practice, we all have different things we can bring.

If I had anyone with HIV or Hep C I would refer them to the NP.

Tristan sees an odd group, an odd assortment of people, these are people that I have said before would usually have a hard time accessing, would show up in emergency or more of a walk-in clinic kind of crowd.

Tristan is a very approachable and very skilled practitioner. She is one of the more non-judgemental health care providers that I have worked with. I have worked in a community health care setting before as a [type of health care professional] so I have a quite vast experience with health care providers and particularly with highly stigmatized populations. I cannot really say enough about how significant her role has been, particularly in the role of these clients who have, are living with HIV and Hep C, and who are, have, very complex care needs.

These practitioners acknowledged that this specific expertise was not available among the other practitioners in the practice nor was it available in the local area; however, they recognized need for this expertise to meet the service requirements for this population.

Tristan was also younger than all the other practitioners, which might explain the fact that she took a greater interest in the overall provision of care to youth and young adults. This focus on youth, marginalized populations, and mental health and addictions care filled an acknowledged gap that had existed in the types of services provided by the other practitioners at the practice.

Demonstrating a different way of practising. Tristan had a different professional education from the other practitioners which resulted in a different perspective, style, and approach to her practise. This different approach was acknowledged by participants to be much broader than traditional physician-based care; and emphasized a holistic approach which addressed the patient's complex needs as well as the social determinants of health. Participants attribute Tristan's success in meeting the health care needs of more challenging patients to her capacity and willingness to be flexible and provide case management for these people, especially those who are in fragile health or are otherwise isolated. "She would assist in accessing specialized services for people who would otherwise not be able to obtain these services because of financial and other barriers." Tristan was more engaged with the patient's personal situation, and "demonstrated that she is open and that she is willing to work with them [marginalized clients] and what they need."

Longer appointment times. This different approach to practise was facilitated by Tristan providing longer appointment times for patients than the fee-for-service physicians were able to do. This was made possible by her health authority salaried (rather than fee-for-service) remuneration. The additional time allowed Tristan to explore and address more issues of concern to the patient and include a focus on their health promotion needs. The value of the additional time afforded to each patient visit is identified in the following quote:

We have our fee structure; we have to see people frequently as opposed to making longer visits. You know, to treat them more holistically, that would be nice, but the way we schedule and are paid, it encourages the revolving door medicine. It is not very satisfying knowing that you have not really helped someone sometimes, they leave and they still have all these other issues that need to be addressed. So maybe Tristan has improved that, they can come in and see Tristan, and talk to Tristan, they spend more time with Tristan and they get certain things addressed that they did not have time to in their visit with me.

Some participants proposed that as a result of the different way of practising and the longer appointment times, the care for these patients and their satisfaction with it improved; however, this was difficult to confirm since no patients were included in this study. These participants believed that it must have made a difference but they had never followed up nor asked any of the patients concerned.

While there was recognition by the other practitioners that Tristan had a different approach to the way she practised, interview and observational data suggested that this recognition occurred more at a theoretical level of awareness rather than having an actual impact on the way the other practitioners conducted their professional practise. In fact, the practise style of the other practitioners remained largely unchanged after the introduction of the NP, except for some small improvements in intra and interprofessional communication which are described in more detail in the section on interprofessional communication, collaboration, and teamwork.

One participant said that the problems with the current primary care delivery system were much larger than could be addressed through the introduction of the NP role and that broad spectrum change was required; however, this person also acknowledged that there was significant reluctance on the part of medical community to do this.

Information transfer about the NP role. Another benefit of introducing the NP role was that the other practitioners were able to observe and experience at first hand the expertise and

capacity of NPs. This demonstrated to them that competent primary care could be provided by a health care professional who was not educated through the traditional medical system. This was reflected by a participant in the following quote:

It has been interesting for us just to see a nurse practitioner, what a nurse practitioner can do, what their capabilities are, so that has been an educational role to a certain degree. Sometimes you wonder, can anyone else do this job? So it has been nice to see that Tristan is a competent practitioner. It is nice to see that the education is out there, and that the program is a good one, training good nurse practitioners. We have had a couple of nurse practitioners come through in their training and we have been really impressed with them too.

This acceptance of the NP as a competent primary care provider, able to manage the care of patients appropriately, was also demonstrated by participants' acknowledging that they were happy to have the NP see their patients whenever they were not available.

We see each other's patients, cross cover, right, when we are not here.

If I am not around there is no real difference, they [my patients] will see [GP] or [GP], or if Tristan is here they will see Tristan.

This was acknowledged not only to improve the provision of care for their patients but to increase the access to care for the practice's patients. This will be discussed further in the section on changes at the practice organizational level.

Changes in practitioners' day-to-day activities. The presence of Tristan allowed one of the other practitioners to modify his activities to focus on his preferred area of practice. One of the goals and initial expectations of the NP role was that it would improve the quality of care for existing patients in the practice, particularly those with chronic and complex care needs. "We thought it [NP role] would assist with the management of chronic disease patients in the practice. We thought it would help us manage these patients better." However, some conflicting opinions were expressed by participants as to how much this shared chronic disease management role was

actually desired by all the practitioners. As a result, this expectation was not achieved to the extent, or in the manner, that it may have been originally envisioned. Instead Tristan's role was described as: "The NP is like another practitioner working here, she is autonomous, does her own thing, sees her own patients, has her own patients." However, Tristan's activities in the practice did allow one of the participants to improve his ability to provide chronic disease management to patients and allowed him to spend more time engaged in his preferred activities. This participant recognized that his practise had shifted since the arrival of the NP; it was now more focused on his personal strengths, which included working with older patients, providing more complex care, seeing more patients with congestive heart failure and diabetes, or doing less routine things. Seeing a patient with an ear problem or a sore throat was now a rare or infrequent event. "Tristan is seeing more of the walk-in problems, which has allowed me to do my job, as it is evolving, especially the increased chronic disease management." This participant acknowledged being happier since this change and enjoyed being able to concentrate more on his personal interests.

Interprofessional communication, collaboration, and teamwork. Another of the goals the GPs expected to achieve by introducing the NP role was an increase in *shared care* for the practice's patients. While this did not happen to the level or in the manner expected by these GPs, one participant acknowledged that there had been an increase in the sharing of some of the more challenging patients associated with the practice.

It is not that sense of being the sole provider. Where we do share patients it is far more palatable to be not shouldering the entire burden of some of the more challenging folks. We are sharing them and [other practitioners] know that they are not always going to be called for every little thing.

This shared care resulted in some increase in intra and interprofessional communication between and among the practitioners, but little change in interprofessional collaboration, and no identified change in teamwork among the practitioners. Interprofessional collaboration has largely been limited to specific arrangements between Tristan and the GPs for sharing the care of individual patients. This usually occurred when a patient needed a prescription for narcotics²³, or when other advice on patient care, or navigating the health care system was required by Tristan. However, the level of interprofessional collaboration that has been achieved between the practitioners was identified by all participants to be less than they had initially expected.

Everybody thinks we should be involved as a team but my sense is this whole fragmentation thing is continuing to happen. So we are kind of individual practitioners and sometimes it is hard to see how we are all working co-operatively together.

We function as practitioners working side by side, but not really collaboratively.

We work side by side rather than together and we don't have time to even think about working differently.

This *siloed* style of practise was identified as the way the practice worked before the NP role was introduced and it has continued. The level of teamwork in the practice appeared to be minimal before the existence of the NP role and this has also not changed. However, all the participants identified that they are now talking together more. This was described by one of the participants:

We talk together more, or at least Tristan talks with [GPs] more and [GPs] have noted that that is different. There is this professional siloing that is very common among physicians, you kind of stick to your own patients, you rarely speak to one another about "you know I had this patient and what would you do in this situation". There is rarely that collegial collaboration ... whereas Tristan is often collaborating either during the day or over lunch or with general questions and stuff, so there is certainly, it has been noted that we talk more as a group and I think that is positive.

²³ NPs are currently not permitted under Canadian federal law to prescribe medications containing controlled substances such as narcotics and benzodiazepines, this is currently limited to only licensed medical practitioners.

As discussed previously the majority of the practitioners appeared content enough with the way that they were currently practising and were resistant to change. They also had very different expectations of what role the NP would play in their practice. As a result they were not receptive to significant changes to their style of practise that would have moved them towards more interprofessional collaboration, teamwork, and group practice. The change in communication identified may be the first step towards breaking down the siloed style of practise and moving to a more collaborative style of practise. Confirmation of whether this is actually happening will require further research and follow up with these participants over a longer period of time. It may also require focused intervention by the NP to negotiate a commitment among the practitioners and a plan to move to this sort of arrangement. These impacts have resulted in one outcome for the majority of practitioners in the practice.

Outcome.

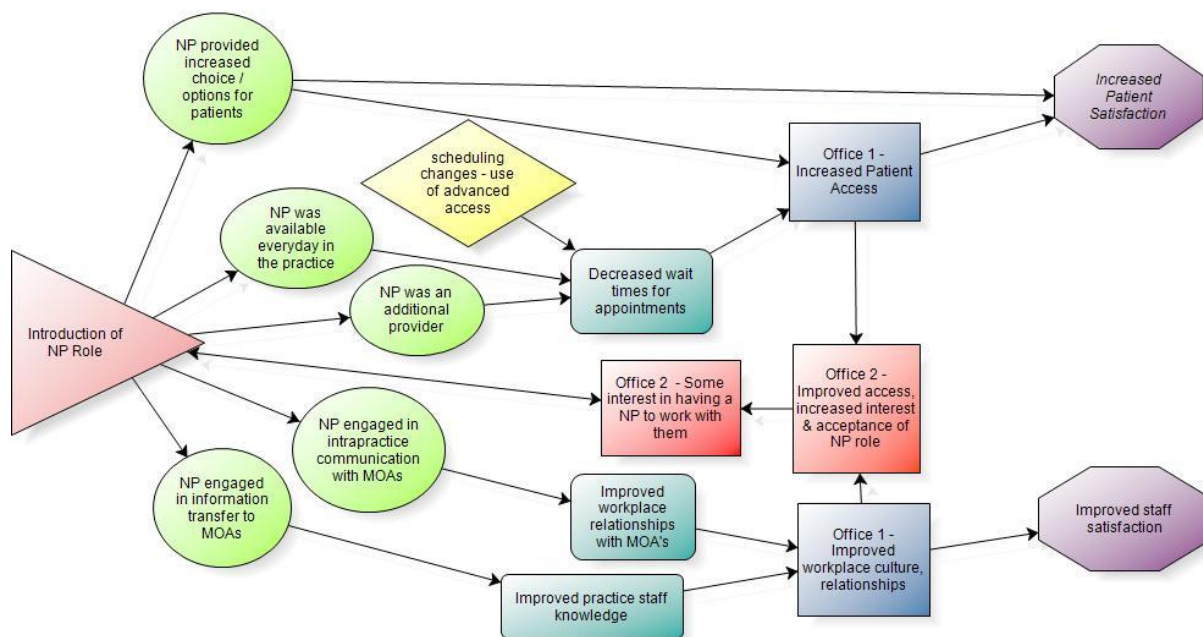
Job satisfaction. While the impacts that have occurred at the practitioner level have often been subtle, and have not led to the outcomes that some participants initially wanted or expected from the introduction of the NP, the majority of practice practitioners felt that Tristan's presence has improved their satisfaction with their working life. Some of this improved satisfaction was attributed to Tristan's personality; however, the remainder of the reasons reflected these subtle but important changes that have been identified. However, one practitioner indicated that his/her satisfaction was unchanged since the introduction of the role.

Changes at the Practice Organizational Level.

The introduction of the NP role impacted the practice as an organization and the services provided to its patients. These impacts were the result of actions of the NP and resulted in changes in patient access and the workplace culture and relationships. Patient access improved

as more new patients were able to be served by the practice, wait times for obtaining appointments decreased, and patients were able to have more choice about their provider and options for care. The workplace culture changed with improved communications between the support staff and the practitioners, and improved staff knowledge, resulting in increased staff satisfaction. The participants also noted changes in the attitude of the practitioners from office two after the NP had been providing services at that site for a period of time. Figure 3 depicts the actions of the NP, the impacts and outcomes that occurred as a result of these actions, and the relationships among them. These will be described more fully in the sections that follow.

Figure 3. Case 1 - Changes at the Practice Organizational Level



Legend

Ovals (Green)

Diamond (Yellow)

Rounded Rectangles (Green/Blue)

Square Rectangles (Blue/Red)

Octagons (Purple)

= Actions of the NP

= Action not instigated by the NP

= Initial impacts of NP actions

= Impacts of NP actions

= Outcomes of NP actions

NP actions. The actions undertaken by the NP at the practice level included (a) being an additional primary care provider, (b) being available every day in the practice to see patients, (c) providing another option for care for patients, (d) engaging in regular communication with the office staff, and (e) providing teaching and other forms of information transfer to the office staff. These actions were a direct result of the addition of the role to the practice setting and the communication and teaching skills that are a feature of the NP role. These actions will be explained more fully as they relate to the specific impacts and outcomes they created at the practice level.

Impacts and outcomes.

Patient access. Patient access to the practice improved in three ways following the introduction of the NP role. First, Tristan was an additional primary care provider; therefore extra patients were able to be added to the practice's patient volume. "We have lost a lot of physicians in the area, to the point that there are a lot of orphaned patients, so Tristan has been able to absorb and provide continuity for a lot of those folks." As a result, the practice volume for office one increased from an estimated 3660 patients in 2008²⁴ to 4048 patients in November 2011.

Second, access to the practice improved through Tristan being available five days per week in the practice to see patients. This decreased wait times for patients to obtain an appointment. Prior to Tristan's arrival, the wait time for a normal appointment was four to six weeks, irrespective of the provider; however, if the patient could argue that it was a very urgent

²⁴ The practice volume (November 2011) for office one was obtained from the EMR based on the names of the practitioners who work from this site. The estimated practice volume for prior to the arrival of the NP (2008) had to be based on the current volume and then adjusted for any significant changes in the number of patients as identified by the office staff and confirmed by the practitioners themselves. There had been no change in the practitioners at this site and no noted significant changes in their number of patients between 2008 and 2011.

situation this wait time might be able to be reduced to 2 weeks. This changed after the introduction of the NP. Tristan was normally able to see any urgent patient on the same day; less urgent patients were able to be seen in less than 3 days. Participants believe that this has contributed to improved patient satisfaction. Participants also believe this has decreased the use of acute care services.

They [patients] are happy; they can get in to be seen. [This quote is from a study participant, not confirmed with actual patients].

We can get them into the office now rather than sending them to emergency because there is no one available to see them.

From an office staff's point of view they actually have a product to deliver now rather than, Oh, can you just wait, wait, wait, wait, wait, so Tristan has improved capacity.

While most of this change was attributed by participants to the introduction of the NP role, it is important to note that a change in scheduling methodology within the practice may also have contributed to reduced wait times for patients. Some of the GPs adopted a modified version of the *Advanced or Open Access* patient booking system²⁵ following Tristan's arrival. The Advanced Access system used in this practice provided for same day booking with some of the GPs on two days per week only; however, other GPs chose not to use this new system at all, preferring to remain with their traditional scheduling approach. Some participants suggested that this system has improved access for patients, noting that some patients were now able to get in within one week; however, they acknowledged that they did not have any data, either pre or post introduction, on which to base this perceived improvement. They also recognized that many of the patients do not know about the Advanced Access system and some do not like it.

Observational data collected during this research revealed the wait time for the next available

²⁵ Advanced or Open Access is a same day booking system for practices that keeps some or all appointments open until the start of each day and then patients can call in to book an appointment for that day.

appointment to be three to four weeks for one GP and four to six weeks for the remaining GPs. It could be concluded from this that the addition of the NP role has reduced wait times for patients who are willing to be seen by or ask to see the NP, however it has had little impact on wait times for patients who wanted appointments with the GPs.

The third way access improved was by Tristan providing an increased choice of practitioner for the patients. Participants noted that some of the younger patients were choosing to see Tristan. The addition of Tristan to the practice had broadened the variety of available practitioners, expanded the age range of the practitioners, and provided for a wider variety of speciality areas and interests. The outcome of this was a practice that was now able to provide access to a larger variety of members of the general public.

Workplace culture and relationships. Participants attributed positive changes in workplace culture to the introduction of the NP role. The NP was available and accessible to answer questions, provide information, and communicate with the support staff on a regular basis, all of which improved staff knowledge and understanding of patient issues. This is reflected in the following quotations:

We can easily go to Tristan and say what does this mean, for information let's say or we can ask different questions about something. We may be questioning on a result or patient. Whereas a GP is not as accessible in that way, Tristan is always able to answer our questions and is always helpful in that way.

Personally for myself, I find I like it when Tristan is in the clinic. If I have a situation on the phone or whatever, it is really quite nice to go and ask and get an answer. I can always go to the nurse practitioner and ask the questions and solve the problem or whatever it may be, so it is kind of nice. I quite enjoy having the nurse practitioner around.

Tristan is a really positive influence on that team there [at the practice], very co-operative and easy to work with.

Staff members said that this increased communication, knowledge transfer, and support provided by Tristan increased staff satisfaction and enhanced their desire to stay in this work environment.

The following quotation exemplifies one participant's response to this impact on their job satisfaction.

It has definitely impacted, definitely. Tristan is accessible, has the time to answer questions for us, helps us out, will see somebody, even if someone walks in and they are emotionally upset, or having a bit of a meltdown, we can just say to Tristan this person is here, can you give us a hand. Tristan is an unbelievable resource in that way.

Impact of the NP at office two. As described earlier in the case description, Tristan spent 15 months working in a 70 /30 split between the two offices to help out office two when they were short a physician. This event, and the other changes evident at office one following the introduction the NP role, had an impact on shifting the opinion of the practitioners and staff from office two regarding the NP role. The practitioners who worked from office two were not a part of the application to the health authority to participate in this pilot program and initially did not want anything to do with it; however, after the NP had been practising at office one for a while they started to see some benefits resulting from the role. There were improvements in the access for patients at office one, while in office two they were still booking all their patients three to four weeks in advance with no options for urgent access. One practitioner said:

They became more interested in how the NP practised, the word in town was positive about the NP's practice, there weren't any lawsuits happening, so they started to want to learn more about how the NP role can work.

This resulted, not only in a "dramatic increase" in their interest and acceptance of the NP role, but a desire, reiterated by two practitioners from office one, "to get their own NP" at office two. One of these participants also noted that several of the other GP clinics in the area have also

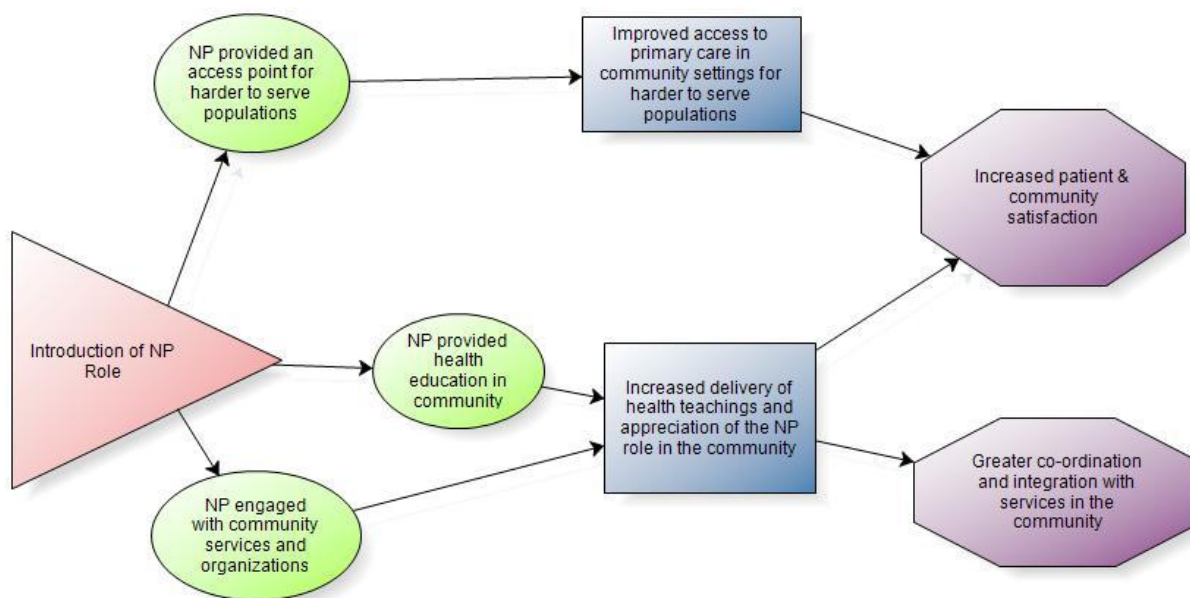
expressed that they would like to have a NP working with them now that they have seen how the role can be beneficial to them, however I was unable to confirm this.

Participants attributed these changes to the introduction of the NP role, which they stated has resulted in an improved workplace environment and ability to provide services at the practice. The initial goal of improved and timelier patient access to primary care has occurred in this practice. As well, there appeared to be increased acceptance of the NP role by the broader medical community in this town, and improved workplace relationships and satisfaction for the staff in office one.

Changes at the Community Level

The introduction of the NP role has impacted at the community level. Primary care has improved through a new access point for harder to serve populations, including marginalized individuals and patients identified as heavy users of the urgent care services. There has also been increased delivery of health teaching in the community, and awareness and appreciation of the NP role by residents and social service agencies. Unfortunately, there is no way to know how much the level of health knowledge has increased as a result, although participants believe that it has. It is also evident that the NP has been actively engaged with community services and organizations and that this engagement has increased the level of awareness about and appreciation of the NP role in the community. Participants report that this has led to increased patient and community satisfaction with services, and increased co-ordination and integration of the practice with services in the community. Figure 4 depicts these actions of the NP, their impacts and outcomes, and the relationships among them. These will be described more fully in the sections that follow.

Figure 4. Case 1 - Changes at the Community Level



Legend

Ovals (Green)

= Actions of the NP

Square Rectangles (Blue)

= Impacts of NP actions

Octagons (Purple)

= Outcomes of NP actions

NP actions. The actions undertaken by the NP at the community level included: (a) providing an access point to primary care for harder to serve populations including marginalized patients, youth, and frail elderly; (b) providing health education at both the youth centre and the soup kitchen/drop-in centre in the community; and (c) engaging with community services and organizations, in particular those providing services to patients with mental health, addictions, and HIV concerns. These actions were initially described in the role activities presented in the introduction of the NP role and will be explained further as they relate to the specific impacts and outcomes they have created in the community.

Impacts and outcomes.

Improved access to primary care for harder to serve populations. Tristan's practice was "known to have no barriers or boundaries for patients"; this has created an access point to the health care system, and other community services, for a population that previously was not seeking regular health care, or not effectively able to obtain it. The ability to access health care for many individuals in this marginalized population had been difficult due to a lack of appropriate services both in the community and the regional area. Some of the difficulties that were overcome through the introduction of the NP role are described in the following quotation from a community member:

Accessing health care is very challenging for many of our clients who are very stigmatized, largely as being identified as a current drug user. ... People have been turned away from receiving care, whether it is at the hospital or whether at a physician based practice, physicians have refused to see them; in some part because of their complex care needs, and some part due to a perception of their being difficult patients, whether that is difficulty through mental health needs or difficulty through addiction. ... So Tristan as a practitioner is very supportive, and non-judgmental, people find a place of comfort with Tristan. ... Tristan has assisted in accessing specialized services, particularly for my clients with HIV without requiring people to travel to Vancouver. ... I really cannot say enough about how significant Tristan's role has been. It has made a huge difference for many of our most at risk clients.

Initially Tristan was travelling to communities up to 100 kilometres away from the practice and providing primary care to these patients in locations in their communities where they felt comfortable. Many of these people are now comfortable enough with their care that they have begun traveling into Tristan's office to receive their primary care. However, because some of these patients are still not comfortable with the office environment, Tristan provides primary care at the soup kitchen/ drop-in centre and the youth centre on a regular basis. She also has also re-instigated home visits to elderly patients who are unable to come into the practice; this service had almost entirely been discontinued by the GPs.

As a result of Tristan's expertise in HIV care, sharing care with GPs in other communities has also occurred. In these situations the GP in the other community has retained the role as the principal primary care provider and Tristan has resumed responsibility for managing the HIV care for the patient.

In an attempt to reduce the numbers of urgent care encounters, other providers have referred some patients to Tristan who were identified by the urgent care centre staff as the most frequent presenters to their service. Both Tristan and these other participants believed that these individuals were presenting less often after this happened. To confirm this, I tracked the frequency of presentation to either emergency or the urgent care centre for a small number (9) of these individuals through the health authority data for five years, two years before the introduction of the NP role to the current year (2011). These were patients identified by Tristan; however, due to problems with data entry in the EMR she had difficulty identifying all the patients that had been referred by the urgent care centre staff. This resulted in the sample being smaller than was originally expected. Tristan stated that she had taken on the majority of these patients during 2010. While this sample is too small to draw firm conclusions, Table 8 indicates a reduction in the number of emergency visits per patient for this small group after they became Tristan's patients.

Table 8. Frequent Presenters to Emergency Services, 2007 - 2011
Number of Visits per Patient (N = 9)

Year	2007	2008	2009	2010*	2011
Average # of ER visits/patient	9.1	12.0	11.3	8.8	5.3

* Patients came under the care of the NP.

Increased health teaching and awareness of the NP role. Although Tristan felt that she spent only a small amount of her time in activities that could be considered community level education and awareness, other participants believe that this represented a more significant change that has occurred since the introduction of the NP role. Community participants noted that she gave health educational talks at the youth centre and soup kitchen drop-in centre. The following comments from these participants typified their views on the NP's contributions in this area:

Tristan will come and do a chat [health education talk] about a specific thing or whatever; I think it is a big part of why our numbers are up.

I hear Tristan's name repeatedly as a strong participant [in the community organization] and appreciated asset in the community.

A good chunk of the community now knows what a nurse practitioner is.

While these activities appear to have resulted in the development of an appreciated relationship between the NP and these sectors of the community, there is little evidence of any change in the overall practice's relationship with the community. The participants indicated that the changes and linkages with the community were largely through Tristan; the other practitioners continued to have little involvement at the community level, preferring to limit their role largely to the practice and their responsibilities at the urgent care centre.

Changes at the Health Authority Level

It has been proposed in the literature, and by some participants, that the addition of the NP role to primary care practices would result in an outcome of decreased utilization of acute care services by patients. In particular, emergency presentations and acute care admissions were expected to decrease as a result of increased patient access to primary care services and

improved care associated with the NP role. The following quotations indicate that some participants in this case believed these outcomes had occurred.

We can get them into the office now rather than sending them to emergency because there is no one available to see them.

Tristan has increased capacity for patient load, and it is pretty well documented now that the better your attachment [to the practice] it decreases the number of visits to emergency.

However, other participants did not think this had happened as reflected in these quotations:

I don't know if it has changed anything, I would intuitively think it has because they can come here and see someone rather than going to the emergency room but I don't see that it has. No, I don't think so.

[Researcher - Do you think the NP has impacted on the patient's use of emergency or acute care services?] I don't know, I don't have a sense that there has been a change.

These same participants stated that they believed, overall, little had changed for them since the introduction of the NP role.

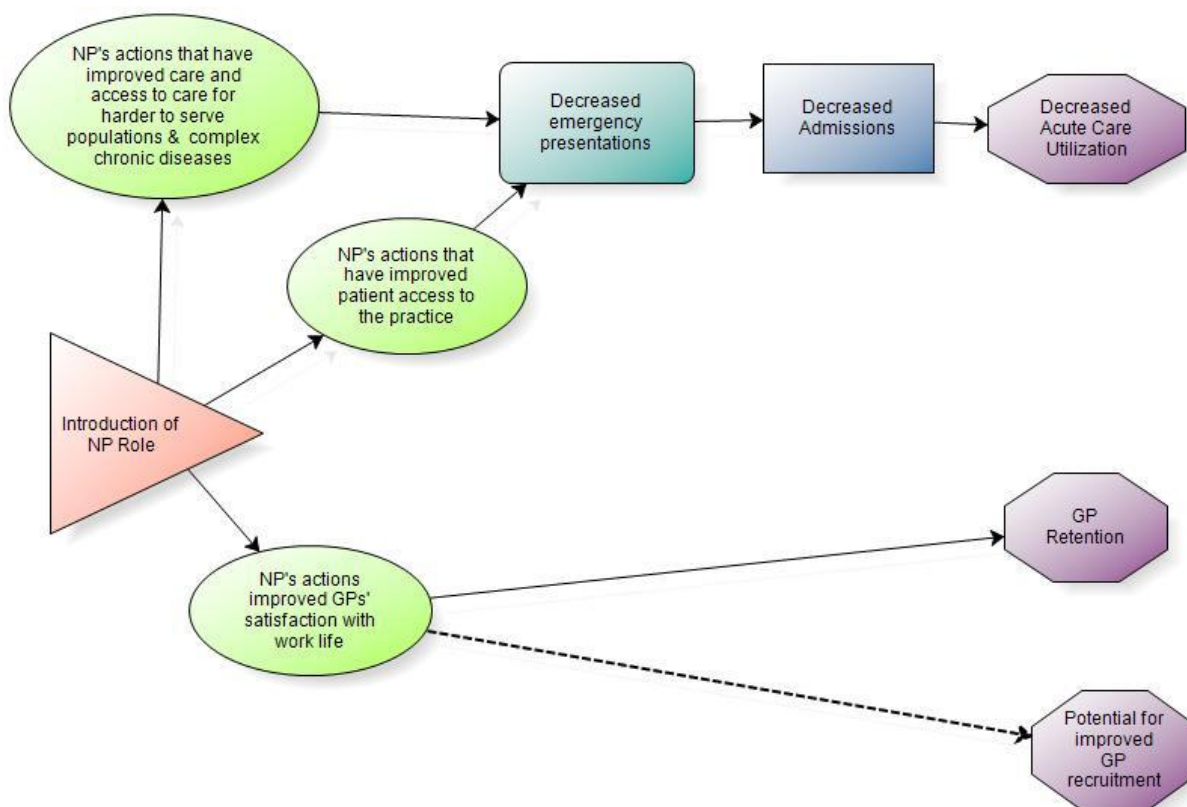
To determine which of these participant perceptions were accurate, I undertook an analysis of the number of presentations to emergency and urgent care services, and hospital admissions from emergency, by the patients of the practice using data from health authority records. The results of this analysis are presented on the page 124.

Although the retention and recruitment of GPs to fee-for-service practices is not a health authority responsibility, they expressed considerable interest in assisting in this area to ensure there are sufficient primary care providers in their geographical area. As a result they were interested in whether the presence of the NP role influenced these events. The findings identified so far in this case show that the presence of the NP role improved the reported job satisfaction of most of the GPs working with the NP and that this improved their desire to remain working in

this practice setting. One participant also postulated that if the presence of the NP role improved GP's job satisfaction it could potentially have an impact on the recruitment of new GPs to the practice.

Figure 5 depicts the relationships among the actions of the NP, and the impacts and outcomes at the health authority level. These will be described more fully in the sections that follow.

Figure 5. Case 1 - Changes at the Health Authority Level



--- (Dotted line) – This was a potential relationship that was not able to be substantiated in this case analysis.

Legend

Ovals (Green)

= Actions of the NP

Rounded Rectangles (Green/Blue)

= Initial impacts of NP actions

Square Rectangles (Blue)

= Impacts of NP actions

Octagons (Purple)

= Outcomes of NP actions

NP actions. At this macro level of the ecological framework, the NP's actions, impacts and outcomes from the other levels (practitioner, practice organization, and community) have now combined to create a synthesis of previous impacts and outcomes. This synthesis is now represented in the three NP actions listed in Figure 5. These actions include: (a) all the actions and impacts undertaken by the NP that have improved the provision of care and access to care for marginalized individuals and youth, and those with other chronic complex diseases; (b) all the actions that have led to decreased wait time and resulted in improved access for patients at the practice; and (c) all the actions that have led to improved job satisfaction for the GPs at the practice. These actions and impacts were initially described at the practitioner, practice organization, and community levels. The impacts and outcomes relating to these actions at the health authority level are presented in the next section.

Impacts and outcomes.

Decreased acute care utilization. To determine whether there was a change in acute care utilization, I conducted a “before” and “after” comparison of the number of emergency and urgent care visits, and hospital admissions, for the patients of the practice (office one). The data from the before sample was from the first seven months of 2008. The NP role was introduced in November 2008. The after sample included data from the same seven months in 2011. These data were obtained from the health authority's information management section. They were drawn from their emergency admission records and in-patient hospital admission records for all facilities in the practice's catchment area. The family physician cells on these records were the specific source of the data. Patients were required to identify their GP or primary care provider at the time of admission to these health authority services; patients who identified that the NP was their primary care provider, were recorded for the purposes of these records, as being

patients of one of the GPs at office one. The health authority did not change their system of recording hospital or emergency admissions during the time frame of this study. There was no evidence to indicate that the data for the two time frames were incomplete or inaccurate. In order to account for the different numbers of patients in the practice at the two different time periods, all data used in all calculations in the following sections were standardized to represent the *number of visits/admissions per 100 patients in the GP/practice volume*.

Emergency presentations. The results of the comparison of emergency presentations between 2008 and 2011 are summarized in Table 9.

Table 9. Case 1 Comparison of Number of Emergency Room Visits 2008- 2011

2008	Number of ER Visits	# Visits/100 patients	2011	Number of ER Visits	#Visits/100 patients
Jan	262	7.16	Jan	160	3.95
February	256	6.99	February	161	3.98
March	298	8.14	March	220	5.44
April	258	7.05	April	177	3.75
May	280	7.65	May	187	4.62
June	254	6.94	June	226	5.58
July	272	7.43	July	169	4.17
Total Visits (7 months)	1880			1300	
Mean # visits/ 100 patients over 7 months		51.36			32.12
Mean # visit/ month/100 patients		7.37			4.64

These results show a marked decrease, from 1880 to 1300, in the total number of emergency presentations for this practice population between 2008 and 2011. During this time the practice's patient volume increased from 3660 to 4048 patients which reflects the new access for patients provided by the addition of the NP. After adjusting for this increase in practice volume, this change in number of emergency visits represented a decrease of 37.5% between the two time periods. The mean number of visits per month decreased from 7.37 in 2008 to 4.64 in 2011.

A paired sample t-test was conducted to evaluate the significance of differences in the number of emergency visits before and after the introduction of NP role to the practice. In this t-test the calculations were based on the number of visits per month per GP in the practice; 42 months of data (21 pairs) were included. The results showed there was a statistically significant decrease in number of visits from before NP introduction Mean (M) = 7.37, Standard Deviation (SD) = 1.11 to after M = 4.64, SD = 1.30, $t(20) = 10.62$, $p = .000$ (two-tailed). The mean decrease in visits was 2.74 with a 95% confidence interval ranging from 2.20 – 3.27. To calculate the magnitude or the strength of association of the change in the mean number of emergency visits, the effect size statistic *eta squared* was also calculated. The eta squared statistic (.85) indicated a large effect size. This signified that the change in number of emergency visits was substantial as well as statistically significant.

As reported earlier in the section on patient access (p.113), the majority of the physicians from this practice introduced changes to their patient scheduling in the form of a modified version of Advanced Access. This method for patient scheduling is designed to improve access and decrease wait times for appointments (GP Services Commission of BC (GPSCBC), 2007). Both of these outcomes could have had an impact on the utilization of emergency services by the practice's patients. However, at least one of the GPs did not participate in this new system. To

determine whether implementation of the Advanced Access system could be responsible for a significant portion of the decrease in number of emergency presentations for the practice as a whole, before and after data from the GPs not participating in Advanced Access were analysed separately using a paired t-test. Fourteen months of data (seven pairs) were included in this t-test, which also showed a statistically significant difference in the number of visits from before, $M = 7.11$, $SD = .57$ to after introduction of the NP role $M = 3.44$, $SD = .53$, $t(6) = 10.68$ $p = .000$ (two-tailed). The mean decrease in visits was 3.67 with a 95% confidence interval ranging from 2.83 – 4.51. The eta squared statistic (.95) also indicated a large effect size. Thus, I tentatively conclude that the introduction of Advanced Access to this practice was not the most significant factor responsible for the decrease in the number of emergency occasions of service.

Hospital admissions from emergency. The number of hospital admissions resulting from these emergency visits was also compared for the time period prior to NP introduction in 2008 to three years after the introduction in 2011. The total number of actual admissions in the sample seven month periods decreased from 65 in 2008 to 19 in 2011. After adjusting for the increase in practice volume, this change in total admissions represented a decrease from 1.78 admissions per 100 patients in the practice during the sample period in 2008 to .47 admissions per 100 patients for the sample period in 2011. This change represented a 73.6% decrease between the two sample periods. A paired sample t-test was conducted to evaluate the significance of these differences. In this t-test, the calculations were based on the number of admissions per month per GP in the practice; 42 months of data (21 pairs) were included. The results denoted a statistically significant difference in number of admissions per month from before $M = .249$, $SD = .198$ to after NP role introduction $M = .067$, $SD = .022$, $t(20) = 4.335$ $p = .000$ two-tailed. The

mean decrease in admissions was .183 with a 95% confidence interval ranging from .095 – .270. The eta squared statistic (.48) indicated a large effect size from this change as well.

It is important to note in these findings that the introduction of the NP cannot be confirmed to be the causative factor that is responsible for the significant decrease in either the number of emergency visits or admissions to hospital. There were other potentially confounding factors that may have influenced these changes. These include possible changes in the profile of the patients (e.g., healthier, younger) who comprised the new, larger practice volume; changes in other aspects of the GPs' practice that were not identified in this study; or other events that may have happened in the community. To confirm the role of the NP as the causative factor would require either a study that involved tracking actual patients by using their personal health numbers (PHNs) and controlled for as many other factors as possible, or a study involving a comparison of the practice group to a control group. However, the triangulation of the findings from the qualitative interviews and observational data with these quantitative findings strongly suggests that these outcomes are likely to be related to the introduction of the NP role. The changes described in the patient access section at the practice organizational level (p. 113) clearly suggest that the increased access to care afforded by the NP role played a significant part in the reduced use of emergency services and hospital admissions. Findings from the other two cases (presented in Chapters 6 and 7) will strengthen this conclusion further. The arguments in support of exploring "causal" relationships in qualitative studies, and the methods for doing so, were presented in Chapter 4 (methodology).

Practitioner retention and recruitment. One of the outcomes identified in this case was improved job satisfaction for the majority of the GPs in this practice following the introduction

of the NP role. Some of the participants indicated that this improved job satisfaction has had a moderately positive impact on their desire to stay in this work environment.

It is better with Tristan here than if she wasn't here. She has a different point of view and speaks well so, in general, you can tell that I am happy.

[Researcher - Has the NP's presence impacted on your desire to stay in this work environment?] Probably, because I like working with [GP], [GP], and Tristan.

Participants also said that other GPs in their area would now like to have a NP working in their practice; however this was not confirmed with any of these other practitioners.

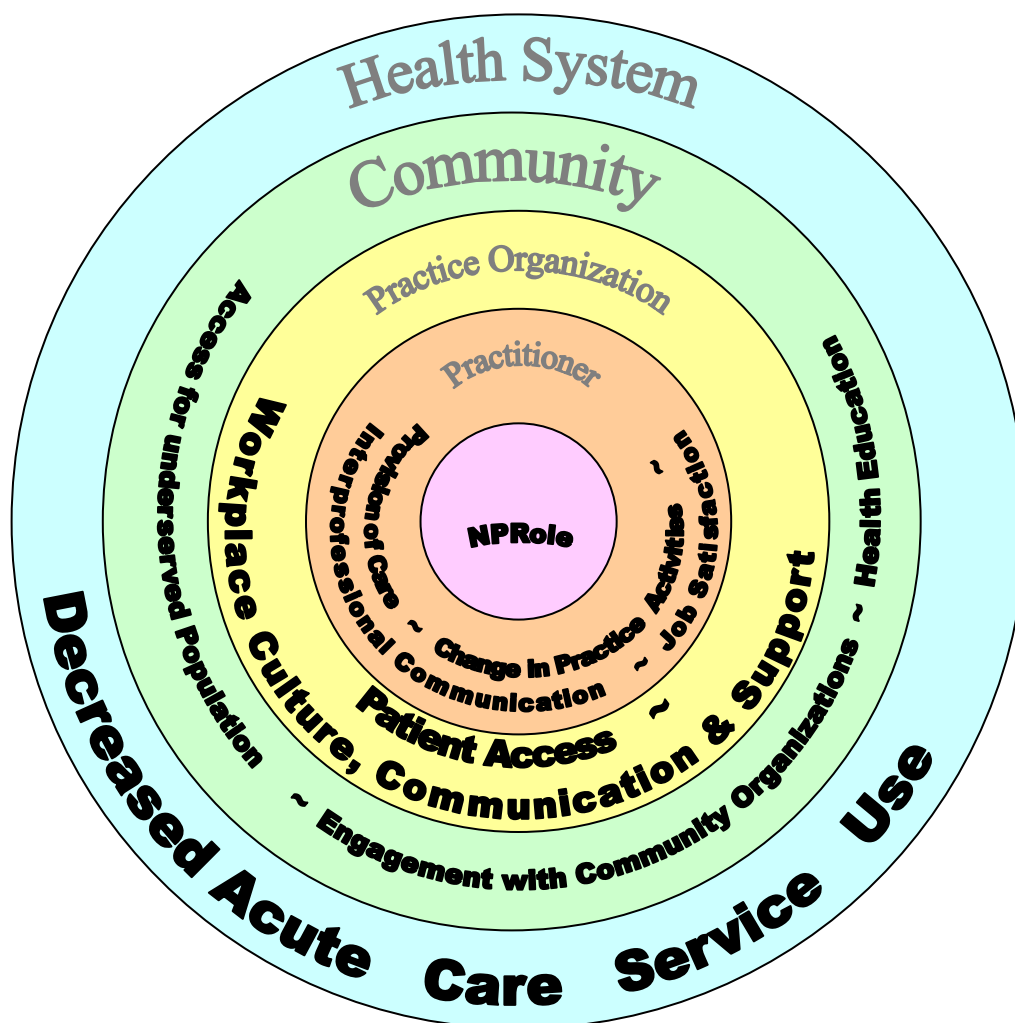
The impact of the NP role on recruitment of new GPs is remains unknown. For the first time in many years, a new GP was recruited to this clinic and community, during the course of the data collection. However, no data were collected either from this new practitioner or others in relation to the influence that the NP's presence may have played in this recruitment. From these findings, I suggest that the NP role has had some impact on retention but it is unknown what impact it has on recruitment of GPs in this practice; however, the potential for it to be found to have a positive impact remains.

Conceptual Framework – Impacts and Outcomes from Case 1 Findings

The findings for Case 1 supported some of the expected impacts and outcomes from the introduction of the NP role that were included in the initial conceptual framework developed to guide this study (see Figure 1, p.53) and in the practice's goals for the position. Some additional impacts and outcomes were also identified. The practice's goals of improved timely access to acute and chronic care, quality of care, job satisfaction, and appropriate use of the urgent care centre (assumed to mean decreased presentations) were met. The other goals of increased shared care and increased networking with other health care professionals were partially met.

The impacts and outcomes from the conceptual framework that were supported included improved provision of patient care as a result of the NP bringing a new and different type of professional expertise to the practice, demonstrating a different way of practising, increasing the understanding of the GPs relating to the expertise and capacity of NPs, and the availability of longer appointment times due to the salaried nature of the position. Changes to interprofessional collaboration were limited; however, there was improvement in interprofessional communication. There were improvements in the ability of some practitioners to carry out their preferred activities within the practice; but there was no evidence to substantiate the outcome of improved workplace productivity. The majority of practitioners did experience improved job satisfaction. The impacts and outcomes at the practice organizational level that occurred were improved patient access, and improved workplace culture, communication, and support. There was a possible change in attitude from practitioners outside of the practice to have more appreciation and acceptance of the NP role; however, this was not able to be confirmed. At the community level, there was an increase in access to care for a population that had been identified as harder to serve and attach to appropriate primary care providers. Engagement with community services improved, as did availability of health education for certain sectors of the population. At the health authority level, there was a reduction in acute care utilization, both emergency visits and admissions to hospital. Participants reported some improvements to practitioner retention related to the NP's practice, but improvements to GP recruitment were not substantiated. These impacts and outcomes are taken into account in a revised version of the conceptual framework (Figure 6). This conceptual framework will be further modified with the findings from Cases 2 and 3. Relationships that may exist between these outcomes will be explored in the cross-case analysis. The findings from Case 2 will be presented in the next chapter.

Figure 6. Modified Conceptual Framework - Case 1 Impacts and Outcomes



Chapter 6 – Findings – Case 2

This chapter presents the results of the data analysis from Case 2. These findings are organized and presented in the same manner used in Case 1. The practice context is presented and the introduction of the NP role discussed; then the NP actions, impacts, and outcomes from each of the four levels, practitioner, practice organization, community, and health authority are described through causal network diagrams and narrative. The findings for the case are then depicted in the conceptual framework.

Practice Context.

Case 2 was located in a small regional town with an urban population of approximately 7,200. A number of smaller communities in the surrounding area added a further population of approximately 6000. The population was predominantly middle class Caucasian; mining and associated industries, and the regional hospital were the main sources of employment. At the time of this data collection, there were at least four GP clinics operating in the main town and an unknown number in the surrounding communities; a total of more than 30 GPs were listed as serving the area. A regional referral acute care hospital was located in the town; it provided a comprehensive range of services at both the regional and local level with a full complement of inpatient services and specialists.

The NP role had been established in 2007 in one of the larger GP clinics in the town. At the time of this study, the complement of staff in this clinic included four GPs, two NPs, one RN, one MOA, and an office manager/billing clerk. All the GPs and NPs were part time, working from .5 to .8 of a full time position; the office staff were full time. The practitioners represented both genders with slightly more females than males. One GP was temporary, had been with the

clinic for 2 years and was leaving in the near future. The remainder of the GPs had been practising from this clinic for more than 10 years; some had been in the practice since its inception more than 20 years previously. The RN and office staff had been with this clinic since its inception.

The NP position in this clinic had been occupied by one NP who worked full-time for the first three and a half years. Six months prior to data collection, this NP entered into a job-sharing arrangement with a second NP. Each NP worked two weeks on, two weeks off. Only the first NP participated in this study; the second NP was a recent graduate and did not meet the study's inclusion criteria, that is, had worked for at least two years in a collaborative arrangement with at least one GP. The participating NP was given the pseudonym Lee. However, because there were two NPs who worked in this practice, the study participants often referred to the NPs in plural form in their comments; as a result the term 'they', or other plural forms may be used in reference to the NP in the quotations.

The clinic was located on the third floor of a three story commercial building in the downtown centre. This building was primarily devoted to health-related businesses and the third floor contained exclusively physician offices and a medical laboratory collection office. The clinic had a large waiting room and reception office, three large office/examination rooms with external windows and three smaller office/examination rooms across the corridor. Two procedure rooms and a staff lounge were located towards the back of the clinic. All the offices were shared; however, the NP generally had to use one of the smaller office/examination rooms on the interior side of the corridor. While in the clinic, I observed that the practice had a steady flow of patients, with four to five patients present in the waiting room most of the time.

The clinic had implemented an EMR system a number of years previously. Eighteen months prior to this study they changed their EMR system to one chosen by the local Division of General Practice as the common EMR for all primary care practices in the division's catchment area. However, this created some problems for both the clinic and the study, because they could not access any practice records from prior to the changeover date in 2010. The office manager commented that the new EMR system was not as easy to use as their previous one and limited the amount of information that they could access; had they not changed EMRs there would have been "lots of data available" to use in this research. The office manager tried to undertake a data run to identify the patients under the care of Lee and came up with only 15 names whereas the total NP patient volume was much larger than this. As a result, the office manager had to retrieve data manually to include in this study.

Some of the data reported in this section were obtained by the office manager from the NP encounter code records. *Nurse Practitioner Encounter Codes* are code numbers provided by the BC MoHS to identify and track the types of patients seen and services provided by NPs. They are similar to the code numbers that GPs and specialists use when billing the medical services plan (MSP) for payment; however NP encounter codes do not attract any payment. The MoHS requires NPs to submit a monthly record of their practice activity, as identified by these codes. The intent was "to assist the MoHS to evaluate NP patterns of practice and project funding requirements" (BC MoHS, 2006). The NPs submitted daily records using these codes to the office manager who then compiled and sent this information to the BC MoHS.

Lee had to manually retrieve other data for the study, particularly relating to the community portion of his role. Lee saw patients in the community who were, in some cases, from Lee's own practice while others "belonged" to other GPs in the community. Records for

the visits made to patients who were not from the NP's clinic were kept by Lee and not included with the practice's EMR system.

At approximately the same time as the NP role was introduced in this clinic, two GPs unexpectedly left this practice for reasons not related to the introduction of this role. One of these GPs moved to another practice in the local area and approximately 75 to 80% of his patients went with the GP to this new practice. The remaining 20 to 25% of patients were absorbed by the other practitioners at this practice. The second GP, who had the largest number of patients in the practice, became unwell and went on medical leave, then had to retire. Some of this GP's patients were able to be absorbed into the practice and some had to be asked to find another primary care clinic. In total, the clinic was able to absorb approximately 600 patients from the practices of these two GPs. No replacement GPs were recruited to the practice for two years. The one GP recruited in 2009 came with the expectation of staying only for two years and was about to leave the practice for family reasons. During data collection, one of the senior GPs announced his retirement from general practice effective January 2012; a GP new to the area was engaged to replace this GP and a handover process was underway between these two GPs. The "retiring" GP will continue with his specialized practise in palliative care and other hospital based work.

As a result of the serious human resource problems created by the sudden loss of the two GPs in 2007, the practice chose to change their scheduling procedures to use Advanced Access. This change was a practice decision, not related to the NP role. The change occurred just after Lee started and all the practitioners implemented the new scheduling process.

We changed from a system where we kept two to three appointments open in the day for extras to what we have now, three to five booked appointments and everything

else is open for the day. Patients call for appointments starting at 9:00 am, usually by 9:30 all appointments are full for the day, like today. We are now booking into tomorrow cause it is so busy. All patient bookings, except non-urgent physical exams and appointments of convenience, are now same day booking. Today the wait time for a 20 minute appointment of convenience is nine days or more if they want a specific person; for a non-urgent physical exam, a 40 minute appointment, it is two weeks. This system really helped when we lost the doctors suddenly.

This change in the patient scheduling system was acknowledged by all the staff to have made it much easier for patients to obtain a timely appointment at the practice. Because this change occurred so close to the same time as Lee started, it has been difficult to separate out the effects of the new scheduling system from the other concurrent changes in the practice. One participant described the situation in this way: “It is hard to differentiate between those things [Lee starting, GPs leaving, and the change to same day bookings]; we had so much change happening all at the same time.”

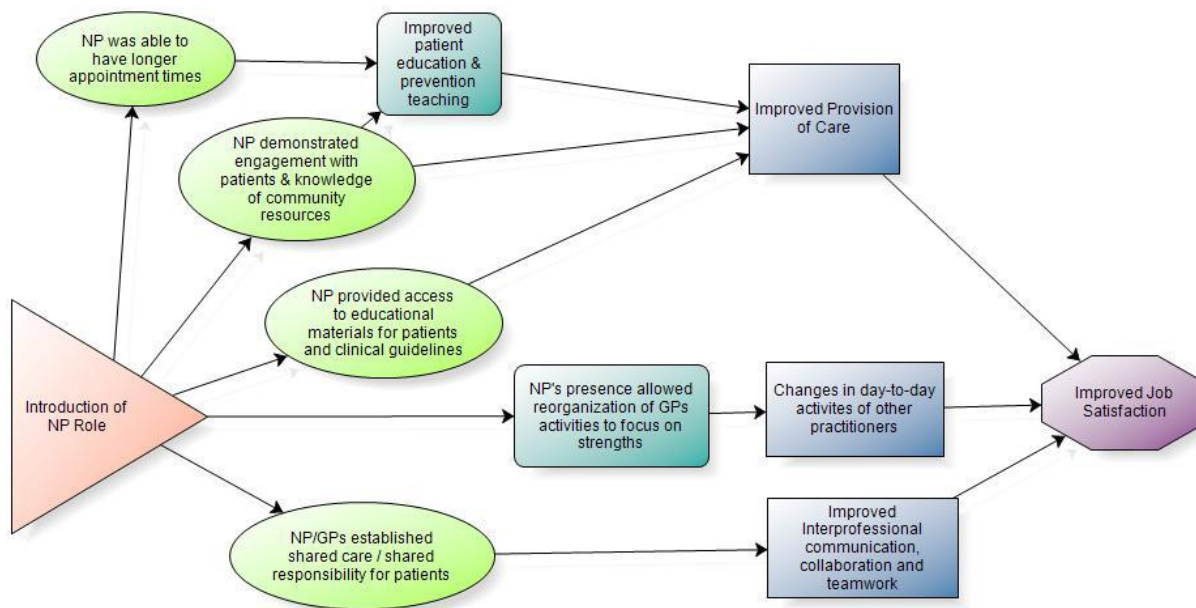
Another change that occurred simultaneously with the introduction of the Advanced Access was to move away from assigning patients to a particular practitioner; instead they were now viewed as belonging to the whole practice. “It is not your patient-my patient here. We are not territorial with our patients; patients are sometimes territorial with us, but we are just happy that our patients can get to see someone.” This change represented a pragmatic modification to the traditional practice structure, undertaken to help the practice cope with the sudden loss of 2/5 of the GPs and 50% of the previously available practitioner hours. This modification to the structure of the practice has also affected how the impacts of the NP role in this setting can be assessed. This will be discussed further in the section related to the practice organizational level.

This clinic was an active participant in the local *Integrated Health Network*. The Integrated Health Network program was established in 2008 by the BC MoHS in partnership with health authorities and created an interprofessional team-based approach to primary care.

This program was implemented in 25 communities across the province. The purpose of these networks was to improve chronic disease management, which was one of the priorities identified in the BC Primary Health Care Charter (BCMoHS, 2008). These teams focused on the delivery of care to patients with diabetes, congestive heart failure, hypertension, and depression, and enhanced the services available from the primary care provider through the addition of a chronic disease nurse, a mental health worker, and a dietician. These additional health authority salaried professionals provided care in the primary care practice either one day per week or one day every second week. The Integrated Health Network was established in the Case 2 community approximately one year after the NP role was implemented in the practice and supported the management of patients with chronic diseases at all four GP clinics located in the main town. Some of these additional health care providers participated in the data collection relating to this case.

The next section discusses the introduction of NP role and how the actions of the NP impacted at the practitioner level. These impacts resulted in changes in: (a) aspects of how care was provided at the practice which improved the provision of care for patients; (b) some features of other practitioners' day-to-day activities thus making their work life generally less stressful; and (c) the level of interprofessional communication, collaboration, and shared care which have enhanced teamwork among the practitioners. All participants stated that these impacts have resulted in an overall increase in their job satisfaction. Figure 7 depicts the introduction of the NP role and the actions, impacts, and outcomes created at the practitioner level. The narrative that follows the diagram discusses first the NP role and then explains the actions, impacts, and outcomes.

Figure 7. Case 2 - Introduction of NP Role and Changes at the Practitioner Level



Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangles (Green/Blue)	= Initial impacts of NP actions
Square Rectangles (Blue)	= Impacts of NP actions
Octagon (Purple)	= Outcomes of NP actions

Introduction of the NP Role

This section presents the specific characteristics of the NP role and how it was enacted in this practice, including the goals for the NP role as identified in the application to the health authority, the initial expectations identified by the NP, practitioners, and staff at the clinic, and any differences between the expected and actual role.

Expected NP role. According to the practice's proposal to the health authority, the NP role was intended to have two primary purposes. The first was to spend 60% of the time in the fee-for-service setting providing full scope family primary care. The second was to use the remaining 40% of the time to provide care in the community as part of the BC MoHS program, *Seniors-at-Risk Initiative (SARI)*. At the time the practice submitted their proposal to the health

authority, one of the GPs in the clinic was also the chairperson for the local SARI program. Thus, the needs of this program were taken into consideration when planning the expected role of the NP. The SARI program, including its purpose and context, are described later in this section.

The participants envisioned that the role of the NP in the practice would represent a “value added service” for the practice. These services were expected to include: (a) taking over some of the patients from the GPs who had left the practice thus establishing the NP as a primary care provider with his own group of patients; (b) helping to “off load” or share some of the “very needy patients that required a lot of time in listening and teaching”; and (c) providing teaching and care management, in a collaborative arrangement with the other practitioners, for a significant number of the chronic disease and complex care patients in the practice. The following quotations describe how different participants presumed the role would be enacted:

Lee was going to be doing a lot of the chronic and complex care things. Lee was really going to have a focus on that and the management issues of those patients. I was excited about that and because it coincided with the practice support program initiatives and things that were about complex care that were coming in, so really putting a focus on chronic disease management, so I thought he would dove tail into that.

He would have the time and commitment to seeing people who could not come into the office for whatever reason, and could do a follow up on someone who was frail and at home and unable to come in or was palliating at home and needing something. So that was probably one of the things that I was expecting he was going to add to the group.

These expectations clearly focused the NP’s role on improving the chronic disease management and expanding service provision in the community; however, soon after Lee was established in the practice, the health authority commenced their Integrated Health Network program. As a result, the practice gained a dedicated chronic disease nurse in the practice one full day a week.

Some of the envisioned chronic disease management component of the NP role was replaced by this nurse took over responsibility for some of the teaching and care planning for these patients in a collaborative arrangement with the primary care providers at the practice; however, Lee did retain some of this role.

The second expected role for Lee was to work with the SARI program. This was an initiative of the BC MoHS and the BC Medical Association (BCMA) to improve the primary care available to frail senior citizens in the community. As one practitioner stated, “SARI was a pragmatic, broad based and patient-centred initiative with the aim to support seniors to stay safely in the home of their choice.” The goal of the program was to increase independence and quality of life for seniors and caregivers, and to improve utilization of health services, as measured by a 25% reduction in emergency department visits and hospital admissions, and an increase in the ability of frail seniors to have health crises addressed at home. The role of the NP within this program was to deal with the health crises of SARI patients in their own homes through their ability to diagnosis, treat, prescribe drugs, and provide appropriate follow up. The program also involved GPs, community care nurses, pharmacists, the seniors’ network, and other services as required by the patients. The SARI program was initiated in May 2006, one year before the introduction of the NP role; the NP joined the program in July 2007. SARI was a pilot program, externally funded through the BCMA for two years and involved only six GPs in the area. These GPs could refer any of their frail elderly patients to the program and then these patients would receive primary care in their home from the NP.

The SARI program had implementation problems due to a slow development phase and lack of funding to provide sufficient community care nurses to carry out the required work. It was only during the last six months of the pilot period (February to July 2008) that there were

sufficient community care nurses for the program to function as planned. This resulted in a smaller than expected number of patients being enrolled in the program. The program was evaluated in November 2008 using only the last six months of data and the results showed increased satisfaction by patients, GPs, and community nurses, and an effective approach to the delivery of primary care; however, there were no definitive conclusions about the impact on the acute care system: “A longer study period and larger study group is needed to demonstrate impact on acute care usage.” The BCMA then handed the program across to the health authority with the expectation that they would continue and enhance the program, however, they chose not to expand the program. As one participant observed, “they made it part of their Integrated Health Network but it was not very high on their radar. Their choice was to go more with chronic disease management, so gradually the SARI dwindled down.”

These initial expectations for this NP role demonstrated an accurate understanding of the NP role, consistent with the CRNBC scope of practice, and formed the basis for the actual role implementation. The GPs at this clinic had been involved as preceptors to NP students since the first NP classes in the province and some of the GPs had met with NP faculty prior to taking on students to ensure they understood the expected role and scope of practice. The GPs were also very comfortable with the practice nurse role; some of them had worked with a RN in this capacity for 27 years, which dated back prior to the creation of this particular clinic. The following quotations from participants exemplify how they understood that the NP role would be different than the existing nursing role in the clinic and that they were comfortable with the addition of this new role to the practice.

None of the nurse practitioner jobs have taken away, although they have a nurse background, they have not taken away my role as a RN; we still have the same roles. It has not been an infringement on my job. Their job is way different, it is with the

patient care rather than the daily duties, with the dressings and the suture removals and things like that are still my job.

The RN does all the RN things, she gives all the injections, she does all the dressings, she assists in small surgical things, we do ORs here, she looks after making sure people are getting in for follow up on their Paps, breasts, that kind of stuff, she has a huge role.

The NP, he would be someone with some limitations on what he could do, but he would be like another physician or someone that could prescribe onsite that had a nursing background. I thought it would be a good thing because it would be something that would benefit both the doctors and the patients because there would be someone here to help see some of the people part time in the clinic as well as in the community too.

Actual NP role. Lee came to the NP role with more than 20 years' experience as a RN.

The majority of this experience had been in community settings. He had graduated from one of the BC NP programs and this was his first NP role. His enactment of the role encompassed the full scope of practice for a family primary care provider and included four types of activities: primary care, education, administrative and management, and research. Table 10 summarizes these role activities and the estimated amount of time spent in each activity as identified by personal recall from Lee.

Table 10. Case 2 NP Role Activities

NP Role Activity	Percent (%) of Time Spent on Activity
Primary Care in the Clinic Setting	50%
Primary Care in the Community Setting	40%
Educational Activities with groups of patients in any setting	1%
Educational Activities with students and peers	2.5%
Administrative and Management Activities – relating to practice functions	.5%
Administrative and Management Activities – relating to NP role (including time spent in meetings and roles in professional associations, etc.)	5%
Research Activities	1%

Primary care. Lee’s principal activity was providing primary care, which accounted for 90% of his time. This primary care was split between the practice and community settings, with slightly more time being spent at the practice. His primary care in the practice setting served a population “from birth to death, whatever happens to come in”, and occurred every morning (five days per week) and one afternoon per week. The mornings were scheduled with 10 appointments, each 20 minutes long; the one afternoon had seven appointments. Depending on the individual patient’s requirements, these appointments could be doubled to a 40 minute appointment for activities such as complete history and physical examination, procedural work such as excisions, or counselling sessions. Lee estimated that he was the principal primary care provider to over 100 patients; the office manager identified 150 patients assigned to Lee, based

on manual data retrieval. The rest of the patients that Lee saw in the clinic setting were either patients of the practice in general or referred from the other practitioners. The other practitioners referred their patients to Lee when the patient needed more time, as reflected in: “Lee can take care of some of our more time consuming things...patient education and can spend more time listening.”

The NP’s scope of practice was similar to that of the GPs’ seeing patients with a range of problems from the “easier things like ears and sore throats” to undertaking complete check-ups, chronic disease management, and some procedural work. Lee’s practise was seen by one participant as being largely equal to that of the physicians:

I see Lee just as a part of the team, I don’t see a big differentiation. The biggest differentiation as far as I am concerned between Lee and my physician colleagues is that Lee is not doing rounds at the hospital. Lee is not going to the hospital and seeing those patients. I see him as seeing patients on an equal level as myself or my colleagues.

All the participants noted that Lee had a greater role in patient education and preventive teaching than the chronic disease nurse.

They [the chronic disease nurses] are doing a lot of diabetic teaching with the people who come in. If they don’t know how to use the meter properly, Lee will show them how to use the meter properly. He just has that little bit of extra time.

Participants described Lee’s involvement in patient education as providing additional benefits that made patients happier, increased the focus on patient centred care, and helped to decrease the need for additional office visits. The NPs were also “undertaking a lot of the things that are not covered by fee-for-service” such as telephone follow-up and removal of benign skin lesions. Without the NPs being able to assume these activities, these patients would have been charged a fee for these procedures, or would have had to come into the office for follow up that was more appropriate to be done by telephone.

Lee spent the remainder of his primary care time in the community. The focus of this care was on frail elderly patients who were unable, for many reasons, to come to the practice for primary care. These patients were initially apart of the SARI program, however, the SARI program was described by some as “not actually existing anymore” and by others as “isn’t being funded or supported to the same level as it was initially, but I think it is still there somewhat.” Irrespective of which of these was correct, the lack of support and reduced awareness of the program had resulted in decreased referrals to the program. However, this had not stopped Lee from continuing to provide home visits to elderly patients in the community. At the time of this data collection, Lee was providing home-based primary care to a variety of patients including: some who were a part of the original SARI program, any frail elderly patient from Lee’s clinic who needed this type of service, a few patients referred from home care or long term care nursing, and a few referred directly by patients or family. He was making up to five home visits in an afternoon, seeing patients with problems such as congestive heart failure, hypertension, urinary tract infections, pneumonia, mental health issues, wounds and skin conditions, or any combination of multiple conditions. Lee was known to be very flexible in his availability to do these home visits.

Lee would not necessarily just work the regular hours, he would see patients early in the morning, or on his way home, or sometimes even on the weekend.

When there is an urgent frail elderly Lee has to go out, so he gets the office staff to move his day around and Lee goes out as soon as he can.

This flexibility greatly enhanced Lee’s ability to provide care in the patient’s home in a timely enough fashion to prevent the patient or family members from becoming so worried they resorted to calling an ambulance and going to emergency.

Despite the lack of support for the SARI program after 2008, the number of home visits undertaken by Lee actually increased when visits during the period of the official SARI evaluation (February to July 2008) was compared to those during the same six months in 2011. The most common reasons for a home visit were to review and change medications, treat urinary tract infections, and conduct wound assessments. Table 11 compares data from 2008 and 2011 on: the number of home visits, the main reasons for visits, and the visit outcomes in terms of preventing or requiring emergency department attendance.

Table 11. Summary of NP Home Visits 2008 - 2011

	Total Number of Home Visits (6 months)	Type of Intervention				Number of prevented Emergency Visits	Number of Referrals to Emergency
		Medication Reviews	Urinary Tract Infections	Wound Assessments	Exacerbation of Chronic Disease		
2008	98	12	3	3	17	10	0
2011	133	31	13	12	4	15	3

The number of prevented emergency visits was based on whether that particular home visit prevented an emergency visit at that particular point in time; it is unknown what the impact on the patient would have been if the condition requiring the home visit had remained untreated, whether it would have resulted in an emergency visit within the next 24 to 48 hours. Therefore it is difficult to know what the full impact of these home visits was on the utilization of emergency services by these patients. We also do not know whether this represented a decreased utilization of emergency services by these patients because of the lack of comparison with an appropriate control group. The reason for the large decrease in the number of interventions associated with exacerbations of chronic disease between 2008 and 2011 is also unknown. It is possible that this may be an outcome created by improved management of the patient's chronic diseases by regular monitoring and follow-up by the NP.

Following the demise of the SARI program, a new community-wide, home-based, palliative care initiative was proposed by one of the GPs from the NP's clinic. This initiative was being established at the time of this study. The health authority approved the move of the NP role from the SARI program to this initiative. The NP would now provide home based primary care to palliative patients in collaboration with either the patient's GP or the palliative care specialist GP. This program would be open to any palliative patient of any age in the community. At the time of this data collection, the program had only just begun and Lee had been involved in providing care to three or four patients.

The NPs' total primary care volume, from both the clinic and the community, was 869 patient encounters in the six months from April to September 2011. The majority of these were 40 minute appointments in the clinic. This averaged 10 patients per day after taking into account holidays, meetings, educational time, and other non-clinical duties. There were no previous data of this nature to compare this with to determine if the NP's volume of primary care patient activity was increasing, decreasing, or had remained constant since the role was initiated. This level of activity was consistent with the average number of 12 patients seen per day found in the *BC NP Practice Patterns Study* undertaken in 2009; however the vast majority of the NPs in the practice patterns study did not undertake regular home visits (Roots & MacDonald, 2010).

Administrative and management activities. Administrative and management activities comprised the second largest area in the NP's enacted role. The majority of this time was allocated to meetings and other professional role activities. Many of these meetings were associated with either the SARI initiative or co-ordination with community nursing. Administrative activities within the practice, other than participating in practice wide staff meetings when they occurred, were not identified by any of the participants as a part of the NP's

role; however, it was acknowledged that Lee was “not adverse to picking up the phone and doing an appointment or helping out” to ensure that the practice functioned as a team whenever possible.

Educational activities. Only a small part of Lee’s activities comprised the provision of education to community groups, students, and peers. The major educational activities for Lee involved direct patient education that was included as part of the primary care activity. The majority of this educational activity was time spent as a preceptor for NP students. Lee, and the practice, had regular involvement with students since the inception of the NP role; participants noted that this period of data collection was one of the few times when there was not a NP student completing a practicum in the practice. This was attributed to the handover process going on between the two GPs. The other portion of this activity was undertaking educational activities with peers in the form of continuing professional education.

Lee identified that providing group education in the community was only a small part of his role. Although Lee was initially involved in some group education sessions and health teaching at the local high school, he acknowledged that more recently this was not occurring.

Research activities. As with the previous case, Lee had been unable to devote much attention to the research component of the role prior to this study. This was the first research activity that Lee could recall participating in since the inception of the role. He was interested and pleased to be involved in this research and was very helpful in organizing the involvement of the practice. Lee also went to considerable effort to obtain specific data relating to the NP’s community role that could not be obtained through the practice statistics.

Role enactment. The enactment of the NP role was generally consistent with all participants' initial expectations. The modifications that did occur were mainly a result of the evolution of the role to accommodate changes in the local environment. Both the expected and actual role implementation reflected the full scope of NP practice. Lee's practise met the goals outlined in the original application. As reflected in the following quotations, participants appreciated how the NP role had been enacted. It was clear that they were happy with the added services that Lee brought to the clinic and the community.

It may not be exactly how I imagined it but they [Lee and the other NP] have, we have found a niche for them and it seems to be working.

Yes, yes, I absolutely think that it has [met expectations], it has worked out well.

The next section presents the actions of the NP at the practitioner level and the impacts and outcomes that occurred as a result of these actions. (Please refer to page 138 for the diagram of these actions, impacts, and outcomes, and relationships between them).

Changes at the Practitioner Level

NP actions. The NP undertook a number of actions in the practice. These actions included: (a) being able to have longer appointment times with patients; (b) demonstrating an approach to primary care that involved more engagement with the patient, was more holistic and patient centred, and included more knowledge about the community and available resources; (c) providing access to educational and teaching materials for patients and clinical guidelines for practitioners; and (d) providing the means by which patient care could be shared between the NP and the GPs. Most of these actions were initially described in the role activities presented in the previous section. They will all be further described and explained as they relate to the specific impacts they created for other practitioners in the practice.

Impacts.

Provision of care. The provision of care changed through (a) the increased time that Lee was able to spend with patients, (b) the increased engagement he had with patients and his knowledge of community resources, and (c) the access to patient education materials and clinical guidelines in the practice he provided.

Longer appointment times. Lee was able to spend more time with each patient visit than the other practitioners. This increased time was made possible by the health authority's funding of the NP's salary. All the participants identified this as one of the biggest assets of the role. The additional time, when combined with "the communication skills and the teaching skills that nurses are particularly adept at", was described by participants as the greatest means to enhance patient care. It "was a wonderful adjunct to what general practitioners do in fee-for-service. We tend to cut back on communication and teaching because time is money so to speak." The value of this extra time with patients was described in the following quotations by both the NP and other practitioners:

Lee can take that little extra time ... with patient education and Lee can spend more time listening.

It is the time issue, and that they [Lee and the other NP] are really easy to communicate with, you just feel really comfortable with them. So a lot of times patients will not bother a doctor because they think their problem is trivial, but they will bring it up with the nurse practitioner. So the NPs do deal with more problems that patients will sort of say, I won't bring that up because it is not, you know, they will negate that issue when in actual fact it could be quite an important issue.

The privilege of having more time, the perspective of having a nursing background, and the education in preventive health, I always add that to my visit, always, and I have the time to do that.

I have had patients that have been so happy that they have someone that has the time to sit down and listen to them and aren't feeling like they have been given the bums rush, like they do get a lot with family doctors.

The teaching and the one on one time with patients, what we call the vital juice suckers, the high needs patients, patients who have a lot of needs, and time, if I spend three minutes with them it will never be enough, if I spend 30 minutes it would not be enough, but if I have a nurse practitioner in the office he can spend time, maybe he has a higher tolerance and does not get bored as quickly as we do with them. Lee is able to work with them and get them to develop personal responsibility for their health.

Participants believed that this extra time with patients resulted in improved patient education, health promotion and illness prevention teaching. Lee and the other NP were “certainly spending a lot, putting a lot of energy into the preventative teaching component of their [the NPs] practise, [they are] definitively involved more in the preventative medicine component and in follow up.” The extra bit of time was also appreciated for the more comprehensive and holistic care it encouraged in contrast with that of the fee-for-service physician who “is only able to provide fragmented care with many short appointments.” All the practitioners acknowledged that this has not only resulted in improved quality of care for their patients, but that it made the GPs happier and more satisfied to know that their patients were getting better and more comprehensive care.

Practitioner engagement and knowledge of community resources. Participants reported that Lee was more engaged with patient’s concerns and needs, more holistic in his care and focused more on patient teaching and health promotion. “Education in preventive health, I always add that to my visit, always”. All of these actions combined to increase patient’s engagement in their own care. He was also more knowledgeable about community resources and services in general than the GPs and RN. They viewed this as a benefit to both the patients and themselves.

They [the NPs] are more holistic in their approach to caring for patients. There is more collaboration with the patient, and they are more engaged with the community, both community services and community resources, right down to telling their

patients where to go to get diabetic food and stuff like that. Engagement is the big difference, with the physicians, you know the medical model, they are less involved with the patient, the community, they don't see it as part of their role, especially the community as part of their role.

The GPs in the practice also recognized and appreciated the NP's knowledge of the community and his role as a link to the services that were available in the community for their patients.

Lee is usually the first person I go to if I need to talk to the community about something, you know the long term care person or whatever, I usually run it by Lee first and see what he thinks.

I think the main strength of their role [Lee and other NP] is the bridging between community and physicians.

Lee has sort of taken over the charge in the community; I think everyone is very comfortable with that, I am.

These practitioners were pleased that the NP role had allowed for this division of service responsibilities (office-based care / home visits) because it now permitted them to focus on their preferred areas of practice, as discussed later in this section.

Educational materials for patients and clinical guidelines. Participants reported that Lee had come with a mobile filing cabinet that contained teaching materials and hand-outs for patients, and clinical guidelines for practitioners. This filing cabinet was placed in a prominent location just where the practitioners entered the main reception area from their offices. They found that Lee's creation of this resource was an unexpected bonus and very helpful for all of them.

It is so overwhelming with the amount of information that we are getting put on within our practice, you know, all of the guidelines, you know, all of this. So Lee has helped to organize that for the clinic. So, you know that filing cabinet of Lee's has everything in it, and organized, so the rest of us can go in and find it. So the things that I might throw over there [pointing to shelves in office] and know it is there but get frustrated trying to find it, Lee has in a folder, so that has been a huge benefit.

Lee is organized and because Lee is using it [the filing cabinet] on a more regular basis from a teaching point of view or for whatever reason, it is definitely more accessible for everyone.

All the practitioners perceived that this new resource clearly enhanced their ability to provide the best care they could to their patients.

Changes in practitioners' day-to-day activities. Lee's presence has allowed the other practitioners to modify their own activities thus enabling them to focus their practise on their own interests and preferences. The NP's focus on the community setting allowed the GPs to concentrate more on their clinic and hospital responsibilities, which they saw as more viable for them because of the constraints of the fee-for-service payment system. This is reflected in the following quotations from participants.

The pressures, the financial pressures of the office, made it much more realistic for Lee to take a lot of that load for me [visits to patients in the community].

We are probably more office based as a result rather than saying, I will have to go and do a home visit this afternoon, and one home visit really means you need to block off an hour or 1 1/2 hours to be able to travel out to the home or the nursing home or conversely tacking it on the end of your day and having a very late day, it allows us to concentrate more on the office situation.

Participants also noted that since the introduction of the NP role, the types of services they are providing to patients have changed in sometimes unexpected ways. One participant thought her workload now involved more episodic care.

I do way less Paps, which kind of surprised me. I find that a lot of my patients will go and have their complete physicals done by the nurse practitioner, and I tend to their episodic issues more. I never thought that would be the situation, but you know they do like that extra bit of time.

At the same time, another participant felt that physicians were seeing patients with more complex problems all day long because of the NP. This was described as being "horribly

fatiguing” at times and left this participant wishing that more time was available, as it was with Lee, to spend with these patients.

Sometimes it does seem like they [the NPs] are seeing some of the easier things and overflow that we can't get in and so it turns out sometimes that we are seeing more of the complex patients and they are seeing some more of the walk in type patients. So in that sense sometimes it has made it a little more of a struggle for us because they are allotted longer time to spend with patients and they are frequently seeing simpler cases when we are seeing more complex cases in a shorter time. It is a two edged thing I suppose, sometimes there is a little bit of resentment when you see that Lee gets to see the bladder infections and colds and things like that, and we are feeling bogged down. Sometimes it is nice to get a break to see something straight forward and we get too caught up as well, so I don't get to stay on schedule as I used to, I am 45 minutes behind sometimes because of the complexity of the patients.

This participant acknowledged that patients had become increasingly complex over the last five years and this was part of the reason for the workload problems they were experiencing.

However, she also acknowledged that Lee had “eased our burden with a lot of geriatric care”, and “if you look at the bigger picture then what we are doing is serving the patients and that is what we need to be looking at rather than a more selfish stance.”

Interprofessional communication, collaborative practice and teamwork. The introduction of Lee to the clinic has resulted in a marked increase in interprofessional communication, collaborative practice, and teamwork. Before the NP role was introduced, participants described the practice's approach to patient care as “siloed”; all care for a patient was undertaken by one practitioner without reference to others. After the implementation of the NP role, Lee became involved in the care of many of the patients in the practice. These patients started moving back and forth between the GPs and Lee on a regular basis; this created a situation in which much more interprofessional communication was required. Participants described scenarios in which, for example, the husband was previously cared for by one practitioner and the wife by another and the two practitioners never spoke to each other. Now

with the NP involved in the care of both patients, the two other practitioners were able to coordinate their care of the couple, where appropriate, to the benefit of both practitioners and patients. Patient care was now described as more of a group responsibility, made possible by this increased interprofessional communication, sharing of information, and collaboration. The following quotations from participants illustrated this change:

We have become a group rather than silos, so instead of this is my practice and I am looking after this group of patients and so and so is looking after that group of patients, because we all have patients that are flowing from us to Lee and back to us, to the nurse practitioner back and forth, I think there has been a lot more open discussion about what is going on or how a patient is doing or what is happening. So I really feel it has made us much more of a group rather than silos beside each other.

Now we are sharing the care in certain cases, sometimes they [NPs] have almost taken over the patients and we have had to figure out a way that we can communicate back and forth and keep it as a team and share the patients.

I see other people's patients so it is really important that we have communication between us.

This new level of collaboration and teamwork has benefited patients, but has had mixed reviews from practitioners. One participant was very positive and believed that it challenged some of the negative ideas that some physicians may have about how the two roles could work together.

The thing is that you have both MDs and NPs willing to work together and playing in the same sandbox together for the benefit of the patient, and I think that it does take an open mind. I have seen a lot of people that think Oh NPs, they are just going to see the easy patients, they are going to take the cream off the top and I am going to be stuck with heavy duty hard patients, and I have said, Oh no, no, no, you have it entirely wrong, no, no, no, you send them the difficult patients and those that need a lot of buffing up and a lot of teaching and a lot of time and that takes care of that, whilst you see the cream off the top, and then when the NPs run into problems they consult you, it is not the other way round.

However, another participant disagreed with this perspective and thought that the NP role had led to them being "stuck with the heavy duty patients" as described earlier in changes to day to day activities.

The improved teamwork within the group was also described as providing an example, particularly for medical students and newly graduated doctors, of how collaborative practice can work.

We consult each other a lot more than we used to. I think it has made a difference, especially to the new doctors who are seeing how working in a multidisciplinary work environment can be better for them and for their patients.

Participants also credited this more collaborative style of practise as one of the reasons that the practice was able to cope with the extra patients that they inherited when the two GPs left the practice. They had an initial situation with too many patients and not enough people; however, the participants described the teamwork that came with this new interprofessional collaborative approach as one of the factors that changed the situation from unbearable for the practitioners and unsatisfactory for the patients to one that was enjoyable for the practitioners and resulted in happy, satisfied patients. This result was also reported in the health authority's internal evaluation report. These impacts have resulted in one overall outcome for the practitioners in the practice.

Outcome.

Job satisfaction. All the practitioners in this clinic identified that the impacts that have occurred since the NP's introduction to the practice have resulted in improved satisfaction with their working lives. They agreed that the NP's personality has contributed to this, but acknowledge this was not the major factor. The work environment had become less stressful; "they [the NPs] have eased the burden of trying to take everything on by yourself." The improvements in care provision and the adoption of interprofessional collaborative practice has been that "pressure relief valve" needed to make the workload liveable and the place such an

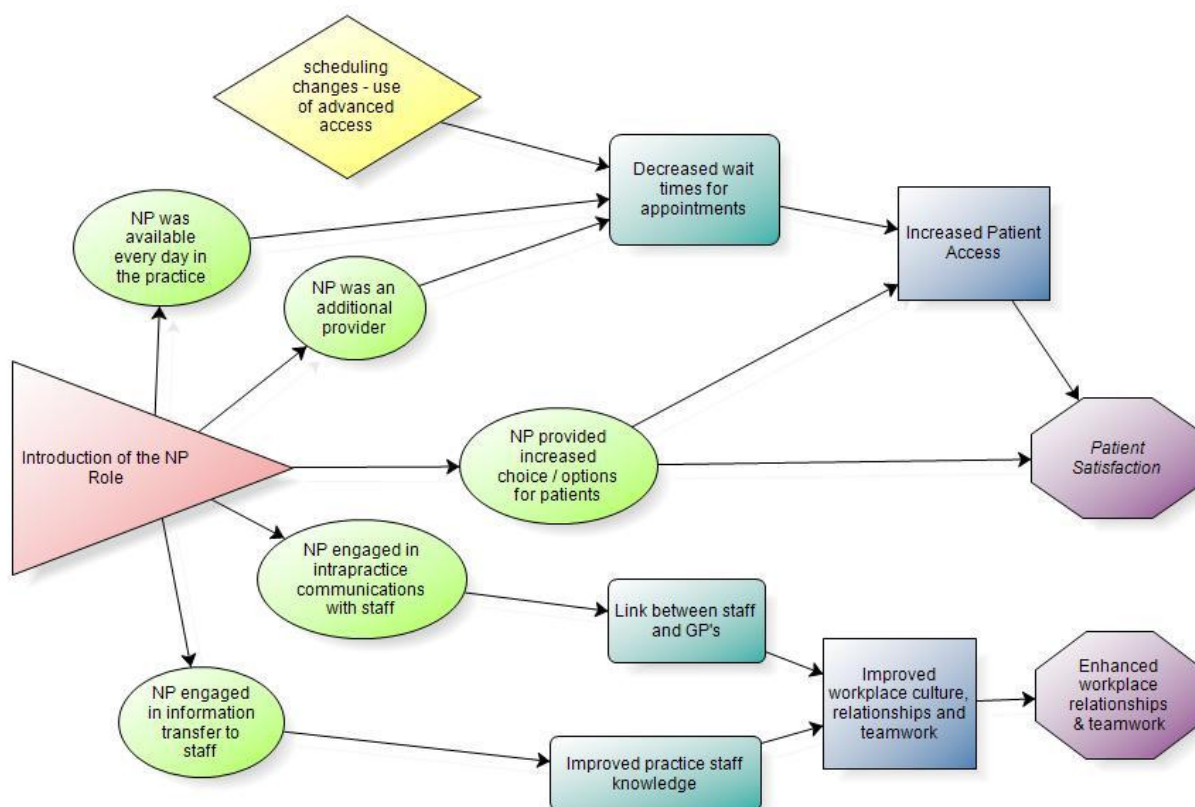
enjoyable environment. A practitioner who was leaving the practice said: “One of my great regrets about not carrying on is because I enjoy working with those [NPs] so much.”

Practitioner level changes in this clinic have led to both acceptance and appreciation of the NP role. Although these practitioners were interested in and recognized the potential benefits of the NP role from the outset, the changes at the practitioner level over the past four years have increased the overall acceptance, appreciation, and understanding of the value that the NP role can contribute in this setting.

Changes at the Practice Organizational Level

The introduction of the NP role impacted the practice as an organization and its ability to provide services to its patients. These impacts were the result of actions of the NP and increased patient access to the practice and improved internal workplace relationships. Patient access was increased through the availability of more appointments, the retention of existing patients, and increased provider options. This resulted in increased patient satisfaction being reported by the practitioners and staff. Workplace relationships improved through increased communication and an enhanced sense of teamwork; however, because staff satisfaction was already high, this did not lead to a big increase in the staff's job satisfaction. Figure 8 depicts the actions of the NP, the impacts and outcomes that occurred as a result of these actions, and the relationships among them. These will be described more fully in the sections that follow.

Figure 8. Case 2 - Changes at the Practice Organizational Level



Legend

Ovals (Green)

= Actions of the NP

Diamond (Yellow)

= Action not instigated by the NP

Rounded Rectangles (Green/Blue)

= Initial impacts of NP actions

Square Rectangles (Blue)

= Impacts of NP actions

Octagon (Purple)

= Outcomes of NP actions

NP actions. The actions undertaken by the NP at the practice level included: (a) being an additional primary care provider, (b) being available every day in the practice to see patients, (c) providing another choice for care for patients, (d) engaging in regular communication with the office staff, and (e) providing teaching and other forms of information transfer to the office staff. These actions were a direct result of the addition of role to the practice setting, and the communication and teaching skills that are a feature of the NP role. These actions will be

explained more fully as they relate to the specific impacts and outcomes they created at the practice level.

Impacts and outcomes.

Patient access. Lee's introduction to the practice impacted by improving patient access in three ways. First, he was an additional primary care provider, as a result a number of the patients that lost their provider, due to the move of one physician and the retirement of the other, were able to be absorbed into the practice. Without this additional provider, participants acknowledged that many more patients would have had to be asked to leave the practice, and the number of orphaned patients in the community would have increased. While Lee personally took on 150 patients and became their principal primary care provider, the NP's contribution to the shared nature of care in this practice made it possible for another 450 patients to also be maintained by the practice.

Second, access to care for patients was improved because Lee was present in the clinic every morning, on some occasions as the only practitioner. The clinic availability of all the other practitioners was limited by their clinical and managerial responsibilities at the hospital which included: hospital rounds, emergency room and operating room duties, obstetrical call, and a senior medical management role for one of them. These other roles caused them to start later in the morning or not to be available at all on some days. Staff members commented that the NP was the one who was "here every day" and "without them[the NPs] we would certainly have very long waiting lists and there would probably be more people going to the emergency room." Participants believed that, if the NP had not been in the clinic, they would have had to close down for half the day, or work at the hospital would have had to stop.

Lee's presence in the clinic every morning also prevented patients from having additional follow up appointments. One part of the care provided by the chronic disease nurse involved reviewing the prescribed medications with the patient. This was to be done in collaboration with the primary care provider and usually took place at the end of the hour long teaching session. However, if the patient's primary care provider was not available to participate in this review then the patient would often have to come back for a second appointment just for medication review. The presence of the NP in the clinic often prevented this second appointment; he could attend the medication review, make any adjustments as required, and then communicate the results back to the other provider. Participants identified this as a significant benefit for both the patient and the clinic.

Lee's daily availability allowed the clinic to decrease wait times for appointments from weeks to the same day, or at worst case the next day. Some of this improved access was attributed to changing to Advanced Access, and the move to consider patients as belonging to the practice rather than individual practitioners. However, the new scheduling and practice structure might not have been so successful without Lee's presence because he was the only primary care provider that could be counted on to be available in the clinic every morning. As a result, patients were seen more quickly and those who needed an immediate appointment almost always got one. However, because these three changes (addition of the NP, change in scheduling methodology, and structure of the practice) are interrelated it was not possible to determine how much of this decrease in appointment wait-times can be attributed to each factor.

The third way patient access was enhanced was because Lee increased the choice of provider for patients. One participant noted that "a lot of my patients will go and have their

complete physicals done by the nurse practitioner... I never thought that would be the situation, but you know they do like that extra bit of time.” Another participant also commented on this:

They [NPs] are just a different demographic for people to see. Dr [name] initiated this practice, so she is an older physician who is female, and I am a younger physician who is male, so there are some people that aren't necessarily comfortable coming to see me for complete check-ups and things like that, so they have come to see Lee for those sort of things.

While the reasons patients chose to see a different provider at certain times may have varied, it was clear that Lee was providing another care option in the clinic and that patients were choosing to make use of this option.

Workplace culture, relationships, and teamwork. Participants credited Lee's communication and relationship skills with improving overall practice functioning. Prior to the introduction of the NP role, participants acknowledged that there was much less teamwork happening. The practice was more disjointed, both within the physician group, and between the physician group and the office staff. Lee's actions have changed this because he was always interacting and communicating with everybody in the clinic. “Lee has been a definite bridge between the staff and the physician group, it has made it feel like we are one family, not that we weren't pretty close but he has definitely made that meld feel much stronger.” This has improved not only how the practice functions as a team, and its ability to provide high quality patient care, but also “it has made it a lot of fun for all of us to work in the work environment here.”

Participants also said that Lee was responsible for improving the knowledge and understanding of the front office staff and the RN. Because there was such a comfortable relationship between the front office staff, the RN, and the NP, informal information transfer has

improved. For example, staff now feel more able to respond to phone calls, and know how to identify the urgency of a patient's situation. The openness and accessibility of the NP to the other staff, and his readiness to share knowledge, was identified as a further contribution that enhanced the relationships, as well as the culture of teamwork and learning that existed in the workplace. Although participants said that Lee's personality contributed to this improved information sharing, they also acknowledged that the other NP also contributed to the enhanced relationships and culture of teamwork in the office. Thus, they believed that this improved office functioning was related more to the NPs' educational background and style of practise than to their personalities.

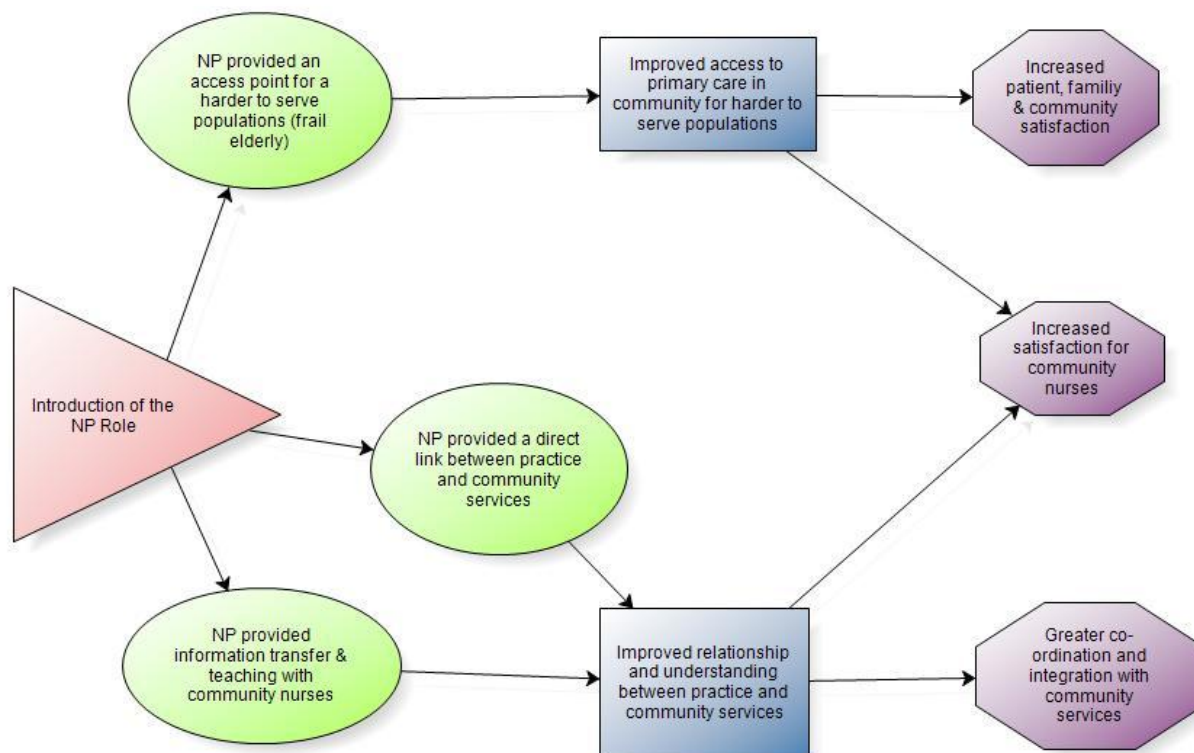
Despite Lee's contribution to improving the relationships with the office staff, participants did not necessarily believe that this had a significant impact on their job satisfaction and desire to remain in this work environment as reflected in this quotation: "[This is] a very good office to work in, but I can't say if it is anything to do with the nurse practitioners being here or just the particular people who are here." The NP role was seen as a bonus to a setting that had a previously effective and harmonious workplace culture and relationships.

The impacts at the level of the practice organization, that participants believed were related to NP role introduction, were increased patient access and improved workplace communication, relationships, and teamwork. These resulted in the outcomes of reported improved patient satisfaction and enhanced workplace relationships and cohesion in the practice as a whole. The evidence is strong that the NP role has resulted in realizing one of the overall goals for the NP role (BCM_oH, 2000): improved access to primary care for patients. The impact of the NP role on the community and the practice's relationship with the community will be presented in the next section.

Changes at the Community Level

Prior to the introduction of the NP role, the clinic members saw themselves as having an active role in the community: “Our clinic was probably a pretty involved group compared to other clinics.” However, this involvement was limited to their participation in the medical community; they had almost no connection with the larger community outside of the hospital sector. In the past they had provided home visits to their patients as required, however, this had “died down to almost nothing” in the last few years before the NP role was introduced. After the introduction of the NP the level of involvement in the community changed. The NP was available to deliver primary care in the homes of the elderly; this has resulted in improved satisfaction for patients, families, and community nurses. There has been improved understanding of roles and services, the development of an improved relationship between the practice and community services, and opportunities for learning that have improved community agency staff and nurses’ knowledge. As a result, co-ordination and integration between the practice and community services has improved and satisfaction with this relationship increased. Figure 9 depicts the actions of the NP, and the impacts and outcomes they created at the community level. These will be described more fully in the sections that follow.

Figure 9. Case 2 - Changes at the Community Level



Legend

Ovals (Green)

= Actions of the NP

Square Rectangles (Blue)

= Impacts of NP role

Octagons (Purple)

= Outcomes from NP role

NP actions. The actions undertaken by the NP at the community level included: (a) providing an access point to primary care for a harder to serve population, frail elderly; (b) providing a direct link between the practice and the community services which facilitated communication and enhanced service provision; and (c) providing teaching and other forms of information transfer to community nurses and agency staff. These actions were initially described in the role activities presented in the introduction of the NP role and will be explained further as they relate to the specific impacts and outcomes they have created in the community.

Impacts and outcomes.

Improved access to primary care in the community. Lee spent 40% of his time providing primary care to frail elderly patients in their homes. This created an access point for these patients who were previously having difficulty obtaining care due to mobility issues or their generalized state of health. Many of these patients had to call an ambulance and be taken to emergency just to get primary care services. This increased access to primary care since the NP's arrival has been appreciated by patients, families, and the community health nurses. Patients have been so happy with this service that patients of other GPs in the community have also requested that they be able to access Lee's services; however, this was usually not possible because of how this service had been designed. Families of these elderly patients have expressed their satisfaction and gratitude for this service directly to the health authority:

I have had letters from families about Lee's role at [name of practice] and how they know that their elderly mother would have ended up in care if it weren't for Lee being able to do home visits to intervene before she ended up calling the ambulance.

Community health nurses have also greatly appreciated the NP role, believing it beneficial to clients, community nurses, and the overall health care system. These nurses noted that the NPs were more available and flexible than physicians, not only to receive their calls, and give orders and advice, but to go out and actually see a patient. They commented that the NPs also followed up with them after the visit; they will "send us a note back about what was done" which allowed the community nurses to understand what had happened and what was planned for the future. This was described as a "real bonus to our practice in the community." The following quotations describe the response of participants to the NP role in the community:

It has been really beneficial for the clients who have nurse practitioners; we just hear so many positive comments about them [NPs]. All that happens is that they [NPs] get a call from a client, they will do the home visit, they will send us a referral; for

example, someone is going into congestive heart failure, they will say I increased their diuretic, I did this, I did that, could you have a nurse go in and check on them the next day. That quite likely prevents that client from a presentation in acute care. It works very, very well that way.

We really enjoy working with them, their communication patterns are excellent, they are approachable, they are ready to share their knowledge and skills, we just think it is excellent; it is an excellent, excellent program. We wish that all the clinics had a NP.

This level of appreciation and satisfaction with the NP's services resulted in the outcome of improved job satisfaction for these community nurses. This was due, in part, to the provision of primary care in the community, but also to the development of an improved relationship and increased co-ordination between the practice and community services as described below.

Improved understanding and relationships with community services. The presence of the NP in the community also created a direct linkage between the practice and the community care sector, particularly home care, long term care, public health nursing, and community agencies that provide services. The participants noted that the existence of the NP role might not be known at all at the hospital; however, long term care services, home care, and public health all knew who Lee was and what care he provided in the community. Participants acknowledged that initially the NP's presence was not that well received by the community nurses because they did not understand each other's roles and responsibilities. This was reflected in the following quotations:

There has been some head butting between home nursing care and the nurse practitioners as home nursing was not clear as to what their role [NPs] was because they [NPs] have done some wound care and some things, follow up visits, on-going at the patient's homes, which may have previously been done by home nursing.

The home and community care people, their attitudes have changed quite a bit; they were very sceptical of nurse practitioners, and it was explained to me that nurse's eat their young, there is an elitism of medicine to the nursing profession, but there is also an elitism or a distrust from one level of nursing to another, and certainly there was

an issue there with home and community care, with respect to the nurse practitioners when they came in here.

However, this changed over time, particularly after the NPs held meetings and clarification sessions with the community nurses. Following this, there was significant acceptance and respect for the NP role. They became appreciated and valued for the contributions they were making to community-based care, and the assistance they provided to community nurses to help them carry out their work.

I think all of my nurses have great respect for them now. I think the relationship is good, ever since we had the meet, greet, and clarification of the role establishment it has been good, very good, it has been very, very positive. They are both very approachable, and if we are not understanding something then they explain. They are very, very, very helpful.

Participants described the NP role as “a bridge” that improved relationships and increased communication between all the practitioners in the practice and community services. As a result of this improved relationship, one community practitioner said that the “profile of the community within the practice has been really, really, really improved.” The community participants, from different organizations, also indicated that the NPs have been sharing their knowledge and skills with them and opportunities for teaching of community nurses and agency staff have occurred. This was reflected in the quotations previously presented in both this section and in the section relating to primary care in the community.

This increased communication and improved relationship between the practice and the community sector, has resulted in the outcome of a greater understanding and sense of connection by the practice as a whole to the local community. The role that the NP played in the community has been credited with this success. It has also resulted in greater satisfaction by the

community nurses in their relationship with the practice, and with the provision of care in the community.

Changes at the Health Authority Level

All participants from this case, when asked whether they thought the introduction the NP role had decreased utilization of acute care services by the patients of the practice, responded positively. This is reflected in the following quotations:

I can think of a couple of my patients that stopped going to emerg because they knew they could get Lee the next day and he would come by the house, so there were those kinds of people, so definitely yes in that sense.

Yes actually I can think of some very good cases where there were some elderly ladies who still live independently who, whenever they had a burp in their belly or something like that, they would present to emergency. And a lot of it was just anxiety, and the nurse practitioner has really been able to develop a relationship with those patients.

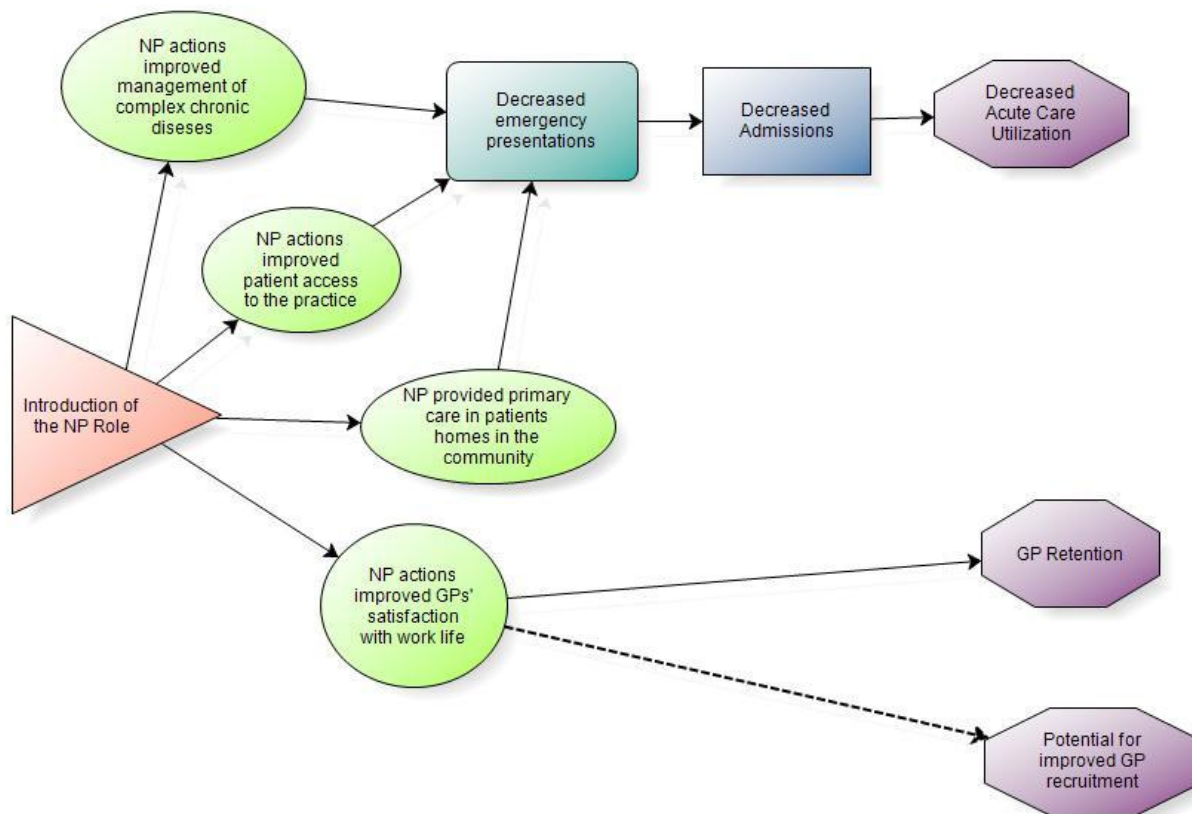
I think so. So many times they come into emergency just feeling punk and icky-poo and then what happens is because they are in emergency they get all of these tests done on them. And there is invariably something wrong, they will find a troponin that is a bit elevated or a potassium that is a bit low, so it is just more expedient to admit the patient whereas they really did not need the test to begin with anyway. But you felt because they had made the effort and they had been waiting 3 hours or they had been brought in by ambulance [that you had to do the test]. I truly believe the admissions to hospital and the visits to ER have been cut by having them looked at home.

To determine whether these perceptions were accurate, using health authority data I analysed the number of presentations to emergency, and hospital admissions from emergency, by the practice's patients. The results of this analysis are presented on p.170.

The findings in this case suggest that the presence of the NP role has improved the job satisfaction of all the GPs and that this has improved their desire to stay in this work environment. It was also postulated that these factors might impact on recruitment of new GPs to the practice. Figure 10 depicts the relationships among the NP actions and these impacts and

outcomes at the health authority level. These will be described more fully in the sections that follow.

Figure 10. Case 2 - Changes at the Health Authority Level



--- (Dotted line) – This was a potential relationship that was not able to be substantiated in this case analysis.

Legend

Ovals (Green)

= **Actions of the NP**

Rounded Rectangles (Green/Blue)

= **Initial impacts of NP role**

Square Rectangles (Blue)

= **Impacts of NP role**

Octagons (Purple)

= **Outcomes from NP role**

NP actions. As in Case 1, the actions at this level involve the synthesis of the actions, impacts, and outcomes at the previous levels. This synthesis is now represented in the four NP actions listed in Figure 10. These actions include: (a) all the actions and impacts undertaken by the NP that have improved the provision of care for those with chronic complex diseases, (b) all

the actions that have led to decreased wait times and resulted in improved access for patients at the practice, (c) the provision of primary care in the community for frail elderly and palliating patients, and (d) all the actions that have led to improved job satisfaction for the GPs at the practice. These actions and impacts were initially described at the practitioner, practice organization, and community levels. The impacts and outcomes relating to these actions at the health authority level are presented in the next section.

Impacts and outcomes.

Decreased acute care utilization. To determine whether there was a decrease in acute care utilization for patients in this case, I compared the number emergency and urgent care visits, and hospital admissions, before and after the NP joined the practice. The before sample included data from the first seven months of 2007. The NP role was introduced in July 2007, and the after sample included data from the same seven months in 2011. These data were obtained in the same manner and the same analysis conducted as described in Case 1. All data used in all calculations in the following sections were standardized to represent the *number of visits/admissions per 100 patients in the GP/practice volume*.

Emergency presentations. The results of the comparison of emergency presentations between 2007 and 2011 are summarized in Table 12.

Table 12. Case 2 Comparison of Number of Emergency Room Visits 2007 - 2011

2007	Total Number of ER Visits	# Visits/100 patients	2011	Total Number of ER Visits	#Visits/100 patients
January	174	6.96	January	81	4.38
February	189	7.56	February	85	4.59
March	204	8.16	March	82	4.43
April	211	8.44	April	77	4.16
May	222	8.88	May	105	5.68
June	173	6.92	June	90	4.86
July	214	8.56	July	92	4.97
Total Visits (7 months)	1387			612	
Mean # visit / 100 patients over 7 months		55.48			33.08
Mean # visit / month/100 patients		7.95			4.65

These results show a marked decrease, from 1387 to 612, in the total number of emergency presentations from 2007 to 2011. However, the practice volume decreased during this time period from 2500 patients to 1850 patients due to the loss of GPs whose patient loads could not be absorbed by the NP and the remaining GPs. After adjusting for this decrease in practice volume, the change in the number of emergency visits represented a 40.4% decrease between the two time periods. The mean number of visits per month decreased from 7.95 in 2007 to 4.65 in 2011.

A paired sample t-test was conducted to evaluate the significance of the differences in the number of emergency visits before and after the NP was introduced to the practice. In this t-test,

the calculations were based on the number of visits per month per GP in the practice; 56 months of data (28 pairs) were included. The results showed there was a statistically significant decrease in number of visits from before NP introduction Mean (M) = 7.95, Standard Deviation (SD) = 1.35 to after M = 4.65, SD = 1.61, $t(27) = 8.679$, $p = .000$ (two-tailed). The mean decrease in visits was 3.29 with a 95% confidence interval ranging from 2.51 – 4.07. To calculate the magnitude or the strength of association of this change in the mean number of emergency visits, the effect size statistic eta squared was also calculated. The eta squared statistic (.74) indicated a large effect size. This signified that the change in number of emergency visits was substantial as well as statistically significant.

Hospital admissions from emergency. The number of hospital admissions from these emergency visits was also compared from before the NP was introduced in 2007 to 2011. The total number of admissions in the two sample seven month periods decreased from 135 in 2007 to 20 in 2011. After adjusting for the decrease in practice volume, this change in the total admissions represented a decrease from 5.40 admissions per 100 patients in the practice during the sample period in 2007 to 1.08 admissions per 100 patients for the sample period in 2011. This change represented an 80% decrease between the two sample periods. A paired sample t-test was conducted to evaluate the significance of these differences. In this t-test, the calculations were based on the number of admissions per month per GP in the practice; 56 months of data (28 pairs) were included. This change denoted a statistically significant difference in number of admissions per month from before NP introduction M = .644, SD = .476 to after M = .130, SD = .084, $t(27) = 5.104$, $p = .000$ (two-tailed). The mean decrease in admissions was .514 with a 95% confidence interval ranging from .308 – .721. The eta squared statistic (.49) indicated a large effect size from this change as well.

As presented earlier in the section on patient access (p.159), the practice introduced two other changes at about the same time as the NP role: (a) a change in patient scheduling method, Advanced Access; and (b) a change to the traditional structure of the practice in which patients no longer belonged to individual practitioners but to the practice as a whole. The concurrent implementation of these changes makes it impossible to determine the extent to which the NP's introduction contributed to the reduction in emergency visits and hospitalizations. However, when the findings from participant interviews described in the previous sections are linked to the findings from the before and after acute care utilization analysis, it does suggest that the introduction of the NP has had some effect on these changes. The participants noted that the NPs prevented patients from going to emergency through their ability to provide more timely access in the clinic and home based primary care for the frail elderly. Participants reported that the NP's involvement with chronic and complex disease management improved the quality of care available for patients, which is likely to have reduced the need for acute care services. This triangulation of the findings strongly suggests that these outcomes must be related, in some degree, to the impacts of the NP role.

At the same time, I acknowledge that there are other potentially confounding factors that may have influenced these changes. These include possible changes in the profile of the patients (e.g. healthier, younger) who comprised the new, reduced practice volume; the new GP who joined the practice in 2009 may have had a different practise style that affected patient's emergency utilization; other aspects of the GPs' practise may have changed that were not identified in this study; or other events may have happened in the community. To confirm the role of the NP as the causative factor would require either a study that involved tracking actual patients by using their personal health numbers (PHNs) and controlled for as many other factors

as possible, or a study involving a comparison of the practice group to a control group. However, the combination of these findings with the Case 1 findings strengthens the conclusion that the NP role has played a part in the reduced use of emergency services and hospital admissions.

Practitioner retention and recruitment. One of the outcomes identified in this case was improved job satisfaction for the GPs in this practice following the introduction of the NP role. All the participants said that the NP role had a positive impact on their desire to stay in this practice. They attributed their improved satisfaction to the role the NP played in improving the provision of care and the adoption of interprofessional collaborative practice. Some of the participants said that, had their personal circumstances been different, they might not be leaving in the practice. The following quotations reflect this:

One of my great regrets about not carrying on is because I enjoy working with those [NPs] so much.

[Researcher - If you were not leaving for other reasons would the presence of the NP in the practice have impacted on your desire to stay in this practice?] I think so, yes.
[Researcher - In the future would you want to work in an environment that had a nurse practitioner in a similar role?] Yes.

The impact of the NP role on the recruitment of new GPs is unknown. The GP recruited to the practice two years after the introduction of the NP role was not aware of the existence of the NP prior to starting work; consequently it had no impact on this event. No data were collected from the new GP who had recently been recruited to replace the retiring GP, nor were any data collected on how the NP role might have affected this recruitment. Thus, it appears that the NP role may have had a positive impact on retention and the impact on recruitment of GPs remains unknown.

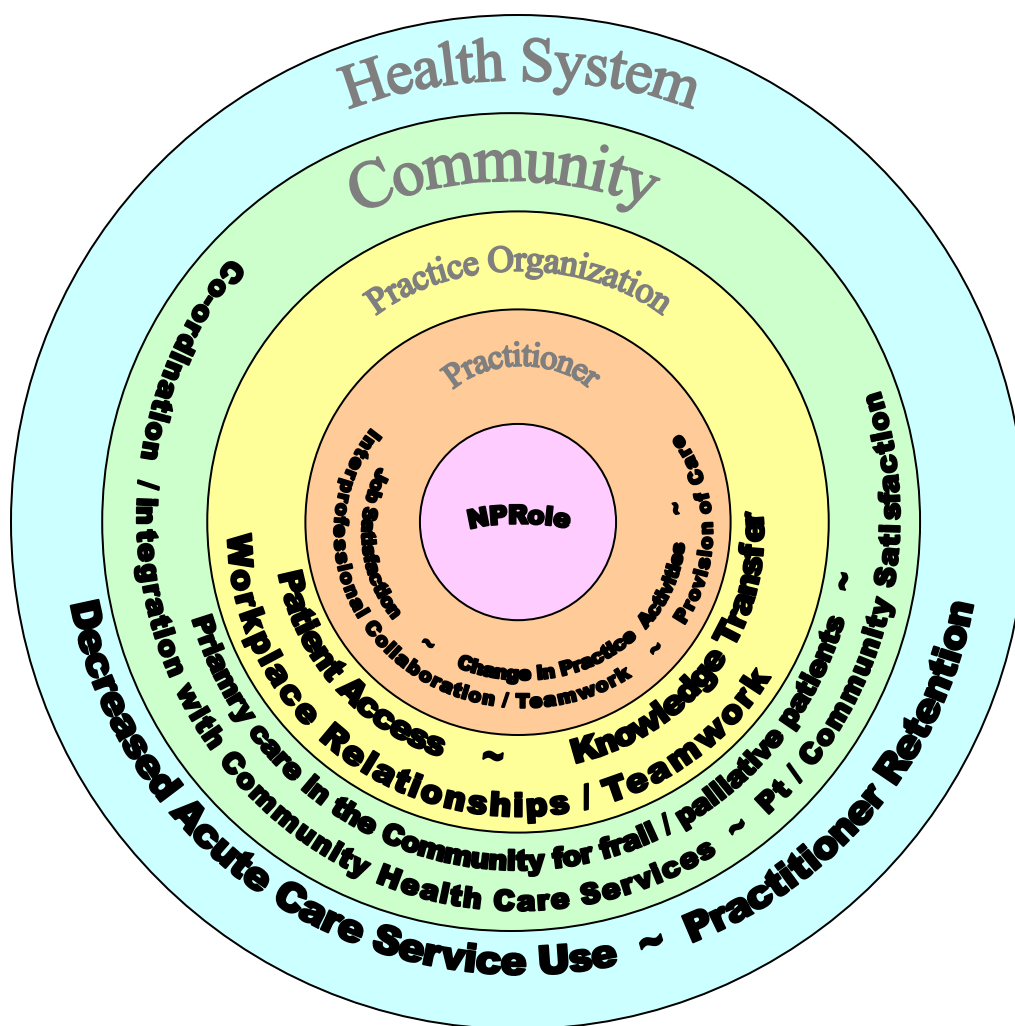
Conceptual Framework – Impacts and Outcomes from Case 2 Findings

The findings for Case 2 supported most of the expected impacts and outcomes from the introduction of the NP role that were included in the initial conceptual framework developed to guide this study (see Figure 1, p.53). The goals that the practice had for the role were also met. These goals included taking over care for some of their patients that would otherwise have been orphaned, developing shared care, and increasing teaching and improving care management for complex patients.

The impacts and outcomes from the conceptual framework that were supported included improved provision of patient care. This occurred through the NP's actions of more time with patients; increased patient engagement, knowledge and use of community resources; and improved patient education and preventative teaching. The GPs changed their day-to-day activities to focus more on their preferred setting which improved their financial viability within their system of payment. There was no evidence to support the outcome of improved workplace productivity. Interprofessional communication and collaboration improved and led to improved teamwork. Siloed practice disappeared and the practice functioned more as a team. All the GPs acknowledged improvement in their job satisfaction. Changes at the practice organizational level as a result of the NP introduction were related to the impacts of improved patient access; improved information transfer to staff; and improved workplace culture, relationships, and teamwork. At the community level there were outcomes of increased primary care access for frail seniors and palliative patients, which resulted in improved patient and community satisfaction. The NP contributed to increased linkages, co-ordination, and integration between the practice and community level health services. At the health authority level there was a reduction in acute care utilization. The NP role was identified as having a positive impact on

retention of practitioners; however, changes in recruitment were unable to be substantiated. These impacts and outcomes are highlighted in a new version of the conceptual framework (Figure 11). This conceptual framework will be further modified with the findings from Case 3. Relationships that may exist between these outcomes will be explored in the cross-case analysis. The next chapter presents the findings from the analysis of Case 3.

Figure 11. Modified Conceptual Framework - Case 2 Impacts and Outcomes



Chapter 7 – Findings – Case 3

This chapter presents the results of the data analysis from Case 3. These findings are organized and presented in the same manner used in Cases 1 and 2. The practice context is presented and the introduction of the NP role discussed; then the NP actions, impacts, and outcomes from the practitioner, practice organization, community, and health authority levels are described through causal network diagrams and narrative. The findings for the case are then depicted in the conceptual framework.

Practice context

Case 3 was located in the same small regional town as Case 2. The main town had four GP clinics and this NP role had been established in 2007 in the smallest of these four clinics. At the time of this study, the complement of staff in this clinic included one GP, one NP, one full-time MOA/billing clerk and a part time MOA. Both the GP and NP were full time and represented both genders. The NP in this case has been given the pseudonym Bailey. There was also a second year family practice medical resident working in the practice at the time of the study who did not participate in the data collection.

The GP had established this clinic five years previously. Prior to that, the GP had been working in a group practice with five physicians in a smaller community approximately 10 kilometres away. Bailey had begun working with this GP during her time as a student NP and had completed two clinical practica under the GP's supervision; one was at the group practice and the other was in this clinic. After the establishment of this new clinic, the GP and Bailey put in an application to the health authority to have the NP continue to work from this practice. At

the time of this data collection, the GP and Bailey had been working together for almost six years.

The clinic was located on the second floor of a two story shopping centre approximately seven kilometres from the town's downtown centre. The first floor was the largest indoor shopping mall in the area with a grocery store, clothing stores, and other retail businesses. The second floor was devoted to business offices including a number of medical practices. This clinic had a large waiting room and reception office, four office/examination rooms, a procedure room, and a staff lounge and washroom. During observations at the clinic, I noted that the practice had a steady flow of patients with two to three patients present in the waiting room most of the time.

The clinic had implemented an EMR system at the time of its inception five years previously. Prior to that, the GP had been using an EMR for a number of years at the previous location. Eighteen months before this data collection commenced the clinic decided to change their EMR system to the common one chosen by the local Division of General Practice. However, the practitioners were unhappy with this EMR; it did not allow them to manage their patients in the manner to which they were accustomed or to track chronic disease indicators and trends (e.g. target blood pressures, HgbA1C's, other laboratory indicators). As a result, they decided to change back to the EMR system they had previously been using. This changeover occurred during this data collection. These changes in EMR systems created problems for this research. The clinic discovered, after completing the latest changeover, that they were unable to access any prior records other than the actual patient chart and the billing records. Bailey had presumed, right up until the completion of data collection, that some patient data relating to trends in chronic disease management would be accessible for the study; however, despite much

time spent by her attempting to do this, it was unsuccessful. Had the clinic not undertaken two changes of EMR in 18 months there would have been a lot of chronic disease management data available to be used in this research. As a result, only statistical data related to changes in practice volume were able to be included from this case in the study.

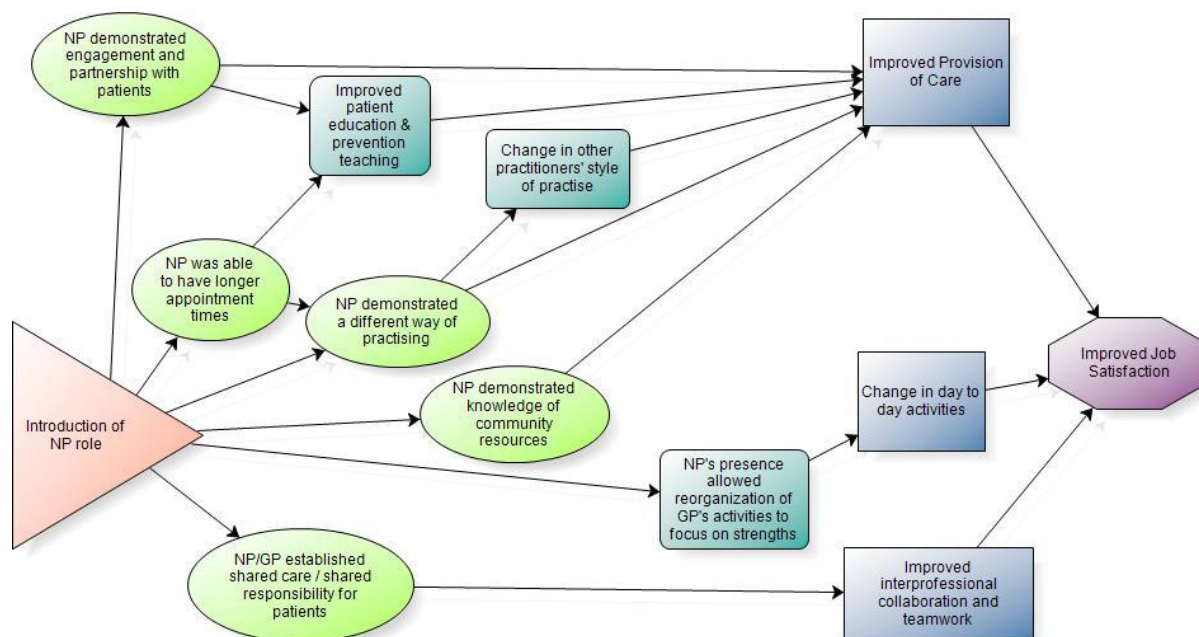
At the time Bailey commenced work in this practice, there were two GPs working in the clinic. One began work in the practice just before Bailey started and then left approximately one year later. This GP brought patients to the practice on arrival and then took them with him on departure. No data relating to this GP, or his patients, were included in the analysis.

This practice began using the Advanced Access method of patient scheduling for the majority of appointments following the NP's arrival. The practice also changed to adopt a shared approach to patients in which all patients were identified as belonging only to the practice rather than to an individual practitioner. Bailey proposed these changes, which will be discussed further in the section on changes at the practice level. Similar to Case 2, the practice had become involved in the health authority's Integrated Health Network, which provided a chronic disease nurse and dietician. The health authority also supported another program that provided access to a social worker and a physiotherapist to augment the available health care providers in the practice. These staffing enhancements were also credited by participants as being directly related to the work of the NP and will be discussed in the changes at the practice level. Some of these additional practitioners participated in the data collection relating to this case.

The next section discusses the introduction of NP role and how the actions of the NP impacted at the practitioner level. These impacts resulted in changes in: (a) aspects of how care was provided at the practice which improved the provision of care for patients; (b) how the

practitioners enacted their day-to-day activities to more closely reflect their individual strengths and areas of expertise; and (c) how the practitioners collaborated to share patient care which resulted in the practitioners becoming a team. All of these changes have resulted in improved job satisfaction for the practitioners concerned. Figure 12 depicts the introduction of the NP role and the actions, impacts and outcomes created at the practitioner level. The narrative that follows the diagram discusses first the NP role and then explains the actions, impacts, and outcomes.

Figure 12. Case 3 - Introduction of NP Role and Changes at the Practitioner Level



Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangles (Green/Blue)	= Initial impacts of NP role
Square Rectangles (Blue)	= Impacts of NP role
Octagon (Purple)	= Outcomes from NP role

Introduction to the NP Role

This section presents the specific characteristics of the NP role and how it was enacted in this practice including the goals for the NP role as identified in the application to the health

authority, the initial expectations identified by the NP, practitioners, and staff at the clinic, and any differences between the expected and actual role.

Expected NP role. According to the proposal submitted to the health authority, the purpose of the NP role in this clinic was to “deliver and integrate PHC services to vulnerable population groups such as the elderly with multiple co-morbidities.” To achieve this purpose, there were two specified goals: (a) to improve access to PHC services, and (b) to improve chronic disease management. The improved access to PHC was defined as achieving “an independent patient roster of 400 patients for the NP working at full scope” and “improved access to reproductive health care for young women.” The chronic disease management was defined as being focused on the 30% of the patient population with chronic conditions who have both a high number of co-morbidities and a high utilization of health services (Broemeling, Watson, & Black, 2005). The proposal described these individuals as having “very different needs, including case management and coordination of care for the array of conditions the individual experiences.” As a result, the expected NP’s role was depicted with the following statement: “The integration of the NP into the family practice setting will provide opportunities for collaborative case management and integrated care that addresses the entire constellation of co-morbidities.” In addition to providing this additional access to care and focused chronic disease management, the NP was expected to: (a) integrate health promotion and illness prevention strategies into case management at the practice setting, (b) collaborate with the existing chronic disease management programs on offer from the health authority, and (c) establish or enhance community programs that address community needs and target primary prevention initiatives. It was also proposed that 20% of the NP’s time “be protected for activities such as program development, system redesign, research and leadership activities.”

The initial expectations of the NP role described by some participants were that the NP would be a primary care provider much like any other. Conversely, others thought the NP would be more of a physician extender. These other participants, however, were quick to acknowledge that their expectations changed rapidly when the role was fully implemented.

I thought Bailey would just be kind of, be there to help me, you know, do some of the preliminary work and then I would be there to be the ultimate and go in at decision making times and make the decision. I did not think she would be an autonomous practitioner. I also thought that she would just see all the easy patients, like bumps and lumps and scrapes and bruises, sore throats, colds, medication renewals, you know all the small easy stuff to free me up to look after more complicated patients. But that changed as soon as I really understood what a real NP role was and how a NP works collaboratively with a family physician and how their scope of practice is much broader and they work as an autonomous independent clinician.

This practitioner's initial expectation emerged at the time Bailey was transitioning from the student role, with its requirements for supervision and restrictions on prescribing and ordering of diagnostic tests, to the autonomous fully licensed NP role. As soon as the practitioners came to appreciate what the fully licensed NP role involved, the initial expectations were re-aligned to be more consistent with the nature of full scope NP practice.

The participants also expected from the beginning that the NP would function in a partnership role, and work collaboratively with the other providers in this clinic to manage their patient population. This was reflected in the following quotations relating to the circumstances associated with the establishment of the NP role:

It was around that time that I was wanting to change venues anyway and go into a different style of practice. So I built this office and Bailey helped me come up with some ideas for building a collaborative office space with the view to collaborative practice.

Like many physicians in the province I had been running on a treadmill trying to provide the best care for my patients while preventing myself from burning out. I was not winning. I felt like I could do so much more for my patients but I just did

not have the time. The existing model of practice at the time was flawed. Ten minute visits three – four times per year was just not adequate to provide comprehensive care to an aging population with complex problems. . . . I desperately wanted my patients to live longer and better. As the responsibility to do a better job grew, the availability of specialists to help co-manage these complex patients decreased. Thus, I had that sense of running on a treadmill. All I could do for my patients was put out fires. I was practising crisis intervention medicine. The stress was overwhelming. Then along came Bailey [as a student] and I had never heard of nurse practitioners. I did not even know they existed, but it was really cool, it was really fun and interesting, and I thought wow, there is a lot of value in this. So we said let's try and make this work [as a collaborative practice].

These revised initial expectations demonstrated that the development of a collaborative practice model of care was foundational to the introduction of this particular NP role; this is consistent with the expectations in the CRNBC NP scope of practice (CRNBC, 2011; RNABC, 2003).

Once the appreciation of the full NP role developed within the practice, their expectations also became consistent with the scope of NP practice, which formed the basis of the actual NP role activities in this practice setting.

Actual NP role. Bailey came to this practice while she was a student NP. She had more than 20 years' experience as a RN in the local area, but had taken her NP education in another province. Her enactment of the NP role represented full scope family practice and included activities in primary care, education, administration and management, and research. Table 13 summarizes these role activities and the estimated amount of time spent in each activity as recalled Bailey.

Table 13. Case 3 - NP Role Activities

NP Role Activity	Percent (%) of Time Spent on Activity
Primary Care in the Clinic Setting	80%
Primary Care in the Community Setting	0%
Educational Activities with groups of patients in any setting	6%
Educational Activities with students and peers	3%
Administrative and Management Activities – relating to practice functions	6%
Administrative and Management Activities – relating to NP role (including time spent in meetings and roles in professional associations, etc...)	2.5%
Research Activities	2.5%

Primary care. Providing primary care was Bailey’s principal activity and accounted for 80% of her time. This involved seeing all types of patients: “sees the kids, the acute stuff, women’s health care is huge, and chronic care working with our diabetics.” She provided care in the clinic four full days a week and more recently added a half day on Friday. Bailey’s appointments were generally scheduled for 30 minutes, but this time period could be shortened to accommodate more patients as the need arose. As mentioned previously, this practice did not assign patients to a particular practitioner so Bailey did not have a specific number of patients for whom she was the principal primary care provider; however, the overall practice volume increased by approximately 800 patients since her introduction.

Bailey's scope of practice was similar to that of the GP's, although each person had their strengths and weaknesses. These strengths and weaknesses affected how they worked together, and how they preferred to enact their individual day-to-day activities. The following quote reflects this:

There are things that I don't know and am not very good at, and I don't have to be good at because Bailey is. I'm not very good at, Bailey is much better at diabetic. I am better now at diabetic management because Bailey has brought me up, so Bailey manages diabetic patients better than I do and I just keep constantly asking Bailey questions about managing insulin and medications because that is one of her [areas of] expertise. Heart failure is another [area of] expertise, women's health issues. I get women's health questions and I often have to consult Bailey for that. I am better at acute emergencies, really sick patients, patients like with abdominal pain, emphysema, patients that might be having a heart attack, patients that are having MSK [musculoskeletal] problems. I am better at managing MSK problems. So there is a real complement there and we try to do it in real time which means it is not just a question of I am going to get you to come back and see [GP], it is [GP] is here right now let's do that shoulder injection right now. Or Bailey is here right now, let's go ask her about the most appropriate hormone replacement therapy for you. That is kind of how it works. It is hard to be good at everything when you are a generalist, and it is nice to be able to focus on some things that you know you are good at, and not to have to worry about everything else, to be able to let someone else manage that stuff.

This ability to use their strengths and weaknesses to develop collaboration and teamwork is discussed further in the section below on changes experienced at the practitioner level.

Participants described Bailey's primary care practice as family focused, flexible, and "not the one problem one visit" approach. The NP would see families together in one appointment as reflected in the following quotation:

Bailey does a lot of family care, which is really neat and something that I think was missing before. She takes in not just Mum, but she will do Mum and baby wellness and she will do the three year check-up for the three year old and we do all that together, and it is really neat because it allows the family to go in together and sit with Bailey for sometimes half an hour or an hour if there are back to back appointments.

Bailey would also undertake home visits to elderly or palliating patients; these visits generally occurred during the clinic's lunch break, however this was not a frequent or regular event. These occasional home visits represented the only primary care in the community setting that Bailey did, although she did engage in other activities in the community that are described in the section below on educational activities.

Educational activities. Educational activities comprised the second largest part of Bailey's enacted role. These activities encompassed two types of education: education with groups of patients and community members, and educational activities involving different types of students and professional peers. Education with groups of patients or community members formed the majority of this activity.

These group education sessions involved various activities including diabetic and hypertension teaching sessions, women's health evenings and "bring your concern groups", and *crew talks* undertaken at the large industrial work site in the community. The group diabetic teaching sessions were usually two to three hours and were often done in collaboration with the chronic disease nurse from the integrated health network. The women's health evenings involved 25 to 30 women and addressed topics such as menopause, osteoporosis, or any other health issues identified by the participants. Some of these women's health evenings involved a combination of an educational session on a preventative health care topic such as the importance of vaccinations or mammograms and a drop-in Pap clinic at the practice. These sessions were open to any women who wanted to attend; they did not have to be a patient at the NP's clinic. There were also men's health sessions in which groups of men could come for an afternoon and participate in education sessions intermixed with a complete physical examination undertaken by way of progressive stations. This helped reduce the backlog in the office for physical

examinations, and provided group style education that was well received by the participants. These types of group education-clinical sessions were held either in the practice itself or in meeting rooms in the shopping mall. They were all proposed and initiated by Bailey, but all members of the practice participated, including the MOAs, as discussed later in these findings.

Community educational and preventative health activities also included the crew talks at the industrial work site. They were described as mini education sessions, usually less than one hour long, organized by the employer on a variety of topics deemed of interest to their employees. Some of Bailey's talks were on health issues such as diabetes, hypertension, or 'How do I get my mother into long term care'? These were described by participants:

They are usually attended by 20 to 40 guys and they are all really engaged because they are a captive audience. Most of them are interested in being there because it is not mandatory, they are encouraged to go and because it is so much fun there and there is so much information sharing and out of that comes a lot of follow up. These guys go, oh is that a blood pressure I should worry about, or we do things like take their blood pressure and give them a little one on one time to chat or ask a question.

Other community-based activities involved the local community college. The NP, in collaboration with the college nursing program, established a cervical cancer screening program for students. This subsequently morphed into a reproductive options clinic on the college campus. Bailey also participated in the community Pap awareness program by holding education sessions/drop-in clinics at the practice.

Bailey had regular involvement with teaching and preceptoring of health professions students including NP students from at least three universities, medical students, and medical residents completing the interprofessional component of the rural family practice program. Bailey also taught a pathophysiology course for another university, and had RN level nursing students from the local college program spend time with her as an observational experience. In

addition to these activities, Bailey was involved with continuing professional education activities with her NP colleagues.

Administrative and management activities. Administrative and management activities also comprised an important part of Bailey's role. Bailey's colleagues described her as being "very much into practice management issues, especially in terms of improving access and care of the patients." These activities included helping to manage some of the business aspects of the practice, especially the EMR, and some of the staffing issues. This high level of involvement was reflected in the following quotation from a participant:

Bailey is pretty much the boss, for sure; I think she kind of runs the ship around here which is fine with me. Bailey definitely takes on the role of managing the EMR system for sure which is a fairly challenging thing cause we have gone through two conversions now, which created a lot of work for ourselves, so she manages that. She manages our staff to a large degree, or at least she acts like a buffer between the staff and they seem more comfortable talking to Bailey about some issues and then she brings them to me. She problem-solves a lot, and she is very connected to the front staff and how things are flowing and functioning there.

This might be considered an unusual role for a health authority salaried NP to undertake in a fee-for-service practice since it was a private business owned by exclusively by the GP. The participants acknowledged that the NP had "really taken ownership even though financially she does not really have ownership. She has invested a lot in maintaining and keeping the clinic going and making sure it runs efficiently." One participant explained this high level of investment in the clinic in this way: Bailey tries "to take on administrative tasks that will make, at the end of the day, life easier, like if it is really important to making the work flow good, she will see it as a priority to get involved somehow." This involvement reflected both Bailey's desire to help problem solve when she had the expertise and the responsibility she felt to make

sure the office ran smoothly, especially because it was a small office without a dedicated office manager and therefore all the work needed to be shared.

Bailey was also involved in administrative and management activities associated with developing the NP role, interprofessional practice, and primary care in rural settings. These activities were undertaken with a number of different professional organizations. Much of the time Bailey devoted to these activities was outside of regular clinic hours and was not a part of her work responsibilities.

Research activities. Bailey stated that she had been involved in some research activities since commencing this role, although she had not personally initiated any research. In addition to the involvement with this research, she also co-authored, with the GP, a paper on how the NP model of care could help rural communities that were experiencing crises with their physician staffing, and undertook the background research necessary for the production of a local manual associated with heart care. Bailey indicated that the pressures associated with her other role responsibilities, and the need to prioritize activities, affected her ability to get more involved in research activities.

Role enactment. The enacted NP role was consistent with both the initial proposal and the practitioners' expectations (after all the practitioners understood the full scope of NP practice). Bailey was working to the full CRNBC scope of practice and had increased access to the practice by 800 patients, twice the original expectation. This improved overall access to primary care services for this community. There was also improved access to reproductive health care for young women through the drop-in Pap clinics, and the services available at the local community college. The NP's role focused on chronic disease management, especially

diabetes and hypertension. All the participants acknowledged that they were happy with how the NP's role had been enacted and the added services that it brought to the clinic and the community. The next section presents the actions of the NP at the practitioner level and the impacts and outcomes that occurred as a result of these actions. (Please refer to page 180 for the diagram of these actions, impacts, and outcomes, and relationships between them).

Changes at the Practitioner Level

NP actions. The NP undertook a number of actions in the practice. These actions included: (a) being able to have longer appointment times with patients; (b) demonstrating an approach to primary care that involved more engagement and partnership with the patient, and focused on more teaching and preventative health; (c) being more knowledgeable about the community and available resources; (d) demonstrating to the other practitioners an approach to primary care that involved more comprehensive, holistic and complete care; and (e) providing the means by which patient care could be shared between the NP and the GPs. Most of these actions were initially described in the role activities presented in the previous section. They will all be further described and explained as they relate to the specific impacts they created for other practitioners in the practice.

Impacts.

Provision of care. The provision of care to patients improved through: (a) the increased length of time for patient appointments; (b) the demonstration of a different way of practising that was more comprehensive and holistic; (c) her focus on increasing the engagement by patients in their own care, and developing partnerships between the practitioners and the patient; and (d) her increased knowledge of community services and resources.

Longer appointment times. Bailey had more time for each patient appointment, generally 30 minutes, which brought some very important benefits to both the patient and the other practitioners. This extra time provided the opportunity for patients with more complex care requirements to be handed over from the GP to the NP who could then undertake a more in-depth review and provide the necessary patient education and teaching. This was reflected in the following quotations:

It allows [GP] the opportunity to hand that patient over to Bailey and have Bailey go more in depth with that patient, which I think is really great. Instead of that 10 minute appointment and just scraping the surface, [GP] can say I want you to come in and follow up with Bailey and I am going to get her to review all your meds, go over the test results with you, and we will see where you are at. There are a lot of patients that need more than that 10 minute appointment.

I now refer a lot of my diabetics and some of my hypertensive and heart failure patients to Bailey so she can spend more time ensuring that they are taking their meds correctly, that their diagnosis is correct, that they are meeting their targets and doing some teaching and education around things. They [NPs] are just way better at teaching and educating patients, I think that is probably related to the philosophy, the difference in philosophies between nursing and medicine, and the way things are structured. We [GPs] only have 10 minutes to see a patient; it is hard to get a lot education done in a 10 minute visit in addition to the assessment.

As identified in this quotation, this extra time was even more important in this context where the other providers were time limited and had to see a certain number of patients per day to survive in the fee-for-service business model.

This additional time per visit also reduced the need for additional or follow up appointments by the patients which was a benefit for both the patient and the practice. “When they leave they have been able to cover everything, they don’t have to come back in a week or two weeks, they don’t have to do that follow up [visit]. Bailey has been able to get everything done.” Participants summed up the impact of the extra time with the statement “that extra time,

it has a huge impact, it makes a big difference” for patients, and the quality of their care, and the satisfaction that all practitioners experienced from providing quality care.

Demonstrating a different way of practising. As identified in the previous quotes, Bailey used this extra time to practise in a different way which was more comprehensive and holistic and provided more complete care for patients. This improved type of patient care is described in the quotation below and has led to both patients and practitioners being more satisfied with the care provided.

The more time that Bailey has the deeper she can delve into a patient’s care. These are people that would go in and drop their one problem and then leave. They don’t do that anymore, they come in and they are actually opening up and they are talking to Bailey about things, better mental health care even, just doing things like your PHQ9’s [9 item patient health questionnaire on depression] and you sitting down and going through the mental health workbooks. She has time to do that with our patients, they are happier, our patients are so much happier to have a nurse practitioner; I cannot believe the difference, the demand for Bailey.

In terms of direct patient care, for sure, I feel like I am way more satisfied and successful, I think that my patients are, I think that our patients are probably the best looked after patients in the area, they meet targets, they have less hospital visits, they are healthier, they have better functional levels, stuff like that. I think we are really on top of them in terms of not being on too many medications, on the right medications, evaluating them constantly, re-evaluating them, giving them good access and stuff like that.

Other participants acknowledged that Bailey’s more in-depth style of practise has resulted in changes in their own style of practise so they were more thorough and complete. This was reflected in the following quotation:

I used to be a typical doctor who just got through a slate of patients every day and just dealt with the problems that were in front of me. So if the patient came in with a headache I would just ask questions around and diagnose and treat the headache. I wouldn’t look in the chart and say well you know you haven’t had your A1C checked for your diabetes for a long time or your liver functions checked because you are on cholesterol medication. So I give them much more comprehensive well rounded care now, even if they are not coming in for their whatever they think they are coming in for. I think that patients are often surprised when they leave with a lot more than they intended to get. I have learned how to capture patients for sure.

This change to more holistic care was attributed, in part, to Bailey being more focused on overall planning of care for a patient rather than just reacting to the presenting situation. Some of the other participants stated that prior to working with the NP they were *reactors*, “I was taught to react, you know, ... we just wait for things to happen and then we deal with them”; now they described themselves as better at planning care, undertaking more planning, and being more aware of how to use the existing billing code structure, especially in the area of chronic disease management, to make this style of more comprehensive care financially viable for them.

Patient engagement and partnership. Participants noted since the introduction of the NP that patients were more involved and engaged with their care, and there was a new level of partnership between the patient and the provider. The increased engagement meant that the patients were working more closely with the practitioners and they were more in control of what was happening with regard to their health care. Participants believed that this was of benefit to patients, practitioners, and the practice. Patients’ chronic conditions were kept better managed, therefore required fewer visits than previously. The following quotation illustrates this change:

Our chronic care [patients], working with our diabetics and stuff like that, honestly since I have started in [name of old group practice] and I have seen how the diabetic care was with those patients and now, we don’t even have to see them, like their A1Cs are excellent, they are now part of the team themselves, they know what they need to do, Bailey has educated them so well, that has been really beneficial.

The increased engagement with patients means that practitioners no longer take a mechanical approach in seeing the patient. They no longer just provide a prescription, or other treatment, and get them out the door. Rather, they are much more engaged with their patients as reflected in the following quotation: “Even our patients say it is very family orientated, they don’t feel like they are coming into a clinic, they feel like they are coming to see friends who can help them.” This has been very important for both patient and practitioner satisfaction with, and the

success of, overall patient care. This improved engagement has also had the additional benefit for the practice of decreased use of services that has subsequently increased the availability for appointments and access for other patients.

Community knowledge. The other practitioners acknowledged that Bailey was more knowledgeable than them about the community in general and the services that were available through community health and other organizations. This was attributed to the fact that Bailey had worked in the area for a long time as a health authority employee and took the time to be generally better informed about what was happening. The following quotations reflect this:

Another thing Bailey is better at is that she is better at keeping connected to what is happening in the community in terms of community care, you know what is happening with home care nursing and other things like that. I tend to find out much later and I am always surprised when I find out policies have changed and they are not doing things the same way, it is like Oh my god, we have not done that for two years, Oh really I was not aware of that. Bailey is more connected that way, so she tends to pull me along with her.

Partly it is because she is a nurse practitioner who was a nurse practising in this area and understands so much about community care and knows everybody; she knows all the people involved and stuff like that and she must have communications with the health authority or maybe she just reads those communications more than I do.

This additional community knowledge made it easier to connect patients with the most appropriate service available in the community.

However, participants also observed that this increased community knowledge was not limited only to the regular NP at the practice; when a relief NP replaced Bailey he/she was also “very, very similar” with regard to his/her knowledge, increased connections with the community, and generally being more engaged and involved outside of the primary care practice. The following quotation reflects how one participant explained these additional proficiencies.

Maybe all nurse practitioners are like that, especially the early ones, it is a hard road, it is a bit of a self-selected group of people, they have had to fight a lot of battles, so if you survived it you are probably pretty tough.

This participant likened this to the road the first female physicians had to take in the male dominated medical profession, “most women were smarter and tougher than your regular physicians because of what they had to go through to rise up in that culture and I think that is probably true of successful nurse practitioners.”

Change in practitioners’ day-to-day activities. The presence of the NP has allowed the practitioners to focus on their preferred areas of expertise whenever possible. It was previously illustrated in the description of the NP’s role that the NP and the GP had chosen to split up their work based on their personal interests, strengths, and weaknesses. “We both have areas of interest that we sort of focus on, then we seem to have each other to make up for the areas where we are probably less strong.” Sharing the full scope of primary care has allowed each of them to “focus on some things that you know you are good at and not to have to worry about everything else, ... let someone else manage that stuff” and has resulted in improved teamwork and job satisfaction for all practitioners. Practitioners believe that this has also improved patient care.

Interprofessional collaboration and teamwork. The most important change noted by the other practitioners was the new collaborative relationship that influenced all aspects of care undertaken in this practice. “Most importantly is the collaborative aspect of it, we just have this very loose comfortable ability to discuss patients and come up with different strategies and ideas for managing their care and that often happens real time.” Practitioners acknowledged that prior to establishing the NP role they did not collaborate with each other, they worked in silos. One GP described her previous clinic environment as four doctors who were in their own corners of

the practice and never spoke to each other except about social things like what they did on the weekend. This behaviour was explained by:

There is a culture there, at least when you are on the same level, we collaborate up and down with different specialities, but we don't collaborate on the same level. It is always kind of assumed that you should have that knowledge and you shouldn't have to go to somebody else for that knowledge or that person is so busy and overburdened anyway you don't want to go harass them so we don't do this.

With the NP, practitioners perceived collaboration and communication as less threatening than it is with medical colleagues; exposing gaps in knowledge between the GP and NP was easier.

There was not the competition between the NP and GP that existed between members of the medical community, "the competitiveness is enormous so you cannot show your vulnerability, you always have to one up, so it is a game of one-upmanship." This improved collaboration and communication was attributed to several factors, including: (a) the decreased level of competition, (b) the history of communication between doctors and nurses in the hospital environment where it had always been reasonably successful, and (c) that interprofessional communication between nurses and doctors did not threaten doctors in the way that their own intraprofessional communication could. Successful interprofessional collaboration in this case was attributed most importantly to the relationships between the clinicians as identified in the following quote from a participant: "The most important pearl though is nurturing of the relationships among clinicians. All practitioners must be equal. The old hierarchical model of medicine is no longer practical."

This clinic was developed with the philosophy of collaborative practice and had a "collaborative office space" where the practitioners could work together to provide care for their patients. The inclusion of the NP role was a significant part of planning from the beginning. Along with the NP role in the clinic came a shared model of care with shared responsibility for the care. Success with this new model of care was dependent on communication among the

practitioners, and a willingness to work together and collaborate. This shared responsibility helped everyone, as exemplified in this quotation: it “helps me [GP] a lot, not just for the patients, but for the success of the practice, the success of looking after a population of people, it is really nice to have somebody else who is dedicated to that.” This collaboration has now extended beyond the practitioners to include the other staff in the practice, which will be discussed in the section on changes at the practice level.

In addition to the increased teamwork and collaboration among the permanent practitioners in the practice, this clinic has become an example for students and residents who undertake practica here.

[Name of clinic] has evolved into a full time teaching clinic as a model for interprofessional teaching. We teach medical students and residents alongside nurse practitioner students. Our clinic has just been accepted as an official site for the Rural Family Practice Program at UBC primarily because of the interprofessional component.

The clinic was providing an example to these students and residents by demonstrating the benefits of sitting down and talking together about patients, especially when there is a concern relating to a patient. By viewing patient problems through the complementary perspectives of both medical and nursing lenses, care is enhanced synergistically. Practitioners in this clinic hoped that by providing this example to future health care providers, they would then go out and run their own practices to “get the best bang for your buck, and your patients, by sharing your knowledge.”

Outcome.

Job satisfaction. The practitioners associated with this clinic all said that they had experienced increased satisfaction in their working lives since the introduction of the NP role.

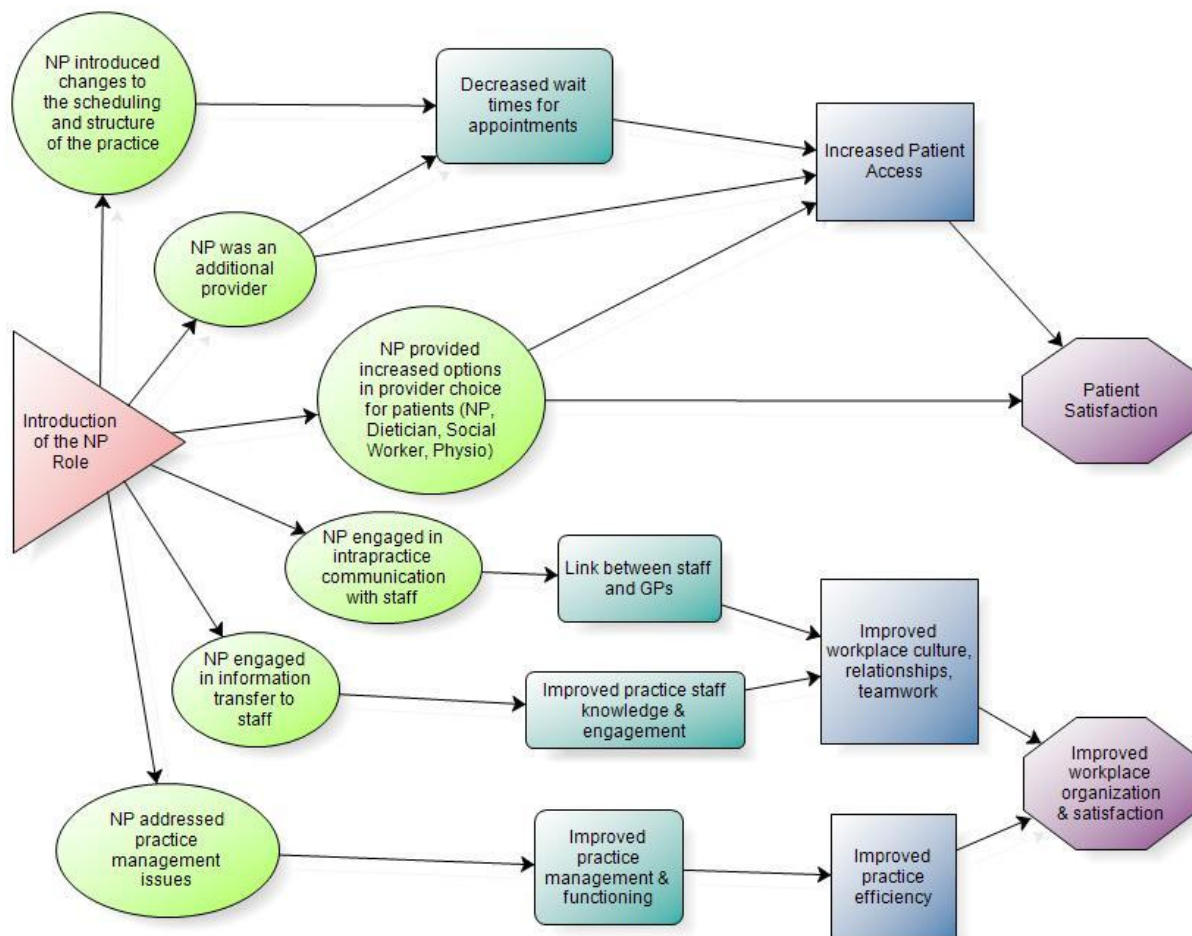
The collaborative practice that came with the NP's introduction has been credited as the main driving force behind this improved provider satisfaction. "It is about working together and using each other's strengths to get the work done."

The reported changes that occurred at the practitioner level in this clinic strongly suggest that the introduction of the NP role can bring significant benefits to other practitioners through improved care to patients, collaboration, teamwork, and job satisfaction. Participants said that the ability to talk to somebody about patients on a regular basis, and to have a fresh perspective, was invaluable in providing better patient care and making their work life "way more pleasant."

Changes at the Practice Organization Level

The introduction of the NP role impacted how the practice functioned as an organization and its ability to provide services to its patients. These impacts were the result of actions undertaken by the NP that led to improved patient access and satisfaction, and workplace culture. Patient access improved through the increased availability of appointments, access for new patients, and the introduction of additional providers that could be accessed through the practice. Workplace culture improved through increased communication, teamwork, and operational changes that led to increased efficiency in the services that were offered. Figure 13 depicts the actions of the NP, the impacts and outcomes that occurred as a result of these actions, and the relationships among them. These will be described more fully in the sections that follow.

Figure 13. Case 3 - Changes at the Practice Organizational Level



Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangles (Green/Blue)	= Initial impacts of NP actions
Square Rectangles (Blue)	= Impacts of NP role
Octagons (Purple)	= Outcomes from NP role

NP actions. The actions undertaken by the NP at the practice level included: (a) being an additional primary care provider; (b) introducing changes to the methodology for patient scheduling and traditional structure of the clinic to improve availability of appointments; (c) introducing a wider variety of types of providers available in the clinic (NP, physiotherapist, dietician, social worker) which provided more choice for patients, as well as more comprehensive care; (d) engaging in regular communication with the office staff; (e) providing

teaching and other forms of information transfer to the office staff; and (f) addressing practice management issues. These actions were a direct result of the addition of role to the practice setting, the skills that the NP brought to the role, and the communication and teaching skills that are a feature of the NP role. These actions will be explained more fully as they relate to the specific impacts and outcomes they created at the practice level.

Impacts and outcomes.

Patient access. Participants stated that access to the practice, for both existing and new patients, had improved as a result of a number of changes that the NP was responsible for implementing. The first of these changes was to modify the processes used for scheduling patients. These modifications included the introduction of Advanced Access same day patient scheduling, as well as more flexibility in the booking and frequency of follow up visits for patients. These participants identified Bailey as the driving force behind the decision to change to Advanced Access scheduling. They acknowledged that, prior to introducing Advanced Access, they had a very long waitlist for appointments for patients. The normal wait time was one to two weeks, and up to three weeks for appointments requiring more time, e.g. a physical examination. The result of this change was “patients can get same day appointments pretty much every day.” Another factor that increased flexibility in scheduling was that Bailey’s routine appointments were longer. She could adjust her 30 minute appointments to take on additional patients if the workload of the day required that. The following quote from a participant portrays the flexibility that was gained through this.

I know if I have Bailey in I have open access. I know I am going to be able to get the kids in if they are sick or pregnant women in if they are sick, I know that I always have that. She books ½ hour appointments, so I can take 2 more openings right there, I can fit 2 more in, she will work through the lunch hour if she needs to, she will stay later at the end of the day, yeah so I know when she is in I have open access always, which is great.

Another change which increased scheduling flexibility occurred when the NP reviewed how frequently patients should be brought back for follow up after a visit for a fairly routine problem or concern. Staff noted that the physicians would routinely advise patients to return for a follow up visit in one week. Bailey questioned this habit as described below:

Why do you choose one week? Why not nine days, why not two weeks, is that something you really need to see in one week or is that something that can wait two weeks. So it was almost like a habit, and so everything would always be a week later, so we started to be more creative around follow up.

Participants claimed that this change reduced the number of required appointments, and prevented unnecessary appointments. This benefited the patient, the practitioner, the practice, and the overall health care system.

At the same time as these modifications to patient scheduling occurred, the practitioners also changed the practice structure so that patients no longer “belonged” to an individual provider, instead they belonged to the practice. This was not initially as well received by the patients as it was by the providers, as identified in the quotation below:

Patients are the ones we have to fight the most with; they like to be attached to an individual clinician. They are really, really addicted to that. Culturally that is something that we have created over the years and there is a real strong addiction. There is a fear somehow that if they don't see the same person all the time there isn't any continuity. Where that does not necessarily have to be the case, cause we talk so much about patients that I can step in so easily, when one of Bailey's patients comes to see me today that continuity just flows and vice versa, but patients aren't used to that. They have real discomfort with that, but that gets better with time. I think if you were to ask a lot of patients now they would not be able to tell you which one of us is their [care provider].

Despite the initial reluctance and resistance to this change, with time, communication, and demonstrated continuity of care irrespective of provider, the patients came to accept this change. These actions related to scheduling created a situation in which there was always an appointment

available every day in someone's schedule for a patient to be seen; patients only had to wait if they insisted on being seen by a particular provider.

The introduction of the NP role added an additional provider to the practice; this improved patient access. In the application to the health authority, the practice had indicated that the addition of the NP role was expected to increase the practice volume by 400 patients. In fact, the data revealed that practice volume actually increased by 600 patients in the first two years after the NP's introduction (Rural Healthnet BC, 2009), and then by another 200 in the following two years, to bring the total increase to 800 patients since the role was introduced. Not only did this overall increase in patient access to the practice address the local problem of orphaned patients, but the health authority's internal evaluation report also noted that it improved patient satisfaction through being "responsive to their [patients] needs" while at the same time providing "high quality patient care."

Increased choice of practitioner. The introduction of the NP role increased patients' choice of provider which, according to participants, resulted in a division of practitioner activities based on gender related health issues. That is, the male practitioner saw more of the patients with men's health issues and the female practitioner took patients with women's health issues. In addition to this increased choice of provider, the NP was also responsible for improving patient access to other types of health care professionals in the practice. Bailey was very active in linking the practice with the additional services that the health authority was offering to support primary care in fee-for-service practices. These services included a social worker and physiotherapist, as well as the dietician and chronic disease nurse available through the Integrated Health Network. They came to the practice once a week or once every second week to see any patient referred by the primary care providers. This change increased access for

patients to improved health care and was noted by participants to improve patient satisfaction with their care.

Workplace culture and relationships. Participants stated that the introduction of the NP role improved the culture, relationships, and teamwork that existed in the workplace. This occurred in two ways. First, there was an improved link between the GP and the office staff through enhanced intrapractice communication facilitated by the NP. Second, there were increased work responsibilities and improved staff knowledge and commitment through the NP's information transfer. The increased responsibility was the direct result of NP actions in changing the organization of the practice. As a result, the practice staff indicated that they are more satisfied in their work environment.

As discussed earlier in the section on the NP's role, Bailey took on significant responsibilities associated with management and administrative activities in this practice. Participants appreciated this management role as reflected in the following exchange: “[Researcher] Are you comfortable with the NP taking on this role? [Participant] Oh yeah, yeah, I like it actually, it works, I think it works well for us.” Bailey was recognized by participants as the link between the practice staff and GP. Staff members stated they were more comfortable talking with Bailey about their concerns, and often preferred to have her take their issues and concerns to the GP. She was described as “safer maybe to come and dump on ... and more willing to listen and try and resolve the problem.” While this style of communication between the physicians and office staff might not be ideal, both parties agreed that it functioned well for them and has led to improved sensitivity, understanding, and communication between the two groups, particularly relating to the stresses and pressures associated with maintaining a viable business under the fee-for-service model.

Practice staff also credited Bailey with improving their knowledge and ability to participate in the practice as a member of the patient care team. Participants described that before the NP's arrival, everybody had their role; "the billing clerk was the billing clerk, the nurse was the nurse" and that was all. Now, as a result of Bailey's work, they had received extra education, could take on a much larger role in interacting with patients, and could be more a part of the overall primary care "business". This is described in the following quotations.

I have gotten so much extra training as far as doing injections, doing ECGs, doing blood pressures, even sitting with patients and helping them fill out a PHQ9 or anything like that. Bailey has educated us so we are able to work more with the patients, and the patients view us as a team now.

She has really opened up the door for educating the MOA's too, when I started you were the receptionist in the doctor's office and that was all you did. So Bailey was actually able to educate us and do a lot more of the team approach. So yeah, I am much more satisfied because I am able to work as a team, and it is because of Bailey, because I don't think that a physician would have had the time or the insight to ever do that. I know they wouldn't, I have worked there.

That means that the staff comes out and they take your blood pressure and they ask you how you are doing or remind you that, if you have a question why don't you just write it down on the appointment card so you won't forget when you get in there. It is just a part of the whole experience and process, it is a bit of a business, it is a business, physicians are running a business in the fee-for-service world.

The staff members were much more engaged in their work as a result of the changes Bailey introduced to the practice. They were also involved in organizing and setting up some of the NP's community events. They claimed this brought more satisfaction in their work life and improved their desire to remain working in the practice.

Practice efficiency. Participants said that the interest Bailey took in the management and functioning of the practice enhanced the efficiency of service delivery. This helped make the practice more successful, both from a business and a patient care perspective. Bailey assisted with this, in part, by "blocking off time to manage a problem we are having with EMR's, or to do

an audit and look at our A1C's and recall patients whose A1C's are over eight, or something like that." The fee-for-service practitioners were not able to do these types of activities because "any time that I would dedicate to practice management issues I have to do outside of clinic hours, because I need those hours to generate income." However, the NP could tackle these issues, make them a priority, and address the problems to see how they could be resolved. Practitioners saw that having the NP to deal with these issues was one way the practice had been able to improve its patient access, and take on so many new patients, while at the same time improving the quality of care they were providing. They acknowledged that this efficiency was a major factor contributing to improvements in the overall workplace organization and participant satisfaction and they attributed this to introduction of the NP role. The impact of the NP role on the community and the practice's relationship with the community will be presented in the next section.

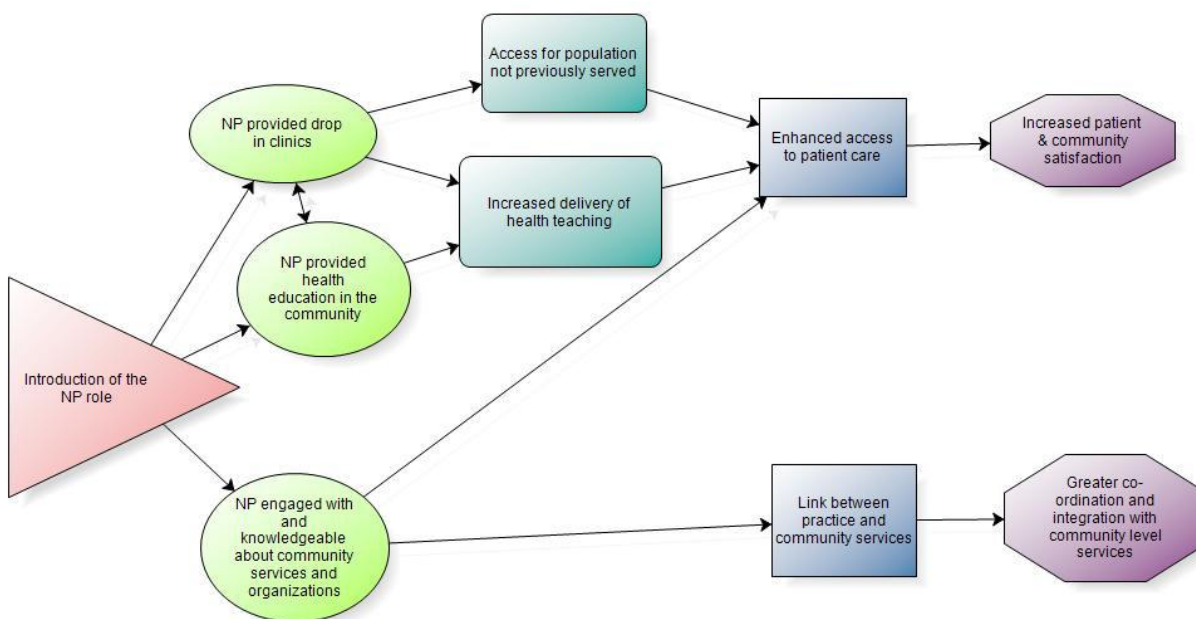
Changes at the Community Level

Prior to the introduction of the NP role, this clinic did not have much connection with the community; they were primarily focused on their own patients at the clinic. They did undertake a few home visits as required for elderly or palliating patients but that was the extent of their involvement in the community. After the introduction of the NP, their participation in the community has increased in a number of ways. First, patient care in the community has been enhanced through drop-in clinics and health education sessions for the practice's patients and other members of the public. Second, the NP was more engaged with and knowledgeable about community services and organizations. This has provided a link between the practice and these services as well as enhancing patient care by connecting their patients with appropriate community services. All of this has resulted in an increased level of community satisfaction and

greater co-ordination and integration of care between the practice and community level services.

Figure 14 depicts the actions of the NP, and the impacts and outcomes they created at the community level. These will be described more fully in the sections that follow.

Figure 14. Case 3 - Changes at the Community Level



Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangles (Green/Blue)	= Initial impacts of NP role
Square Rectangles (Blue)	= Impacts of NP role
Octagons (Purple)	= Outcomes from NP role

NP actions. The actions undertaken by the NP at the community level included: (a) providing drop-in clinics for reproductive health at the community college and in the local community, (b) providing health education sessions in for the community in a number of different settings, and (c) being more knowledgeable about and engaging with community services and organization. These actions were initially described in the role activities presented in the introduction of the NP role and will be explained further as they relate to the specific impacts and outcomes they have created in the community.

Impacts and outcomes.

Enhanced access to patient care in the community. Patient care has been enhanced and access increased through drop-in clinics and health education sessions.

Drop-in clinics. Bailey championed the development of drop-in women's health clinics in the community. This included a Pap screening program at the community college that subsequently morphed into an on-site reproductive options clinic, and *Pap Awareness Week* clinics at the practice. Participants say that both of these activities have captured women not previously accessing these services. The local newspaper has published articles suggesting these services have improved the available patient care and satisfaction, and increased engagement between the practice and the community.

Improved access to health teachings for patients and population. Bailey has delivered a number of community-based educational activities for clinic patients and other community members. These activities involved group education sessions on topics such as diabetes, hypertension, women's health concerns, and other topics of interest to participants. Educational sessions also occurred at worksites in the community. Bailey says that the frequency of these activities has decreased in the past year, due to her practice commitments taking up more time. However, she has been mentoring other nurses to take on some of these roles.

Link between the practice and the community. Prior to Bailey's arrival, participants acknowledged that those in the practice did not have very much awareness about or involvement with the community sector; "I tend to find out much later what is happening with home nursing care and other things like that, I am always surprised when I find out policies have changed ... like we have not done that for two years." The NP provided the link between the practice and

the community, not only because she was much more knowledgeable about the services on offer, and better connected with the people concerned, but she was more likely to engage the patients with these services. This is illustrated in the following quotation:

Bailey looks at a collaborative approach beyond just our medical practice. She likes to engage with the physiotherapist; she likes to engage with the mental health facility; she likes to engage with the aquatic centre and everything they have to offer for her diabetic patient. She likes to get the pharmacists involved. You know, she really feels that pharmacists need to be empowered more, we just take them for granted. She is so good at educating patients on that, the pharmacists know so much, utilize them. She definitely takes the community as a whole; she looks at everything it has to offer and if there is something there for our patients, she is on board with it. She has got the cards, she has got the information, and she is pointing them in the right direction.

As a result of this, participants believe that both the practice and their patients were better informed about the different aspects of the community and how these could be utilized to help in the overall provision of patient care.

Bailey was involved, although in a limited way, with community nursing services, particularly in relation to residents of the large assisted living care facility located next door to the practice. Community nursing recognized this as a “huge bonus” as “Bailey has supported them, and been very responsive to our practise in the community.” Participants from community nursing described the communication, follow up, and relationship between themselves and the NP very good and helpful, although not extensive.

Overall, the linkages between the practice and the community have improved a great deal since the NP’s arrival. There is now greater involvement, understanding, and integration of the practice with community services and Bailey has been credited with being almost entirely responsible for this. However, one participant acknowledged that Bailey would like to be more

involved with the community, but Bailey explained that the increasing patient load at the practice has not allowed this to happen:

I think Bailey would like to be engaged with the community and I think she would like to provide more work to the community instead of just being attached to a clinic. She would like to be out there as more available to help with community programs and stuff like that.

The next section will address the changes that have occurred at the health authority level since the introduction of the NP.

Changes at the Health Authority Level

The participants in this case believed that the introduction of the NP role contributed to a decrease in the frequency of their patients utilizing the acute care services at the local hospital.

The following quotations illustrate this:

I know that our emergency room visits have gone down, and certainly, except for a little blip that we have had in the last three months, very few hospitalizations.

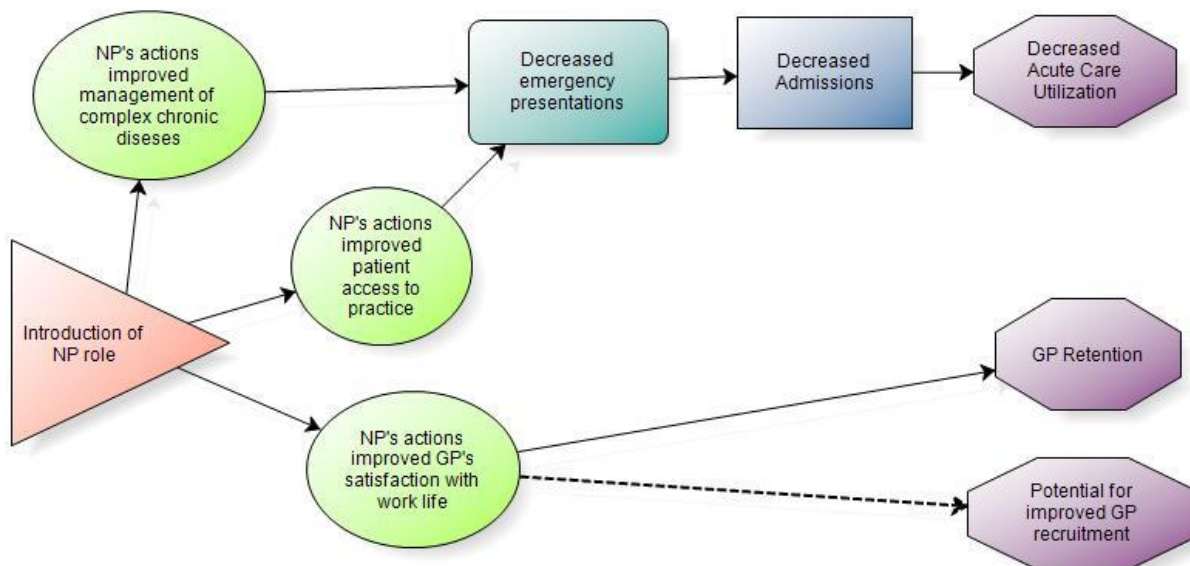
I have less patients in the hospital, so there is a joke, when I go in there they always say Oh we never see you anymore, so it is true, I have nobody really in the hospital right now.

They attributed this reduction in the frequency of acute care service utilization to the increased opportunities for patients to be seen in the practice, therefore less need for them to go to emergency. In addition, more attention is being paid by practitioners, and patients, to the management of chronic diseases, so there have had fewer exacerbations of illnesses requiring hospitalization. To determine whether these perceptions were accurate, I analysed the number of presentations to emergency, and hospital admissions from emergency, by the practice's patients.

The results of this analysis are presented on page 211.

The data in this case strongly suggests that the presence of the NP role has affected the job satisfaction of the GP working with the NP. This improved satisfaction with working life has been proposed by some participants to impact on the retention and potential for recruitment of new GPs to this site. Figure 15 depicts the relationships among the NP actions, and these impacts and outcomes at the health authority level. These will be described more fully in the sections that follow.

Figure 15. Case 3 - Changes at the Health Authority Level



--- (Dotted line) – This was a potential relationship that was not able to be substantiated in this case analysis.

Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangle (Green/Blue)	= Initial impacts of NP role
Square Rectangle (Blue)	= Impacts of NP role
Octagons (Purple)	= Outcomes from NP role

NP actions. As in Case 1 and 2, the actions at this level involved the synthesis of the actions, impacts, and outcomes at the previous levels. This synthesis is now represented in the three NP actions listed in Figure 15. These actions include: (a) all the actions and impacts undertaken by the NP that have improved the provision of care for those with chronic complex

diseases, (b) all the actions that have decreased wait times and resulted in improved access for patients at the practice, and (c) all the actions that have led to improved job satisfaction for the GPs at the practice. These actions and impacts were initially described at the practitioner, practice organization, and community levels. The impacts and outcomes relating to these actions at the health authority level are presented in the next section.

Impacts and outcomes.

Decreased acute care utilization. To determine whether there was a decrease in acute care utilization, I undertook a before and after comparison of the number of emergency and urgent care visits, and hospital admissions, for the patients of this case. The before sample was the first seven months of 2007; the after sample the same seven months in 2011. The NP role was introduced in August 2007. The data for these analyses were obtained in the same manner as described for the same analyses in Cases 1 and 2. All data used in all calculations in the following sections were standardized to represent the *number of visits/admissions per 100 patients in the GP/practice volume*.

Emergency presentations. The results of the comparison of emergency presentations between 2007 and 2011 are summarized in Table 14.

Table 14. Case 3 Comparison of Number of Emergency Room Visits 2007 - 2011

2007	Number of ER Visits	# Visits/100 patients	2011	Number of ER Visits	#Visits/100 patients
January	46	3.83	January	54	2.76
February	69	5.75	February	66	3.37
March	68	5.67	March	45	2.30
April	57	4.75	April	52	2.66
May	79	6.58	May	76	3.89
June	70	5.83	June	53	2.71
July	62	5.17	July	45	2.30
Total Visits (7 months)	451			391	
Mean # visits/ 100 patients over 7 months		37.58			20.01
Mean # visits/ month/100 patients		5.37			2.86

These results showed a decrease, from 451 to 391, in the total number of emergency presentations from 2007 to 2011. However, during this same period the practice volume increased from 1200 to 1954 patients. There was no change in the number of GPs during this period of time, only the addition of one NP. After adjusting for the increase in the practice volume, the change in the number of emergency visits represented a 46.8% decrease between the two time periods. The mean number of visits per month decreased from 5.37 in 2007 to 2.86 in 2011.

A paired sample t-test was conducted to evaluate the significance of these differences in the number of emergency visits before and after the introduction of NP role to the practice. In

this t-test, the calculations were based on the number of visits per month per GP in the practice; 14 months of data (seven pairs) were included. The results showed there was a statistically significant decrease in number of visits from before NP introduction (Mean (M) = 5.37, Standard Deviation (SD) = .88) to after M = 2.86, SD = .58, $t(6) = 8.667$, $p = .000$ (two-tailed). The mean decrease in visits was 2.51 with a 95% confidence interval ranging from 1.81 – 3.22. To calculate the magnitude or the strength of association of the change in the mean number of emergency visits, eta squared was also calculated. The eta squared statistic (.93) indicated a large effect size. This signified that the change in number of emergency visits was substantial as well as statistically significant.

Hospital admissions from emergency. The number of hospital admissions from these emergency visits was also compared from before the NP was introduced in 2007 to four years after the introduction in 2011. The total number of admissions in the two seven month sample periods decreased from 31 in 2007 to six in 2011. After adjusting for the increase in practice volume, this change in total admissions represented a decrease from 2.58 admissions per 100 patients during the sample period in 2007 to .31 admissions per 100 patients for the sample period in 2011. This change represented an 88% decrease between the two sample periods. A paired sample t-test was conducted to evaluate the significance of these differences. In this t-test the calculations were based on the number of admissions per month per GP in the practice; 14 months of data (seven pairs) were included. This change denoted a statistically significant difference in number of admissions per month from before NP introduction, M = .368, SD = .125 to after, M = .044, SD = .019, $t(6) = 7.649$, $p = .000$ (two-tailed). The mean decrease in admissions was .324 with a 95% confidence interval ranging from .220 - .428. The eta squared statistic (.91) indicated a large effect size from this change as well.

As presented earlier in the findings section on patient access (p.200), the practice introduced changes to their patient scheduling methodology in the form of Advanced Access, and to the traditional structure of the practice resulting in patients belonging to the practice rather than an individual practitioner. These changes were introduced by the NP as one strategy to address the patient access problems the clinic was experiencing. As this was an action of the NP in this case it is not appropriate, nor possible, to separate this action from the other actions that occurred following the introduction of the role. Participants noted that there were other actions of the NP that also reduced patients' need to use emergency services including more flexible access for patients to the clinic. All of these actions contributed to reduce emergency visits and hospitalizations. However, when the findings from the participant interviews are also linked to the findings from the acute care utilization analysis, it does suggest that other actions from the introduction of the NP role may have also had some effect on these changes. Participants noted that other actions of the NP, such as improved management of chronic and complex diseases, and improved patient education and preventive health teaching, led to improved quality of care and increased patient's engagement and involvement in their own health care. This was noted by participants to have reduced the frequency of office visits for chronic disease patients. These actions are also likely to have reduced the need for acute care services. This triangulation of findings supports a conclusion that these outcomes are related to more than just the introduction of a new method of patient scheduling.

There are several confounding factors, unrelated to the NP role, which could also have influenced the decrease in acute care utilization. These include: (a) the patients that joined the practice may have been healthier, and younger than the original practice patients, and this may have changed the overall demographic profile of the larger practice; (b) there may have been

other unidentified changes in the GP's practise style that were not influenced by the NP's actions, and that created changes in patient's behaviour and need for acute care services; or (c) other events, not identified in this study, may have happened in the community. As with the other cases, to confirm that the role of the NP was the main contributing factor, a study of a different nature, as previously described, would need to be carried out.

Practitioner retention and recruitment. As identified previously in the literature, interprofessional collaborative practice can positively impact on practitioner job satisfaction (Way et al., 2000, 2001), and subsequently influence practitioner retention and the potential for improved recruitment of practitioners (Chauban et al., 2010; Van Ham et al., 2006). One of the features of this case was the interprofessional collaboration facilitated by the NP in this practice, which participants reported to improve their own job satisfaction. With respect to practitioner retention, all the participants indicated that they felt the NP role had had a positive impact on their desire to stay in this work environment as exemplified in the following quotation:

I would hate to give up this work environment, we do everything we can to try and keep it successful, not just in terms of a patient perspective but from a business perspective.

Although this impact on the existing practitioners and staff was clear, the notion that there might be an impact was on the recruitment of new GPs to the practice was debatable. The practice admitted that they had been trying to recruit additional GPs to the practice for a number of years; however, they had not been successful. Participants acknowledged that there was resistance to collaborative practice with a NP from some physicians:

Some people just don't believe in the whole nurse practitioner thing. Some physicians are very much against it. I have even come up against it in my work with the rural education action plan at UBC, and in other places. There are still some

people who are, what are you doing, you are on the wrong team here dude. There is a lot of competitive, adversarial feeling.

On the other hand, some physicians were sold on the relationship: “Most of the doctors that I know that have practised with NPs are just like Oh my god, they would never go back. It is one of those things that once you have one, you realize what you were missing.” At this point, however, it is not possible to document that the NP role has an influence on successful recruitment, even with the young family practice residents who have had the opportunity to spend time in the practice working with the NP.

It is really hard to hold on to people, they don't want to commit to family medicine and family practice. It is easier to work for the hospital and just get a salary than to manage a practice, be a business person and have to invest in anything. They all just want to do locums or they want to go back and do emerg, they don't want to have practices.

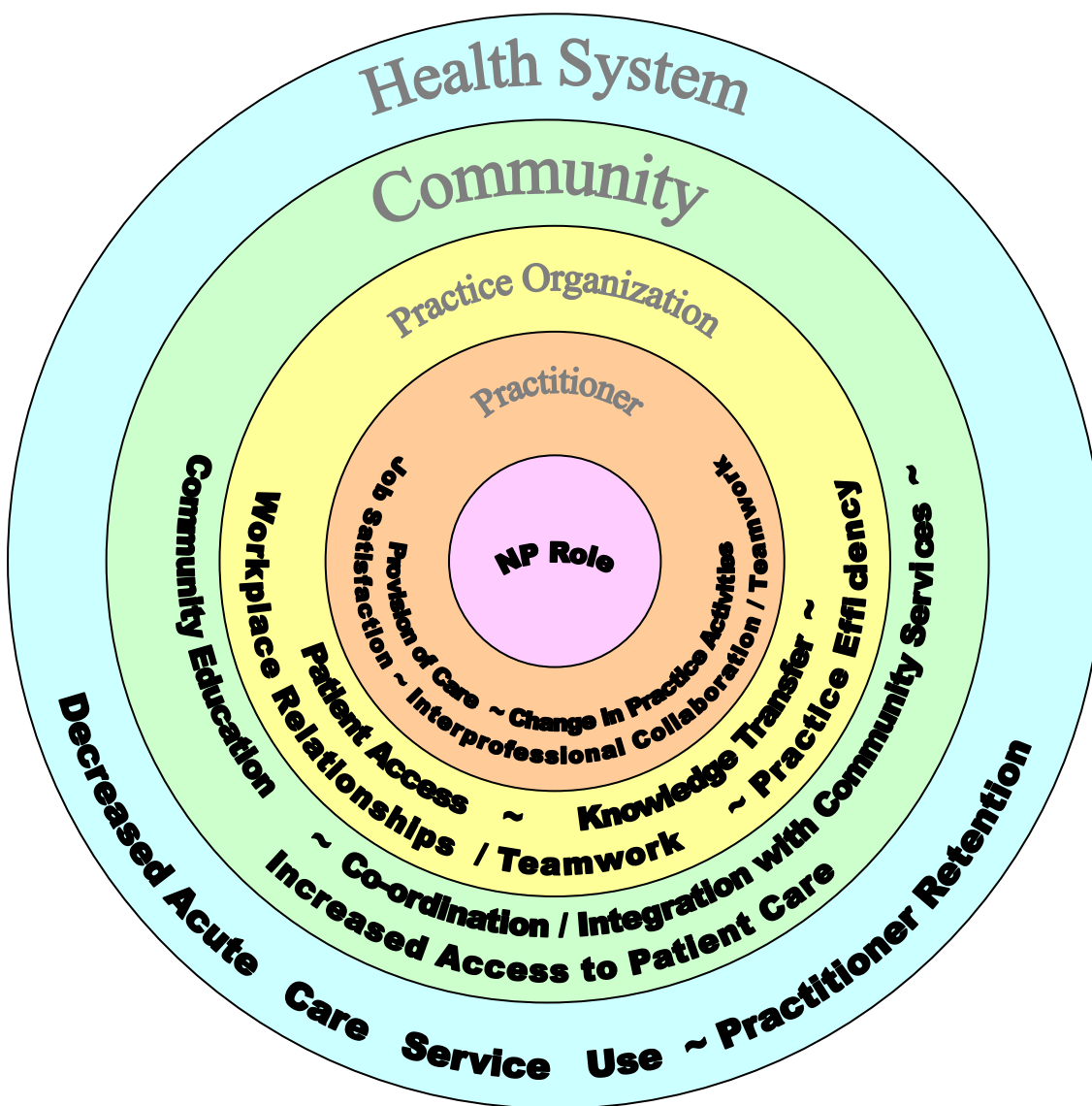
Thus, the actual influence that the NP role played in physician recruitment appears minimal but remains unknown.

Conceptual Framework – Impacts and Outcomes from Case 3 Findings

The findings from Case 3 also supported most of the expected impacts and outcomes from the introduction the NP role that were included in the initial conceptual framework developed to guide this study (Figure 1, p.53), as well as the goals for the position identified in the original proposal to the health authority. Access to the practice increased by twice the expected amount, access to reproductive health care for young women improved through new and enhanced community programs, chronic disease management was reported to have improved, though this could not be quantified, and health promotion and patient education increased for the practice's patients.

The impacts and outcomes from the conceptual framework that were supported included: improved provision of patient care through the ability to spend more time with patients, demonstrating a different way of practising, increased patient engagement, increased knowledge and use of community resources, and improved patient education and preventative teaching. The practitioners changed their regular activities in the practice to focus more on their individual strengths and expertise, and preferred areas of practise. There was increased shared responsibility for care that led to improved interprofessional collaboration and teamwork. All the practitioners acknowledged improvement in their job satisfaction. Changes at the practice organizational level supported improved patient access, improved information transfer to staff, and improved workplace culture, relationships, and teamwork. Practice efficiency improved to make the practice more successful from both a business and patient perspective. At the community level there were impacts and outcomes of increased community-based education, and access to drop-in services for reproductive health that were not previously available. There were also increased linkages, and greater co-ordination and integration between the practice and community level services. At the health authority level there was a reduction in acute care utilization that seems likely to be related to the NP's actions. The NP role was identified as having a positive impact on retention of practitioners; however, changes in recruitment were unable to be substantiated. These impacts and outcomes are highlighted in a new version of the conceptual framework (Figure 16). The next chapter presents the findings of the cross-case analysis of the three case studies.

Figure 16. Modified Conceptual Framework - Case 3 Impacts and Outcomes



Chapter 8 – Findings – Cross-Case Analysis

In this chapter I present the results of the cross-case analysis of the three case studies. These results are organized and presented in the same five sections utilized in the individual case findings: introduction of NP role, practitioner, practice organization, community, and health authority. I begin each section with a cross-case causal network diagram drawn from the synthesis of causal streams from the individual cases. These diagrams depict the introduction of the NP role and the main NP actions, impacts, and outcomes that occurred at each level. Within these sections, I highlight the similarities and differences among cases through the use of a comparative table for the NP role level and antecedents matrices for most other levels. I then provide a more detailed analysis of the findings which explains the actions, impacts, and outcomes, and the relationships among these.

Following the results of the cross-case analysis, I identify and discuss the contextual factors that influenced the relationships between the implementation of the NP role and the impacts and outcomes at the different levels. These contextual factors are portrayed in a table identifying the specific influences in the different cases. A second ecological framework is then utilized to display these factors at the different levels of analysis in this study. After the discussion of the contextual factors, the initial conceptual framework used to guide this study is refined into a final framework incorporating all the impacts and outcomes identified through the cross-case analysis.

This study was also underpinned by three propositions derived from the literature review. These propositions were:

1. The enacted role of the NP in fee-for-service practices will have three foci.

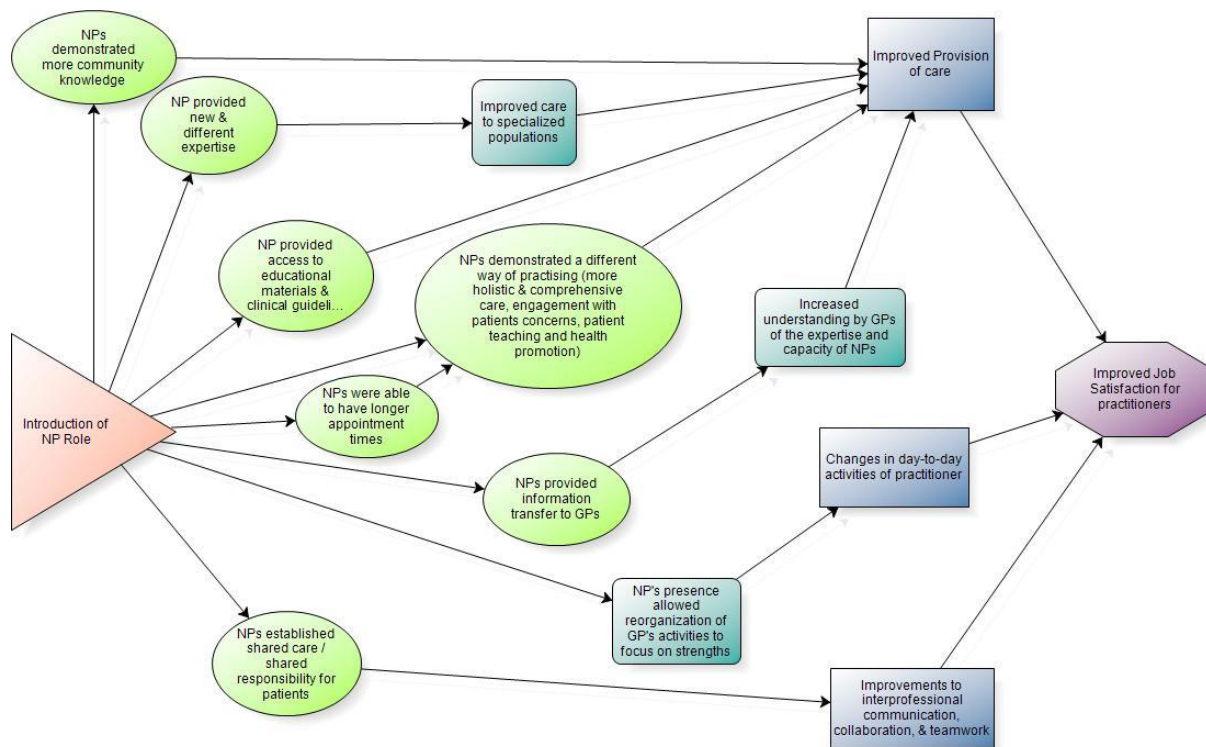
- i. Individual and family focused direct care activities will be the major focus.
 - ii. Population focused activities will result in an increased connection between the practitioners in the primary care practice and the health needs of the community, and new linkages to health-related community organizations will be established.
 - iii. Professional practice activities will result in increased educational and research activities in the practice, and changes in the administrative functioning of the practice (Martin-Misener, 2006; Reay et al., 2006).
2. The introduction of the NP role in fee-for-service practices will result in improved chronic disease management for the population served by these practices (Chorney & Clark, 2009; Russell et al., 2009).
 3. The introduction of the NP role in fee-for-service practices will result in improved access to the practice, and a reduction in the number of visits to acute care services, for the population served by the practice (Chorney & Clark, 2009; CHSRF, 2010; Reay et al., 2006).

The outcomes hypothesized in these propositions are directly related to the levels of relationships in the conceptual framework. Proposition 1(i) corresponds to the micro level of the conceptual framework and describes the characteristics expected to be found in the NP role. Proposition 1(ii) describes actions of the NP expected to produce impacts at the practitioner and community levels and strengthen the reciprocal connections between these two levels. Proposition 1(iii) proposes a relationship between the actions of the NP and new activities at both the practitioner and the practice organization level. The proposed improvements in chronic disease management (proposition 2) would impact at the practice level with increased patient access (as a result of

decreased use of services by these patients), and at the practitioner and community levels with improved provision of care. Proposition 3 is directly related to impacts and outcomes at the practice organization and the health authority levels. The overall findings from the cross-case analysis are explored to determine the level of support for these propositions in the context of these fee-for-service practice settings.

In the remainder of this chapter I present the findings from the cross-case analysis beginning with the introduction of the NP role and how the actions of the NP impacted at the practitioner level. This is depicted in Figure 17. The narrative that follows this diagram discusses first the similarities and differences with the NP roles and how they were enacted across the cases, and then explains the actions, impacts, and outcomes that resulted at the practitioner level.

Figure 17. Cross-case - Introduction of NP Role and Changes at the Practitioner Level



Legend

Ovals (Green)

= Actions of the NPs

Rounded Rectangles (Green/Blue)

= Initial impacts of NP role

Square Rectangles (Blue)

= Impacts of NP role

Octagon (Purple)

= Outcomes from NP role

Introduction of the NP Role

Characteristics of the NPs. When the NPs came to these practices they brought with them a number of attributes, knowledge and skills, which determined how they were going to initiate their practice in these settings and the actions they were going to undertake. Some of these characteristics were similar in that they were all experienced RNs and these positions were their first after completing their NP education. However, while their NP education provided them with similar knowledge and skills, each of them supplemented this with their own specialized knowledge and experiences predominantly based on their previous RN roles. These

attributes were one of the main factors that shaped the way the role was enacted in each setting; the other factor was the influences that were in place in the practice itself at the time their role was introduced.

Practice Contextual Influences. The contextual features of each practice influenced how the NP role developed and the impacts it had at each of the levels of relationships. As described in the individual cases, each of the fee-for-service practices had different priorities and goals they expected to achieve with the introduction of the role. As well, the individual practitioners displayed varying levels of knowledge and understanding about the role, and openness to the changes it could bring to their way of practising. In two of the practices, the GPs had an appropriate understanding of the scope of practice of the NP role, displayed significant openness to change, and embraced those change opportunities following the addition of the role; these practices' also achieved their goals for the role. However in Case 1, the practitioners were expecting a practice nurse/physician assistant type role, exhibited little to no desire to modify their practise style, and did not embrace the benefits the role could offer them; as a result the role developed along the lines of the NP's interests and gaps identified in services in that community. The differences in impacts and outcomes associated with these underlying contextual disparities will be highlighted as they appear in the following sections.

NP role components. Across the cases, seven types of role activities were identified. These activities were classified into four categories: primary care, educational, administrative and management, and research. These categories of role activities are consistent with those identified as the foci of the role in the study propositions; this will be discussed later in this chapter. Table 15 summarizes the estimated amount of time spent in each of these activities across the three cases.

Table 15. Cross-case Comparison of NP Role Components

NP Role Activity	Percent (%) of Time Spent on each Role Activity*		
	Case 1	Case 2	Case 3
Primary Care in the Clinic Setting	85%	50%	80%
Primary Care in the Community Setting	3%	40%	0%
Educational Activities with groups of patients in any setting	0 - 1%	1%	6%
Educational Activities with students and peers	3%	2.5%	3%
Administrative and Management Activities – relating to practice functions	3%	.5%	6%
Administrative and Management Activities – relating to NP role (including time spent in meetings and roles in professional associations, etc...)	5%	5%	2.5%
Research Activities	1%	1%	2.5%

*Based on personal identification by the NP of how their time was spent.

Primary care. Primary care was the principal activity carried out by all the NPs and accounted for 80 to 90% of all NP time. The majority of primary care took place in the clinic setting with individual and family focused care being provided to the general population across the life span and a focused population specific to the interests of each individual NP and/or the needs of the community. The specific populations served by these NPs included: individuals with mental health and addiction concerns some of whom might be considered marginalized (Case 1), seniors and frail elderly (Case 2), and patients with chronic diseases such as diabetes and heart failure, and women with reproductive health care needs (Case 3). In Case 1, the NP developed her own primary care practice within the larger practice population and had a group of patients for whom she was recognized to be the principal primary care provider. In Cases 2 and 3, all patients belonged to the practice as a whole and the practitioners shared the care for the

patients, however in Case 2, the NP was identified as the principal primary care provider to some of these patients.

In addition to the practice setting focus, all the NPs' roles had a community focus. This focus varied somewhat among the three NPs. In Case 2, the NP spent 40% of his primary care time in the community serving seniors and frail elderly. This differed considerably from the NP in Case 3 who did not spend any time in community-based primary care activities; instead she focused on the provision of community-based education. In Case 1, the NP initially spent a considerable amount of time delivering primary care and education in the community, however as her patients became more comfortable with her delivery of these services much of this care moved to the practice and her regular community time reduced to once weekly visits / education sessions at community venues. Participants from all cases identified this community focus was appreciated by patients, colleagues, and their community.

Educational activities. Educational activities played a part of the NP's practise in all cases. Community-based educational activities for patients, members of the general public, and/or specific groups occurred in all cases, although this activity was most prominent in Case 3. In Case 2, the major educational activities involved direct patient education that was included as part of the primary care activity. The NP in Case 1 thought she spent only a small amount of her time providing education; however, other participants had a conflicting views varying from "quite a bit" to "a lot of time". This education covered topics such as immunizations, importance of Paps and mammograms, diabetes, hypertension, and other concerns identified by the participants. In all cases, these educational activities also included teaching and mentoring students from different health care professions.

Administrative and management activities. Even though these NPs were health authority employees, all of them contributed to the routine administrative and management activities in their private practice work sites and assisted to ensure that the practice functioned as smoothly and effectively as possible. In Case 2, there was full time managerial support in the practice prior to the introduction of the NP role; as a result the NP was less involved in administrative and management activities. However, when this support was limited, as in case 3, the NP drew on her knowledge and experience and took on a larger leadership role to fill this need in the practice; she was responsible for proposing and implementing most of the organizational changes that occurred in this setting.

All three NPs were also involved in some management activities outside of the practice related to either primary care or NP role development. In Case 3, the NP stated that she did the majority of this type of work outside of her regular work hours and therefore did not include it in her calculations. In Case 1, the NP exercised her leadership role through her involvement with professional organizations focused on the delivery of primary care services in the regional area and her own professional association. In Case 2, this involved work with the seniors network and community health care teams directly related to his primary care role in the community. The involvement of the NPs in these organizations and activities was reported by participants to have resulted in positive changes and increased awareness and appreciation of the NP role by health professional colleagues and members of the public.

Research activities. For all three NPs, research was allocated the least amount of time. This study represented the first involvement in this type of activity for two of the NPs; the third had had some prior involvement in other research activities. All the NPs indicated that they were pleased to be involved and were very helpful in providing the data necessary to complete this

study. Their support for this research meets one of the expected research competencies for the NP role from CRNBC (2010b); however, it does not meet all the expectations in the area of research competencies (CNA, 2010). In all cases, the NPs indicated that the responsibilities and time pressures associated with their other role activities took precedence over regular involvement in research activities.

In summary, in all cases the NPs' activities represented full scope family practice consistent with the CRNBC scope of practice (CRNBC 2008a, 2011). Although the specific amount of time spent in each activity differed in each case, the general distribution was similar. The choice of emphasis for education or administrative/managerial activities was influenced by the context of each case and the individual characteristics of the NP. This variation is consistent with the inherent flexibility expected of the NP role as described in the CRNBC competencies and scope of practice (CRNBC, 2008a, 2010b, 2011). The next section summarizes the across-case comparison of changes at the practitioner level that occurred following NP role introduction.

Changes at the Practitioner Level

NP actions. When the NP role was introduced, the NPs immediately began to engage in a variety of actions that had impacts at multiple levels, the first of these being the practitioner level. What each NP did varied with the context and needs of each practice; however, overall they resulted in similar impacts and outcomes. A more detailed view of the similarities and differences in these activities across the cases, and the resulting impacts and outcomes is summarized in Table 16.

Table 16. Antecedents Matrix Cross-case Analysis Practitioner Level

	NP Actions							Initial Impact		Impact	Outcome
	<i>Able to have longer appointments</i>	<i>Demonstrated a different way of practising (comprehensive / patient centred focus)</i>	<i>Demonstrated engagement with patient's concerns</i>	<i>Demonstrated more community knowledge</i>	<i>Demonstrated new expertise</i>	<i>Engaged in information transfer about NP role</i>	<i>Access to educational materials & clinical guidelines</i>	GPs understanding of NP expertise & capacity	Improved care to specialized populations	Improved provision of care	Improved job satisfaction
Case 1	X	X	X	X	X	X		X	X	X	x
Case 2	X	X	X	X			X		X	X	X
Case 3	X	X	X	X				X	X	X	X

	NP Actions	Initial Impact	Impact	Outcome
	<i>Established shared care / shared responsibility for care</i>	Improved intra-interprofessional communication	Improvement to interprofessional collaboration	Improved job satisfaction
Case 1	x	x	x	x
Case 2	X		X	X
Case 3	X		X	X

	NP Actions	Initial Impact	Impact	Outcome
	<i>Presence of NP</i>	Allowed reorganization of GPs activities	Changes in day to day activities	Improved job satisfaction
Case 1	X	x	x	x
Case 2	X	X	X	X
Case 3	X	X	X	X

x = action, impact, or outcome identified to not affecting all practitioners or limited to some degree

X = action, impact, or outcome identified to affect all practitioners

Across all cases the NPs: (a) had longer appointment times; (b) demonstrated a different way of practising that provided for more comprehensive and person-centred care, involved more engagement with patient concerns, and included more teaching and health promotion; and (c) demonstrated more knowledge of the community. In some cases, they also provided a new and different expertise in the practice, easier access to patient educational materials and clinical guidelines for the other practitioners, and allowed the other practitioners to observe and understand the expertise and capacity of NPs. All the NPs established shared care and shared responsibility for care with the GPs. Their presence also allowed the GPs to reorganize their activities to better reflect personal strengths and preferences. These actions resulted in three main impacts for the practitioners that are presented in the next section.

Impacts.

Provision of care. The main impact from the seven NP actions was improved provision of care for patients. In addition, there were two initial impacts that were precursors to this impact: (a) increased understanding by GPs of NP expertise and capacity, and (b) improved care to specialized populations (HIV; and chronic disease patients). The actions and impacts relating to improved provision of care are discussed in the following sections.

Longer appointment times. In all cases, the NP brought a new dimension to the provision of care for patients through the additional time that they were able to afford to each patient visit. Across the cases the NPs' standard appointment time varied from 20 to 30 minutes as compared to the normal fee-for-service visit of 10 minutes. Participants stated that this added time provided a significant number of benefits to patient care beyond that available through the existing fee-for-service model. These benefits included: (a) the opportunity for patients to get

more of their concerns addressed in during one visit, which reduced the need for additional appointments and follow up; (b) provided time for improved patient education, and health promotion and illness prevention teaching, which were associated with better patient engagement and partnership; and (c) more in-depth examination of the patient's situation, and a more comprehensive and holistic approach to their care, which led to better care planning, reduced need for future appointments, and furthered the engagement by patients in their care. The majority of practitioners across the cases acknowledged that these benefits had improved the quality of care available to their patients and they felt happier and more satisfied because of this. This additional time for each patient visit was made possible by the method of remuneration used to compensate these NPs: They were salaried health authority employees.

The longer appointment times available to the NP was identified as a significant factor that facilitated the NP's different way of practising. Participants noted that this way of practising offered important benefits to the provision of care. These are highlighted in the following section.

Demonstrating a different way of practising. The different educational background associated with the NP role, as compared to the GP, brought a different perspective, style, approach, and philosophy to patient care. This included providing more comprehensive and person-centred care, more engagement with patient concerns, and more education and health promotion. Across the cases, most other practitioners stated that they appreciated this different approach. The specific differences were exhibited through the NPs' skills in communication, flexibility and openness to different life styles, emphasis on teaching and preventative care, and willingness to take on more roles as required including case management. While the majority of these practitioners remarked that this different style benefitted their patients and the practice, it

was not of sufficient influence for them to change their own style of practise. However in Case 3, the other practitioner's style did change to become more complete and thorough, and include monitoring and planning of care in a more pro-active manner. I propose that this change in practise style was facilitated in two ways by the NP. One, in this practice the NP used the EMR to monitor all patients' chronic disease indicators; therefore the GP and NP were more aware how their patients were benefitting from these changes. Secondly, the NP showed the GP how to capture the opportunities available within the fee-for-service billing code structure to make chronic disease care planning financially viable and a sustainable activity for the clinic.

All three NPs were acknowledged to be more engaged with the patient's concerns and needs; this helped to develop a new level of partnership between the patient and the provider. Participants stated that the NPs encouraged patients to be more of a "team member", take more personal responsibility, and be more in control of their own care. Some of this increased engagement was due to the NPs emphasis on teaching and preventative education, and some created by linking patients with services in the community that the NPs were far more knowledgeable about than the GPs.

Community knowledge. Across all cases, the NPs, in comparison to the other practitioners, were acknowledged to be more involved and connected with their local community, and more knowledgeable about what services were available in the community that could assist patients. They were referred to as the "link to the community" and took on a leadership role in that area within the practices. In all cases, the other practitioners in the practice acknowledged that prior to the arrival of the NP they had had limited involvement with the community, outside of their responsibilities within the medical community. After the introduction of the NP role, they were more likely to utilize the knowledge and connections

afforded by the NP to enhance the care they were able to offer their patients. This increased knowledge about the community, and access to its services, was recognized as a benefit to the other practitioners as well as the patients.

Provider with a different expertise. In each case the NP brought an expertise to their practice that was different than that of the other practitioners. This benefitted each practice by increasing the variety of knowledge and skills available within the practice. However, this different expertise was particularly significant in Case 1 where the NP contributed knowledge and skills that were not only absent in the practice, but in the local area. As a result, the NP took on an additional broader role by accepting patients for specialized care from other GPs within the regional area.

Information transfer and increased understanding of NP capacity. A further benefit that emerged from these impacts was that the NPs' physician colleagues were able to observe at close hand the expertise and capacity of NPs as primary care providers. This facilitated the transfer of knowledge to these GPs that competent primary health care could be provided by a practitioner that was not from the traditional medical system; a very important step in the recognition of NPs, and the overall acceptance of interprofessional practice. This impact was particularly evident in Case 1 where the pre-introduction knowledge and understanding of the NP role was the most limited. The GPs' acceptance of NPs as competent primary care providers was confirmed by their willingness to have their patients cared for by the NP in their absence, and in two cases, through their participation in shared care relationships.

Access to education materials and clinical guidelines. In Case 2, the NP came with his own filing cabinet filled with patient teaching materials and clinical guidelines. This resource

was shared with the other practitioners. These practitioners stated that this enhanced the care they were able to provide to their patients. The practitioners from the other two cases did not identify that this action had occurred in their settings; however, it is possible that it did and was not identified in this research.

Improved care for specialized populations - Chronic disease management. In Cases 2 and 3, the NPs were specifically involved in chronic disease management for either their own patients or patients were referred to them by the other practitioners. It had originally been planned that chronic disease management data would be obtained from each of the practice's EMR to determine the extent of change in chronic disease indicators since the arrival of these NPs. However, as was explained in the individual case reports, this was not possible because Case 2 was not using their EMR for this purpose, and Case 3 changed their EMR system which made accessing the data impossible. However, some data collected from these cases indicated that some changes had occurred in chronic disease management. In Case 2, a marked decrease was noted, from 17 to four, in the number of home visits needed for interventions associated with exacerbations of chronic disease between 2008 and 2011. Although the reasons for this decrease are unknown, I propose that this maybe an outcome resulting from improved management of these patient's chronic diseases by regular monitoring and follow-up by the NP. In Case 3, participants identified that their chronic disease patients were now so well educated by the NP that "their A1Cs are excellent" and "we don't even have to see them". These participants claimed that these patients required fewer visits than previously, were meeting chronic disease targets, and had fewer hospital admissions. Although these changes were unable to be quantified, the data presented in the section on changes at the health authority level demonstrated fewer hospital admissions; however, these changes in admission numbers cannot be directly

linked to patients with chronic diseases. In Case 1, there were no specific data that could be related to changes in chronic disease management associated with the NP role. Chronic disease management was not a specific focus of this NP's role; instead, one of the GPs chose to increase his involvement in this area facilitated by the presence of the NP in the practice.

Changes in the day-to-day practice activities. In every case, the presence of the NP allowed other practitioners to modify their activities to focus on their preferred areas of practice. However, in Case 1 only one practitioner in the practice chose to do this. In the other cases, the practitioners stated that they had been able to change how they practised to enable them to work in their preferred setting, focus on their personal interests and strengths, and this improved the ability and viability of the fee-for-service practice to provide home-based primary care (home visits) to their patients as required. This ability to focus on personal interests and strengths was enhanced when it was linked with shared patient care and shared responsibility for care. The majority of practitioners viewed this as a positive change and one that benefitted them and their patients. However, in one case, a practitioner felt the presence of the NP had changed their day-to-day activities in a negative way; as a result his/her patient workload was heavier, more complex and more fatiguing. At the same time, this practitioner acknowledged that the NP role lightened the load in relation to geriatric care. Overall, these changes in day-to-day activities facilitated by the NP were associated with improved practitioner job satisfaction and patient satisfaction.

Interprofessional communication, collaborative practice and teamwork. The introduction of the NP role was acknowledged across all the cases to have improved interprofessional communication within the practices. In every case, instances of shared care and shared responsibility for patients developed between the practitioners. This was only

possible when there was effective interprofessional communication. In two cases, the introduction of the NP role resulted in a marked increase in interprofessional communication and interprofessional collaborative practice developed; this changed the practice's siloed approach to a group style of practise. This group style of practise now involved a collaborative relationship in which patients moved back and forth between the GPs and the NP on a regular basis. The development of this collaborative practice led to increased teamwork between the practitioners, benefitted the patients, and resulted in improved job satisfaction for the practitioners concerned.

In Case 1, however, although the interprofessional communication improved, this did not lead to increased interprofessional collaboration and teamwork between the NP and the GPs. The practitioners still worked in silos beside each other, and felt that they were too busy even to think about changing their current model of practise. In this case, the practitioners also acknowledged that they did not understand the NP role prior to its introduction in their practice, were expecting a practitioner with a more limited scope of practice, and had differing objectives and outcomes for the role than the NP expected. Once the NP role was introduced, these practitioners exhibited little to no desire to modify their existing practice style. All of these factors explain why, in this case, interprofessional collaboration and teamwork did not happen. I do propose however, that the change from siloed practice to collaborative practice is an incremental process, and involves many steps of which improved interprofessional communication may be the first step. More research would be required to track the development of interprofessional collaboration over time to determine whether this hypothesis could be confirmed.

Outcome.

Job satisfaction. The majority of practitioners across the cases identified that they had experienced increased job satisfaction since the introduction of the NP role. The main reasons for this improved job satisfaction were increased satisfaction with the provision of care to patients and easing the burden of trying to do everything yourself through “working together and using each other’s strengths to get the work done”. These factors contributed to making the other practitioners work life “more pleasant” and enjoyable. In Case 1, where job satisfaction was unchanged for some practitioners after the introduction of the NP role, there was also no collaboration or teamwork acknowledged between the practitioners.

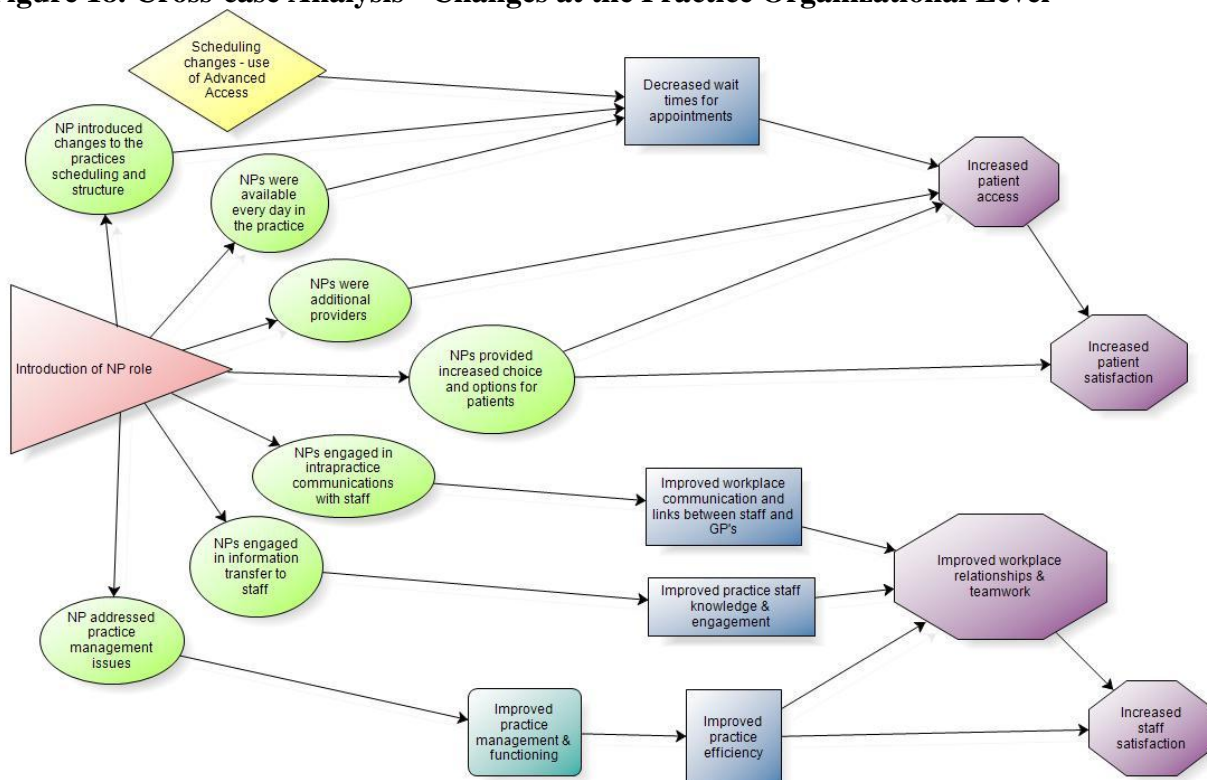
In summary, across the cases the introduction of the NP role resulted in three main impacts for the other practitioners. The provision of care to patients improved through seven actions of the NPs. The other practitioners were able to change their day to day activities to better reflect their personal strengths and preferences; however, not all of them chose to do this. For the majority of practitioners interprofessional collaboration and teamwork developed between the NPs and the GPs. All of these resulted in improved job satisfaction for these practitioners. For a few practitioners there was no change in their day to day activities or development of interprofessional collaboration and teamwork, as a result they reported no change in their job satisfaction. The next section presents the changes at the level of the practice organization.

Changes at the Practice Organizational Level

Across all cases there were a number of consistent impacts that occurred at the level of the practice organization. These impacts affected two outcomes: patient access and the

workplace culture and organization. Patient access was improved as more patients were able to be served through the practice, waiting times for obtaining appointments decreased, and patients were able to have more choice about their provider. The workplace culture changed with improved communications between the support staff and the practitioners, improved staff knowledge, and in one case improved efficiency and day-to-day management at the practice. These outcomes were reported to improved patient satisfaction with the practice services and in the majority of cases increased the staff's level of job satisfaction. Figure 18 depicts these impacts and outcomes and the actions of the NPs that created them. These will be described more fully in the sections that follow the diagram.

Figure 18. Cross-case Analysis - Changes at the Practice Organizational Level



Legend

Ovals (Green)

Diamond (Yellow)

Rounded Rectangles (Green/Blue)

Square Rectangles (Blue)

Octagons (Purple)

= Actions of the NPs

= Action not instigated by NPs

= Initial impacts of NP role

= Impacts of NP role

= Outcomes from NP role

NP actions. The actions of the three NPs varied slightly at the practice level based on the contexts of the different practices. All the actions, impacts, and outcomes that occurred across the practices are summarized in Table 17. The actions that were consistent across all cases were: (a) being an additional primary care provider in the practice, (b) providing an increase in the choice of provider for patients, (c) being available every day in the practice to see patients, (d) engaging in regular communication with the office staff, and (e) providing teaching and other forms of information transfer to the office staff. In one case, the NP also introduced changes to patient scheduling and the structure of the clinic to improve availability of appointments and took responsibility for addressing practice management issues. These actions resulted in impacts and outcomes at the practice organization level including increased patient access and patient satisfaction, and improved workplace relationships and teamwork with increased staff satisfaction in most cases.

Impacts and outcomes.

Patient access. Patient access to the practices improved in all cases as a result of the changes created by the NP actions. These changes included: (a) decreased wait times for appointments for existing patients, (b) improved access for new patients or retention of patients that would have otherwise become orphaned in the communities, and (c) increased options and choice for patients.

Decreased wait times. Across all cases, wait times for appointments for patients decreased. Prior to the arrival of the NP, the wait time for a normal appointment was anywhere from one to six weeks. Following the introduction of the NP role, every case was able to offer

same day access for patients with urgent needs and some of the less urgent patients, and all patients were able to get appointments within three days. The only time this varied was if the patient insisted on seeing a particular GP; this could delay their visit for four to six weeks. Participants stated that the improved availability of appointments reduced the number of patients being sent to emergency by the practice's office staff. This decreased wait time for appointments was made possible through two changes. First, in all cases the NP was present in the practice every day to see patients; this was different than with the majority of the GPs. The GPs were often not available in the practice for part or all of the day because they were attending to their other responsibilities at the hospital or the urgent care centre. Participants also noted that the availability of the NP in the practice reduced the need for additional follow up appointments for medication reviews created by the absence of other practitioners.

Second, reduced wait times occurred because the practices changed their method of patient scheduling. In all cases, the practices incorporated the Advanced Access patient booking system after the arrival of the NP. In two cases, the practice had changed over completely to this system; one as a decision of the entire group of practitioners within the practice and the other facilitated by the NP. In the third case, the change to the Advanced Access booking system was more limited with it being used by some practitioners on some days. The impact of the Advanced Access system is difficult to separate from the impact of the NP; this will be discussed further in the section on changes at the health authority level.

Access for new patients and retention of existing patients. The second way in which access improved was through an additional primary care provider being available to take on new patients or retain existing patients. Across the three cases, the presence of the NP enabled an

increase in the practice volumes by between 400 and 800 patients. This increase was either due to additional new patients for whom the NP or the practice became their principal primary care provider, or retention of patients who would otherwise have become orphaned patients in these communities.

Increased options for patients. The third way in which the NP role led to increased access was through increased provider options for patients. Across all cases, participants identified that the NP had increased the choice of practitioner available for the patients, and many patients were clearly choosing to utilize this opportunity for a multitude of reasons. In one case, the actions of the NP also resulted in an increased variety of other professional services available through the practice. This meant that the practices were able to serve a broader variety of the general public, and offer them a larger range of services. All of these actions that improved patient access were identified by study participants to have improved patient satisfaction. This confirms the findings of a previous internal evaluation conducted by the health authority.

Improved workplace culture, organization, and satisfaction. Across all cases, the workplace culture and teamwork improved which lead to improved job satisfaction in most cases. The NP role actions and impacts that contributed to these improvements are presented in the following sections.

Improved workplace relationships, knowledge, and teamwork. Across the three cases, the NPs' communication and relationship skills improved the communication, relationships, and teamwork that existed between the primary care providers and the support staff in the practices. In two of the three cases, participants stated that the NP was the "bridge between the staff and

the physician group”, and in all cases, communication and collaboration with the support staff was noted to have improved. Practice staff acknowledged being more comfortable in bringing their questions and concerns to the NPs. In all cases, the NPs were credited by participants with improving the knowledge and skills of the office staff; this allowed them to feel more engaged with their role in the practice and enhanced their participation as a team member. In two of the three cases, this improved relationship with the support staff resulted in an improved workplace culture and enhanced job satisfaction for the practice staff; in the third case it was viewed as a bonus to a setting in which they already had a harmonious and satisfying work situation.

Improved practice efficiency. In Case 3, the ability of the practice to deliver services improved through the role taken by the NP in practice management issues. This included identifying day-to-day management problems that the practice was experiencing and working to resolve them with the staff and other practitioners. In this case the NP took on this role because the practice did not have an office manager and the NP had an interest in this area. The participants from this case stated that these actions of the NP improved workplace efficiency and allowed the practice to take on more patients, improve patient care, and improve the success of the practice as a business. In the other two cases, the practices had office managers and the NPs did not become involved in this area.

Impact on other work sites. In Case 1, participants claimed that the observed impacts of the NP role had shifted the attitude of those in another worksite from a negative towards a more positive view of the value of the NP role. This shift in attitude was identified by these participants to be significant enough that they were now expressing interest in having a NP work with them. These participants also expressed the opinion that other practices in the community were also interested in having a NP work with them. These opinions were unable to be

confirmed; however, this potential impact is a very important one for furthering the acceptance and development of this type of a NP role.

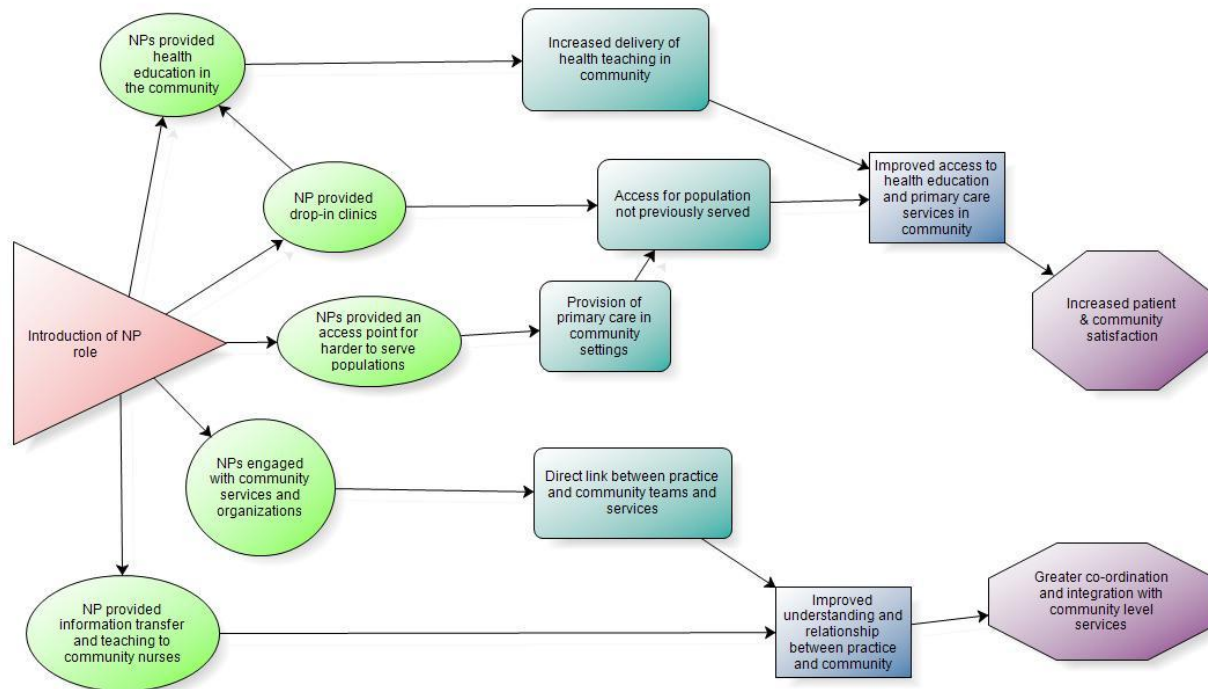
In summary, across all cases, the introduction of the NP role resulted in two main impacts at the practice organizational level. Access to the practice increased through decreased wait times for appointments and increased availability of providers. Improvements occurred in the workplace culture, relationships, and teamwork as a result of increased communication, engagement, and teaching provided to practices' staff. These two outcomes were reported to result in increased patient satisfaction and in staff satisfaction.

Changes at the Community Level

Prior to the introduction of the NP role none of these fee-for-service practices had an active role in their community; their involvement was mostly limited to the GPs' responsibilities at the local hospital. In the past, some of them had provided home visits to patients; however, this had decreased to almost no home visits in the past few years. Following the introduction of the NP role, this changed in every case with the NP playing a role in the community. These changes impacted on two areas: access to primary care services and health education in the community, and co-ordination and integration with services in community. Depending on the context of each case, access to primary care services increased through either the creation of new access points for harder to serve populations and/or increased availability of health education; participants reported this increased patient and community satisfaction with available services. Co-ordination and integration between the practices and community level services improved through the increased engagement undertaken by the NP, and in some cases, direct linkages and learning opportunities occurred with the community staff. Figure 19 depicts these impacts and

outcomes, and the actions of the NPs that created them. These will be described more fully in the sections that follow the diagram.

Figure 19. Cross-case Analysis - Changes at the Community Level



Legend

Ovals (Green)	= Actions of the NP
Rounded Rectangles (Green/Blue)	= Initial impacts of NP role
Square Rectangles (Blue)	= Impacts of NP role
Octagons (Purple)	= Outcomes from NP role

NP actions. The actions of the three NPs varied at the community level based on the contexts and needs of the different practices. All the actions, impacts, and outcomes that occurred across the practices are summarized in Table 18. All the NPs undertook actions to increase access to health education and services in the community; however, they were all different and included: (a) providing new access points to primary care for harder to serve populations, (b) providing drop-in clinics for patients, and (c) increasing available community-based education. All the NPs engaged with community services and organizations and in one

Table 18. Antecedents Matrix Cross-case Analysis Community Level

	NP Actions			Initial Impact		Impact	Outcome	
	<i>Access point for harder to serve populations</i>	<i>Provided health education in community</i>	<i>Provision of drop-in clinics</i>	Increased delivery of health teachings for patients and population	Access to care for population not previously served	Improve access to health education and primary care in community	Patient & Community satisfaction	Increased Community nurses satisfaction
Case 1	X	X		X	X	X	X	
Case 2	X				X	X	X	X
Case 3		X	X	X	X	X	X	

	NP Actions		Initial Impact	Impact		Outcome
	Engaged with community services and organizations	Information transfer and teaching to community nurses	Link between practice / NP and community services	Appreciation of NP role by community services	Improved relationship and understanding between practice /NP and community services	Greater co-ordination and integration with services in community
Case 1	X		x	X	x	x
Case 2	X	X	X		X	X
Case 3	X		X		X	X

x = action, impact, or outcome identified to be weaker

X = action, impact, or outcome identified to be stronger

case, the NP provided information transfer and teaching to his community nursing colleagues. These actions resulted in a number of impacts and outcomes at the community level.

Impacts and Outcomes.

Access to primary care for populations that were previously not well served. Across all cases, the introduction of the NP role provided access to health care services for populations that were previously not well served. This happened through either community-based primary care for specialized populations or drop-in clinics for particular groups. In all cases, the NPs were able to re-institute some home visits for patients from their clinics; however, in Cases 1 and 2, these NPs began providing regular primary care services for populations that were more difficult to serve through the traditional office visit. Previously, these populations were either not accessing health care services due to their lack of comfort with the available services or obtaining their primary care through the use of emergency departments. This was because of issues either associated with their age, mobility, and generalized health status or life style. Participants reported that the availability of this primary care was appreciated by patients, community-based nurses, and other community teams and services.

In Case 3, the NP facilitated the development of drop-in health clinics. These clinics were designed to capture a population that had been identified as previously not accessing preventative and screening services. Some of these clinics were aligned with other health events in the community. Others were initially proposed by the NP and have subsequently morphed into regular and broader services now run by other partners to ensure the viability and continuity of the services. In some circumstances, community-based educational programs developed in conjunction with these clinics.

Increased delivery of health teachings for patients and population. In two cases, the NPs undertook some community-based educational activities for either their clinic patients or other members of the public. These activities included group education sessions and talks at community venues and worksites. However in both cases, the NPs noted that the frequency of these activities was decreasing; they attributed this to their other work responsibilities requiring more of their time. In one case, the NP was mentoring another RN to take over some of this workload. This situation highlights one of the challenges associated with the NP role; how to prioritize and address all the dimensions expected in the role. This has also been identified in the area of research activities and will be discussed further in Chapter 9.

Participants have reported that both these impacts contributed to the outcomes of improving patient and community satisfaction with available services. The ability to sustain the health education component may be challenging and require specific dedicated time; however, the primary care component currently is a recognized feature of some of these roles.

Improved understanding and relationship between the practice and the community. It was acknowledged by all participants that prior to the arrival of the NPs these practices did not have very much awareness or involvement with what was happening in their community. This changed with the addition of the NPs; however, the extent of this change was dependent on the contextual features present in each practice. In Cases 2 and 3, the NPs became the direct link between the whole practice and the community; in Case 1, the NP developed a relationship with the community while the practice as a whole remained uninvolved. Development of these links resulted in improved patient care due to better knowledge of the services available in the community. There was also a greater understanding, and an increased sense of connection, between the practice and the community which resulted in improved co-ordination and

integration with community level services. In Case 1, these linkages were weaker and only impacted on the care provided directly by the NP; the other practitioners did not appear to utilize these linkages or in some cases even know that they existed. The previously identified lack of interprofessional collaboration and teamwork in this setting might explain this.

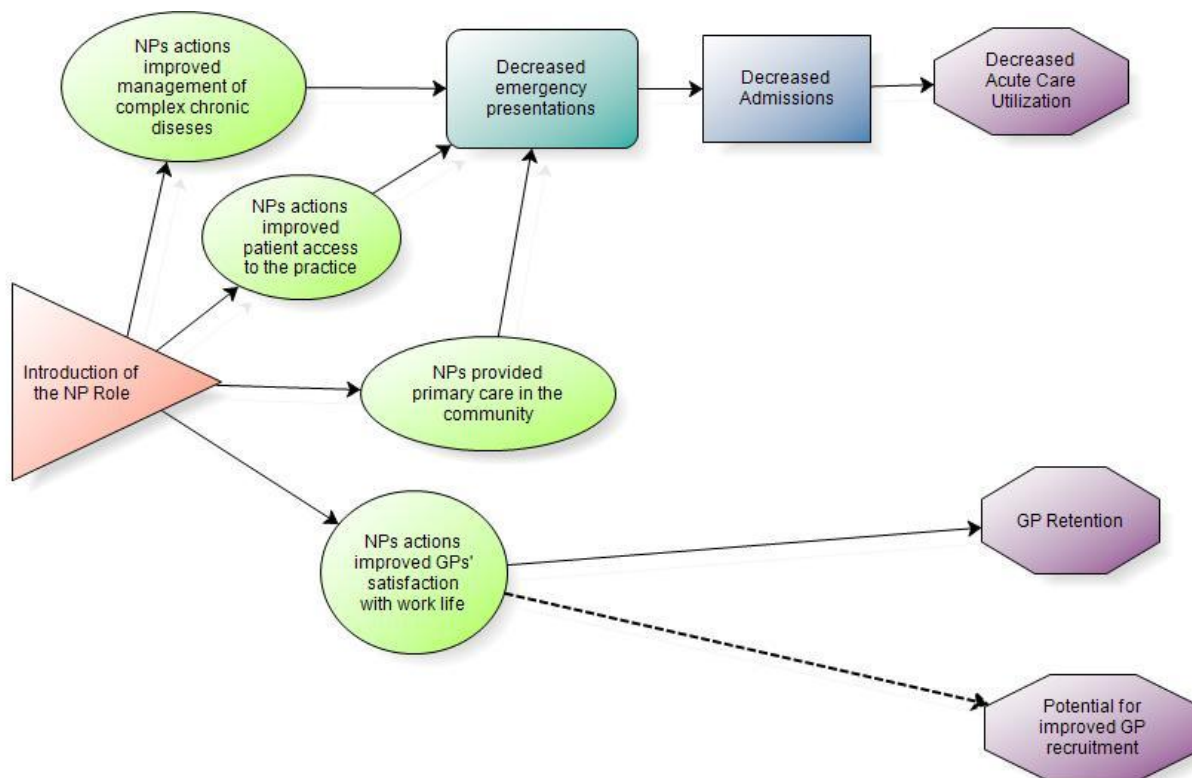
Another factor in the improved relationship between the practice and the community in Case 2 was the NP's sharing of knowledge and skills, and teaching community staff. This occurred as an offshoot to this NP's provision of primary care in the community. These participants stated that this teaching and transfer of knowledge was appreciated and well received by the community staff, and helped to improve the relationship between this practice and the community nursing services. However, this was only observed have occurred in this one case. Participants reported that overall these impacts resulted in greater co-ordination and integration between the practices or NP and services in the community, though the strength of this outcome varied with the NPs' level of involvement. The changes that have occurred across the cases at the health authority level are summarized in the next section.

Changes at the Health Authority Level

Across all cases, the introduction of the NP role was perceived by participants to have decreased their patients' utilization of acute care services, in particular emergency presentations and admissions to hospital. The findings from all cases also showed an increase in job satisfaction for the majority of GPs following the addition of the NP role. This improved job satisfaction was proposed by some participants, and in the literature (Chauban et al., 2010; Van Ham et al., 2006), to have a positive impact on retention and the potential for improved

recruitment of new practitioners to these sites. These impacts and outcomes, and the NP actions that created them, are depicted in Figure 20.

Figure 20. Cross-case Analysis - Changes at the Health Authority Level



--- (Dotted line) – This was a potential relationship that was not able to be substantiated in the cross case analysis.

Legend

Ovals (Green)	= Actions of the NPs
Rounded Rectangle (Green/Blue)	= Initial impacts of NP role
Square Rectangle (Blue)	= Impacts of NP role
Octagons (Purple)	= Outcomes from NP role

NP actions. The actions of the NPs at the health authority level were consistent across all cases and in the diagram represent a synthesis of many of the actions, impacts, and outcomes described at the previous levels. These include: (a) all the actions and impacts undertaken that improved the provision of care for those with chronic complex diseases, (b) all the actions that resulted in decreased wait times and improved access for patients at the practice, (c) the provision of primary care in the community for specific populations, and (d) all the actions that

led to improved job satisfaction for the GPs at the practice. These actions and impacts were initially described at the practitioner, practice organization, and community levels. Because these actions, impacts, and outcomes were the same across all cases, a table depicting similarities and differences is not needed with this analysis. The impacts and outcomes relating to these actions at the health authority level are presented in the next section.

Impacts and outcomes.

Decreased emergency presentations. Across all three cases there was a marked decrease in presentations to emergency when the number of occasions of service was compared from before the NP role was introduced (2007 or 2008) to either three or four years later (2011). Seven months of emergency presentation data, obtained from health authority records, were used to undertake these comparisons. Paired sample t-tests were conducted on the before and after data to evaluate the significance of the differences from the two time periods. Table 19 presents the results from across the cases in the number of emergency room presentations before and after the NP was introduced.

**Table 19. Cross-case Comparison of Emergency Presentations
Pre/Post NP Role Introduction**

	Case 1	Case 2	Case 3
Practice Volume 2007/2008*	3660	2500	1200
Total Number Emergency Visits 7 months 2007/2008	1880	1387	451
Mean # ER Visits/ month 2007/2008**	7.37 (SD 1.11)	7.95 (SD 1.35)	5.37 (SD .88)
Practice Volume 2011	4048	1850	1954
Total Number Emergency Visits 7 months 2011	1300	612	391
Mean # ER Visits/ month/2011**	4.64 (SD 1.30)	4.65 (SD 1.61)	2.86 (SD .58)
% decrease between 2007/2008 and 2011	37.5%	40.4%	46.8%
Mean decrease in visits**	2.74 (CI 2.20-3.27)	3.29 (CI 2.51-4.07)	2.51 (CI 1.81-3.22)
t score (df)	(20) 10.62	(27) 8.68	(6) 8.67
P value (two tailed) $p < .05$.000	.000	.000
Eta Squared	.85	.74	.93

* Case 1 Pre NP data was drawn from Jan – July 2008; Case 2 & 3 Pre NP data were drawn from Jan – July 2007.

** These calculations are standardized to represent the number of visits per 100 patients in the practice volume. ²⁶

In all three cases, statistically significant differences ($p = .000$) were found between the periods before and after the introduction of the NP role. The eta squared statistic represents the magnitude of the difference between the before and after means; in these cases from .74 and .93. According to accepted criteria (Cohen, 1988 as cited in Pallant, 2007) these are considered to be large effects, and indicated that there was a substantial difference between the number of emergency presentations before the introduction of the NP role and after.

Given that all three cases showed large and statistically significant decreases in the numbers of emergency presentations from before to after the introduction of the NP role, a one-

²⁶ SD = Standard Deviation; CI = 95% confidence interval

way between group analysis of covariance (ANCOVA) was used to compare the variability among the cases and determine if there were any statistically significant differences among the three cases. This analysis involved comparing the mean number of post-NP role emergency presentations from the three cases. The results of this ANCOVA analysis do not assess the impact of the NP role; however, they do evaluate whether any of the cases demonstrated significantly different results from the other cases while controlling for the pre-existing differences in the practices.

The following data were used as the variables in the ANCOVA calculations. The independent variables were each practice, and the dependent variables were the monthly mean numbers of emergency room presentations post the introduction of the NP role (2011). The monthly mean numbers of emergency room presentations before the introduction of the NP role (2007/2008) were used as the covariate to control for the pre-existing differences in the practices. All “means” used in all the ANCOVA calculations were standardized to the *mean per 100 patients in the practice*. Table 20 identifies the actual numbers of emergency presentations per month from the three cases, as well as the monthly means per 100 patients in the practice used in the ANCOVA calculations. These monthly means vary slightly from those used in the paired sample t-tests because they are based on the total practice, not individual GPs. This was necessary in order to have consistent sample sizes.

Preliminary checks were conducted to determine whether there was any violation of the five assumptions underpinning the use of ANCOVA; normality, linearity, homogeneity of the variances, homogeneity of regression slopes, and reliability measurement of the covariate. Histograms of the monthly mean numbers of emergency presentations did not demonstrate a normally distributed sample; however, according to Howell (2004) and Pallant (2007),

**Table 20. Cross-case Analysis Emergency Presentations
Pre & Post NP Role Introduction**
Actual Numbers of Presentations and Monthly Means per 100 Patients in Practice

	Case 1				Case 2				Case 3			
	2008		2011		2007		2011		2007		2011	
	Actual # ER Visits	Monthly Means*	Actual # ER Visits	Monthly Means*	Actual # ER Visits	Monthly Means*	Actual # ER Visits	Monthly Means*	Actual # ER Visits	Monthly Means*	Actual # ER Visits	Monthly Means*
Jan	262	7.16	160	3.95	174	6.96	81	4.38	46	3.83	54	2.76
Feb	256	6.99	161	3.98	189	7.56	85	4.59	69	5.75	66	3.38
March	298	8.14	220	5.44	204	8.16	82	4.43	68	5.67	45	2.30
April	258	7.05	177	4.37	211	8.44	77	4.16	57	4.75	52	2.66
May	280	7.65	187	4.62	222	8.88	105	5.68	79	6.58	76	3.89
June	254	6.94	226	5.58	173	6.92	90	4.86	70	5.83	53	2.71
July	272	7.43	169	4.17	214	8.56	92	4.97	62	5.17	45	2.30
Total	1880	7.37	1330	4.64	1387	7.95	612	4.65	451	5.37	391	2.86

* Monthly means per 100 patients in the practice.

analysis of variance (and covariance) are robust statistical procedures and this assumption can frequently be violated with relatively minor effects, especially if the distributions are similar and the sample sizes are equal. There was a linear relationship between the dependent variables and the covariates for all the cases as demonstrated through scatterplots. The homogeneity of variance was tested using Levene's test for equality of error variance; the results were not significant ($p = .60$) indicating that the level of error variance between the cases was equal. The slopes of the three lines obtained in the scatterplots used to test the linearity of the relationship between the dependent variables and the covariates were similar ($p = .89$), confirming homogeneity of the regression slopes. The measures of the covariates were assumed to be reliable from the data obtained from the health authority. After adjusting for pre-existing differences between the cases (the number of pre-NP role emergency presentations), there were no statistically significant differences between the cases on the mean numbers of post-NP role emergency presentations $F(2, 17) = 2.73, p = .094$, partial eta squared .24. The partial eta squared statistic represents the proportion of the variance in the dependent variables (mean numbers of post-NP role presentations) that can be explained by the independent variables (practices). According to accepted criteria (Cohen, 1988 as cited in Pallant, 2007) this was considered to be a large effect, and indicated that 24% of the variance in mean numbers of emergency presentations was explained by differences among the practices.

These results from this ANCOVA analysis indicated that there was no significant variation among the cases in their mean number of post-NP emergency presentations. This was an expected finding and indicated that the variability and differences that did exist among the three practices were not enough to be statistically significant and could be explained by the pre-

existing differences (e.g. demographics, levels of morbidity and chronic disease, different practitioners) among the practices.

Hospital admissions from emergency. A reduction in the number of hospital admissions from emergency presentations was also noted when the numbers from before the NP role was introduced were compared to three to four years after introduction. Paired sample t-tests were conducted on this before and after data to evaluate the significance of the differences between the two time periods. Table 21 presents the results from the cross case comparison of the before and after admission data.

Table 21. Cross-case Comparison of Admissions from Emergency Presentations Pre/Post NP Introduction

	Case 1	Case 2	Case 3
Practice Volume 2007/ 2008*	3660	2500	1200
Total Number Admissions 7 months 2007/2008	65	135	31
Mean # Admissions/month 2007/2008**	.249 (SD .198)	.644 (SD .476)	.368 (SD .125)
Practice Volume 2011	4048	1850	1954
Total Number Admissions 7 months 2011	19	20	6
Mean # Admissions/month/ 2011**	.067 (SD .022)	.130 (SD .084)	.044 (SD .019)
% decrease between 2007/2008 and 2011	73.6%	80%	88%
Mean decrease in admissions**	.183 (CI .095-.270)	.514 (CI .308-.721)	.324 (CI .220-.428)
t score (df)	(20) 4.33	(27) 5.10	(6) 7.65
P value (two tailed) $p < .05$.000	.000	.000
Eta Squared	.48	.49	.91

* Case 1 Pre NP data was drawn from Jan – July 2008;

Case 2 & 3 Pre NP data were drawn from Jan – July 2007.

** These calculations are standardized to represent the number of visits per 100 patients in the practice volume. ²⁷

²⁷ SD = Standard Deviation, CI = 95% confidence interval

In all three cases, statistically significant differences ($p = .000$) were found between the data from before and after the introduction of the NP role. The eta squared statistic represents the magnitude of the difference between the before and after means; in these cases from .48 to .91. According to accepted criteria (Cohen, 1988 as cited in Pallant, 2007) these are all considered to be large effects, and indicated that there was a substantial difference between the number of admissions occurring before the introduction of the NP role as compared to after.

These results from the statistical analyses on the admissions data indicate that large and statistically significant decreases have occurred across all three practices in the number of admissions from emergency presentations from before to after the NP role introduction. When these admission findings are added to the similarly large decreases in emergency presentations across the cases, it demonstrates a significant reduction in acute care utilization by the patients of these three cases following the introduction of the NP role.

To determine whether there was any significant variation or difference across the three practices in their mean numbers of admissions from emergency presentation after the introduction of the NP role a second one-way analysis of covariance (ANCOVA) was undertaken using the admission data from the three cases. In this analysis the independent variables were each practice, and the dependent variables were the monthly mean numbers of admissions from emergency presentations post the introduction of the NP role (2011). The monthly mean numbers of admissions from emergency presentations before the introduction of the NP role (2007/2008) were used as the covariates to control for pre-existing differences in the practices. Table 22 includes the actual number of admissions per month from the three cases and the monthly means per 100 patients in the practice used in the calculation of the ANCOVA.

**Table 22. Cross-case Analysis Admissions from Emergency Presentations
Pre & Post NP Role Introduction**

Actual Numbers of Admissions and Monthly Means per 100 Patients in Practice

	Case 1				Case 2				Case 3			
	2008		2011		2007		2011		2007		2011	
	Actual # Admits	Monthly Means*	Actual # Admits	Monthly Means*	Actual # Admits	Monthly Means*	Actual # Admits	Monthly Means*	Actual # Admits	Monthly Means*	Actual # Admits	Monthly Means*
Jan	7	.1913	3	.0741	18	.720	3	.1622	2	.1667	0	0
Feb	6	.1639	3	.0741	20	.800	3	.1622	5	.4166	1	.0512
March	9	.2459	2	.0494	24	.960	3	.1622	4	.3333	1	.0512
April	7	.1913	3	.0741	16	.644	2	.1081	7	.5833	1	.0512
May	21	.5738	3	.0741	26	1.040	3	.1622	5	.4167	1	.0512
June	8	.2186	3	.0741	16	.640	3	.1622	4	.3333	1	.0512
July	7	.1913	2	.0494	15	.6015	3	.1622	4	.3333	1	.0512
Total	65	.2493	19	.0674	135	.6442	20	.1302	31	.3683	6	.0442

* Monthly means per 100 patients in practice

Preliminary checks were conducted to determine if there was any violation of the five assumptions underpinning the use of ANCOVA; normality, linearity, homogeneity of the variances, homogeneity of regression slopes, and reliability measurement of the covariate. In this situation, the monthly mean numbers of admissions from emergency presentations for each practice did not demonstrate a normally distributed sample; however, there was some similarity in their distributions. There was a linear relationship between the dependent variables and the covariates for all the cases, the Levene test for equality of error variance was not significant ($p = .87$), homogeneity of the regression slopes were confirmed ($p = .84$), and the health authority data were again assumed to be reliable. After adjusting for pre-existing differences between the cases (the number of pre-NP role admissions from emergency presentations), there was a statistically significant difference noted between the cases on the mean numbers of post-NP admissions from emergency presentations, $F(2, 17) = 25.25, p = .000$, partial eta squared $.75$. According to accepted criteria (Cohen, 1988 as cited in Pallant, 2007) this was considered to be a large effect, and indicated that 75% of the variance in mean numbers of admissions from emergency presentations could be explained by differences between the practices.

To determine which of the practices were responsible for the significant difference in the mean numbers of admissions, additional ANCOVAs were performed. The results of these ANCOVAs are summarized in the Table 23.

Table 23. Comparison of ANCOVAs between Cases

Comparison	Case 1 - 2	Case 1- 3	Case 2 – 3
F statistic (df)	15.49 (1,11)	11.34 (1,11)	24.56 (1,11)
P value ($p < .05$)	.002	.006	.000
Partial Eta Squared	.59	.51	.69

From these results there were significant differences in the mean numbers of admissions per month when each case was compared with the other cases. In each case comparison, more than half (51-69%) of the variance in the mean numbers of admissions were explained by differences between the cases (practices). This would indicate that even though differences between the groups were controlled for by using their pre- NP admission rates as a covariate, there was still a significant variation between each of the practices. This is not an unexpected finding given that each of the practices had added a NP role with a different focus. These foci (marginalized individuals and youth; seniors and frail elderly; women's reproductive health and chronic disease management) represented patients of diverse ages and levels of morbidity; they would be expected to have different needs for hospital admission. The absence of this statistically significant finding in the comparisons of the mean number of emergency presentations among the cases could possibly be explained by the fact that a decision to present to emergency is generally made a patient and may not reflect the need for this level of acute care service; however, the need for hospitalization as a result of the emergency presentation is made by a physician and would be expected to reflect more accurately the need for this level of service.

Across the cases, similarities were noted in the actions and impacts of the NP role that participants identified as having reduced the need for patients to use emergency services, and subsequently require hospitalization. These included: (a) increased patient access to the primary care services; (b) improved patient education and preventive health teaching which increased patient engagement and involvement with their own health care; and (c) improved management of chronic diseases which was claimed to decreased primary care visits and the number of exacerbations of illness requiring hospitalization. While this study cannot directly relate the outcome of decreased acute care utilization to these other actions and impacts, the triangulation

of these findings with the qualitative data suggests that these outcomes are likely to be related to these impacts of the NP role.

However, I acknowledge that there may be other confounding factors that could also have influenced the decrease in acute care utilization. These include: (a) the patients that joined or left the practices may have been different than the original practice patients (older, younger, healthier); this may have changed the overall demographic profile of the practices and therefore the utilization of acute care services; (b) there may have been other changes in the practice, or in the provision of care by the other practitioners unrelated to NP role introduction that were not identified in this study, but might have affected the use of acute care services; or (c) other events in the community not identified in this study might have affected the utilization of acute care services by the local population. However, the combination of the qualitative and quantitative findings from the three cases strengthens the conclusion that the NP role has played a significant part in the decrease in use of acute care services.

Practitioner retention and recruitment. In all cases, the majority of practitioners indicated that they felt the NP role has improved their job satisfaction. This improved job satisfaction was acknowledged across all cases to have had a positive impact on these practitioners' desire to stay in their work environment. It was also noted that practitioners at other practices had expressed an interest in having a NP work in their practice; however, this was not confirmed with these practitioners. Although the impact on retention for the existing practitioners was clear based on self-reported data, there was no evidence that the existence of the NP role had any impact on recruitment of new practitioners to these practices. In two cases, the practice had successfully recruited a new practitioner during the time of this data collection;

however, no data were collected from these practitioners to identify whether the existence of the NP role had any impact on these recruitments. In the other case, the practice had been trying for a number of years, unsuccessfully, to recruit additional GPs. It was acknowledged that there was some resistance to collaborative practice by some GPs, while others were sold on the concept and style of practise. Without further investigation it remains unknown what impact the NP role, and interprofessional collaboration, has on recruitment of new GPs to fee-for-service practices.

Contextual Factors Influencing the Impacts and Outcomes of the NP Role

In the analysis of the data in this study, I identified that contextual factors affecting the primary care environment influenced the impacts and outcomes of the NP role in each of the cases. Although the specific features of these contextual influences were different across the three cases (see individual cases and p. 223), the types of factors observed to be important were similar across the three cases. It is acknowledged in the literature (McCormack et al., 2002) that the influences of contextual factors are complex and multifaceted because they include a potentially infinite number of factors, all with possibly interconnected relationships: economic, social, political, fiscal, historical, psychosocial, community, cultural, and organizational. In primary care settings, these contextual factors have been identified by Hogg and colleagues (2008) as occurring from three levels: the health care system, the practice context, and the organization of the practice setting and its individual and collective ability to provide services. In exploring the influences of contextual factors in this study, I have re-categorized Hogg and colleagues' three levels of influence using the four levels of the conceptual framework: practitioners, practice organization, community, and health care system. The following

discussion identifies the types of contextual factors that I identified as being important influences at each of these four levels.

Factors that influenced the impact of the NP role at the practitioner level were predominantly the personal and professional characteristics and experiences of the individual practitioners, including the NP. The individual's personal characteristics are affected and mitigated by the professional knowledge and philosophical approach that underpins the practice of each type of practitioner. The NP's professional knowledge base, values, and beliefs bring a holistic approach to their care. This holistic approach includes a focus on communication, teaching, health promotion and illness prevention. These characteristics can affect an individual's style of interpersonal communication and relationships, desire to work with others, and their openness and flexibility to change. Individuals can also be affected by their previous experiences with change, working with other health care professionals and interprofessional collaboration, and personal expectations. These individual characteristics exerted their major influences at the level of the practitioners in the primary care practice; however, they were also noted to influence the context at the practice organizational, community, and health system levels.

Factors identified to influence the impact of the NP role at the practice organizational level included: the structure of the practice; internal leadership and culture; and the organization's response, both historically and currently, to opportunities, changes, and challenges. The practice organizational level was also influenced by some community level factors, in particular the community's need for primary care services. Other community level

contextual factors identified included the type and nature of the community, the demographic profile of the community members, and its economic situation, interests and priorities.

Contextual factors at the health care system level that influenced the primary care practice included the method of physician remuneration, relationships with government structures at the provincial level and the health authority level, and the impacts of programs and initiatives controlled by these levels of authority. Table 24 identifies the main contextual factors at the practitioner, practice organization, community, and health service levels, and then indicates whether the factor had a positive (+) or negative (-) influence in each of the three cases. If the influence changed over time, it is initially identified with the early response, then the symbol → is used to indicate the change that occurred over time. Some factors have both symbols (- /+) indicating that the responses of different individuals created differing effects on the NP role; the more dominant response presented first. In some cases, the factor did not apply to a particular case and is left blank. The fee-for-service payment system factor is also left blank across the cases as it was a given feature of this pilot project.

The most important contextual factors that influenced the impact of the NP role were found at the levels of the individual practitioner and the practice organization. At the practitioner level, the effects of some factors varied between different individuals in the practice. This meant that the same factor could contribute both positively and negatively to the impacts of the NP role. As an example, practitioners who were more interested in a shared approach to patient care created a positive influence and this helped develop improved interprofessional communication, while those who demonstrated resistance to change, lack of understanding of the role, and had divergent expectations created negative influences and this impeded the development of

Table 24. Cross-case Analysis - Contextual Factors Influencing the Impacts of the NP Role

Contextual Factors		Case 1	Case 2	Case 3
Practitioner	Previous experience with interprofessional collaboration, in particular working with nursing roles	-	+	+
	Support/resentment for the NP role	+/-	+/-	+
	Desire/capacity/commitment to change	-	+	+
	Understanding of the scope of practice of the NP role	-	+	- → +
Practice Organizational	Shortage of primary care practitioners	+	+	+
	Too many patients requiring primary care	+	+	+
	Workplace culture and relationships	+	+	+
	Practice leadership	+/-	+	+
	Capacity & commitment to change	+	+	+
	Support for the NP role	+	+	+
	Change from siloed practise → group practise	-	+	+
Community	Need for community-based primary care	+	+	+
	Underserved populations	+	+	+
	Need for improved reproductive health care for women			+
	Support by community for increased education	+		+
	Awareness/acceptance of NP role by community staff & services	+	- → +	- → +
Health Care System	FFS payment system for GPs			
	Health Authority support for role	+	+	+
	MoHS initiatives in primary care Integrated Health Networks		+	+

improved interprofessional communication and collaboration. In some cases, the effects changed over time, e.g. the lack of understanding of the NP role initially contributed negatively to the impact of the role; however, over time the understanding by the individual practitioners improved eventuating in a more positive impact.

These contextual factors and their influences were interconnected, and their impacts could be experienced across multiple levels. The practitioner level factors of interpersonal relationships, intraprofessional and interprofessional communication, and collaboration between practitioners influenced whether the practice was able to make the change at the practice organizational level from siloed to group practice. At the practice organizational level, the shortage of primary care practitioners, and too many patients requiring services (which could also be represented as a community level factor, i.e. need for improved or additional services), were clearly the most influential factors that affected the acceptance of the NP role and its subsequent impacts. Changes in the workplace culture, relationships, and teamwork were affected by the openness and acceptance of the practice staff (individual level factors), personal characteristics of the NP, and the level of mutual support that existed among the NP and the practice staff.

At the community level, the need for improved or additional services and education exerted a positive influence, while resistance and lack of understanding of NP role and its responsibilities initially created a negative influence. When this resistance changed to support and understanding for the role among practitioners this created a positive influence. Support for the NP role from the health authority was clearly the most important factor at the health system

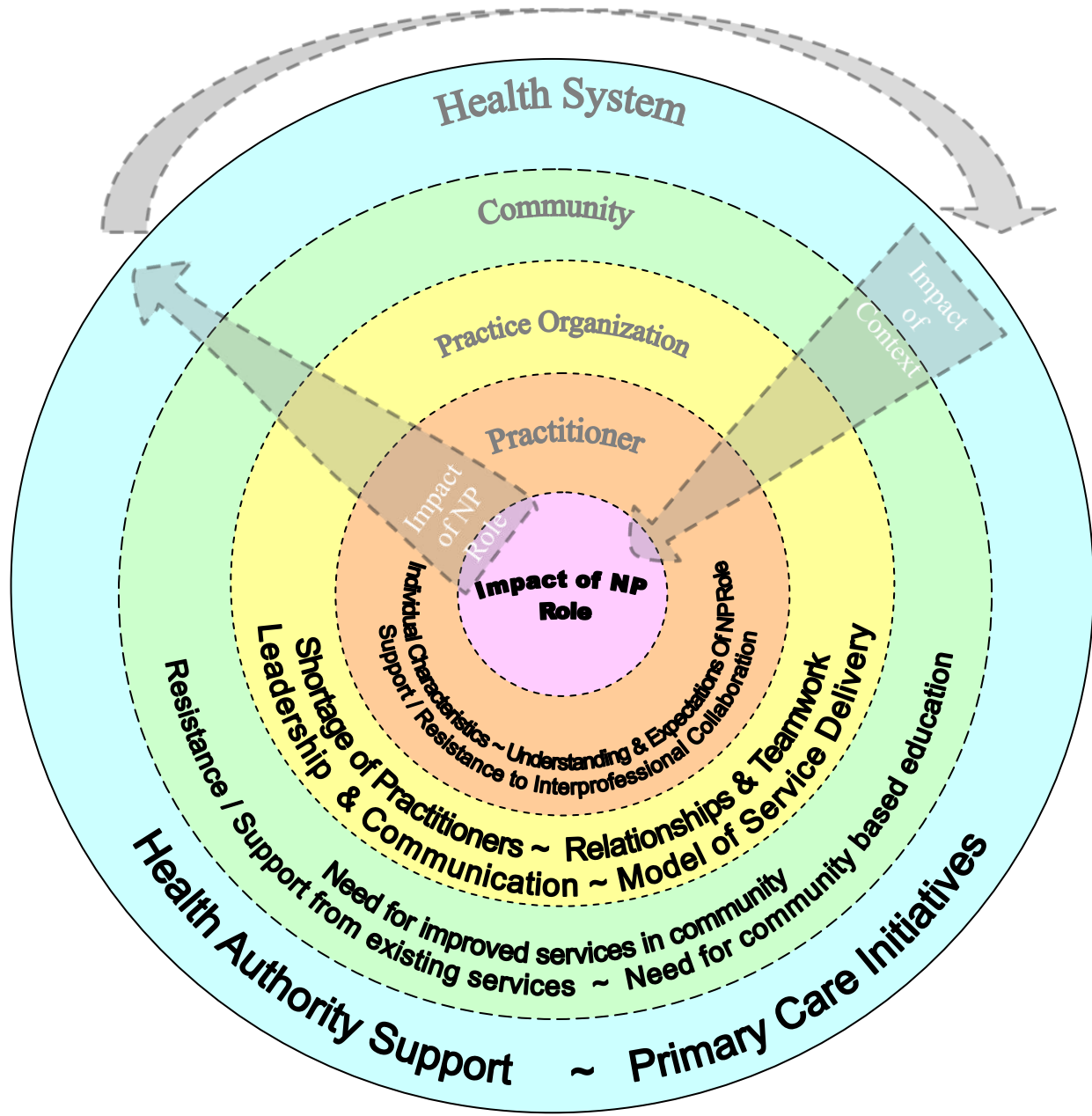
level. This support was demonstrated by flexibility at the health authority level to allow the NP role to adapt to accommodate changing primary care initiatives coming internally from within the health authority and externally at the provincial level. The environment created by the system of remuneration system for the GPs, fee-for-service payments, influenced how the practitioner and their business organization responded to aspects of the NP role; however, this factor was not attributed either a positive or negative influence as it was one of the paramount features underpinning the nature of this pilot project.

In addition to these contextual factors being associated and interconnected among the four levels of analysis, a cyclic situation exists wherein these contextual factors influence how the NP role is implemented, this in turn influences the outcomes of the role, and then these outcomes then influence the context again. This cyclic and reciprocal pattern occurs at each level of the influence and activity as well as across the multiple levels and is a fundamental characteristic of an ecological perspective.

The most significant of these contextual factors are depicted in the following ecological framework (Figure 21). This ecological framework appears similar to the conceptual framework identifying the outcomes of the NP role at the different levels; however, this particular framework displays the factors that impacted on the NP role at the four levels of analysis rather than the outcomes that occurred at each of these levels. These two frameworks are closely connected but different. In this diagram these factors have been identified at the principal level of their influence; however, as these factors are interconnected and their impacts are experienced across multiple levels, this is depicted in the diagram by the dotted lines between the levels and

the embedded arrows indicating that the influences can move in a circular pattern with the NP role influencing the context and the context influencing the NP role.

Figure 21. Cross-case Analysis - Contextual Factors Influencing the Impacts and Outcomes of the NP role



Summary of Key Findings from Cross-Case Analysis

The findings from the cross-case analysis identified and described the enacted role of the NP in three fee-for-service primary care practices, and revealed the following actions, impacts, and outcomes associated with the introduction of the NP role in this setting.

NP role components. The NP role was identified to have four main components: direct primary care, educational, administrative and managerial, and research activities. The major focus was on primary care. Educational and administrative/managerial activities represented the next focus; research activities were present to a limited extent. Within these components there was variation in the specific characteristics of each NP role as they were shaped by the individual, patient, community, and system factors affecting each setting.

Actions, impacts, and outcomes. The impacts and outcomes associated with NP role introduction, and the actions of the NP that created them, are listed below. They are presented as they relate to the four levels of relationships: practitioners, practice organization, community, and health system. These impacts and outcomes were observed to have occurred in at least two of the three cases, though not necessarily the same two cases.

Practitioner impacts and outcomes.

1. Improved provision of patient care. This was the result of the following actions and initial impacts of those actions:
 - a. NPs were able to have longer appointments times.
 - b. NPs provided a new and different expertise.

- c. NPs demonstrated a different way of practising (more holistic and comprehensive, engagement with patient concerns, patient health teaching and health promotion)
 - d. NPs demonstrated more community knowledge.
 - e. Improved patient education and preventive teaching.
 - f. Improved patient knowledge that increased patient engagement and partnership in their care.
 - g. Improved chronic disease management.
2. Practitioner's focused on their personal strengths, expertise, and/or preferred areas of practice.
 3. Increased shared responsibility for care, interprofessional communication, collaboration and teamwork.
 4. Improved job satisfaction.

Practice organization impacts and outcomes.

1. Increased patient access to the primary care services. This was the result of:
 - a. Addition of new patients or retention of existing patients by the practice.
 - b. Decreased wait times for appointments for patients.
 - c. Increased provider options for patients.
2. Improved workplace culture, organization, and staff job satisfaction. This was the result of:
 - a. Information transfer to the practice staff which enhanced their ability to participate as practice team members.
 - b. Improved communication, relationships, and teamwork with the practice staff.

- c. Practice efficiency was enhanced through NP involvement in practice management issues.

Community impacts and outcomes.

1. Improved access to primary care in the community. This occurred through:
 - a. Increased provision of primary care and drop-in services in the community.
 - b. Access for harder to serve populations.
2. Improved access to health education in the community. This occurred through:
 - a. Increased health teachings for patients and population.
3. Improved linkages, co-ordination, and integration between primary care practices and community level health services and other community services.
4. Improved patient and community satisfaction.

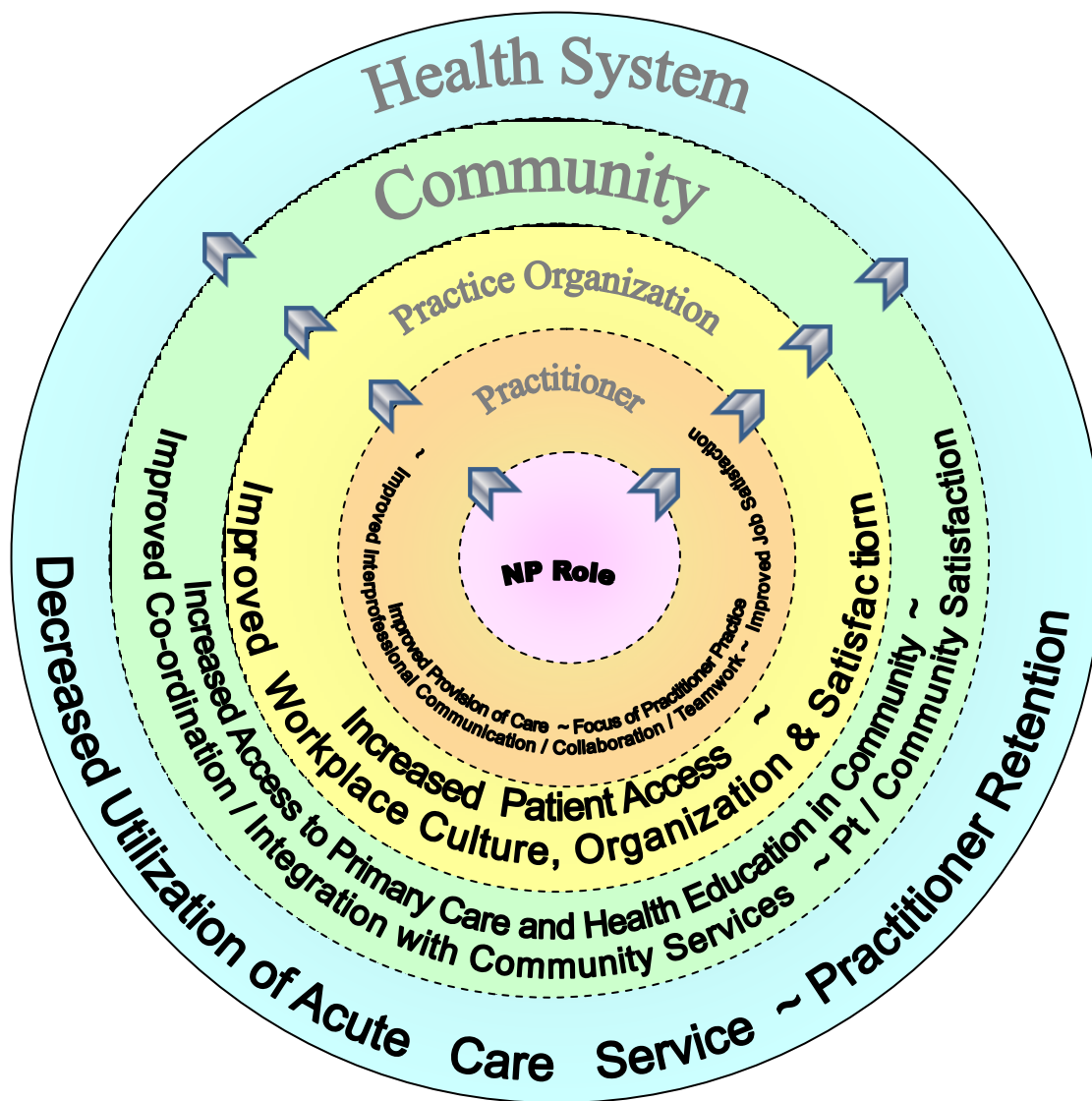
Health system outcomes.

1. Decreased acute care utilization. This occurred through:
 - a. Decreased emergency presentations by patients of the practices.
 - b. Decreased hospital admissions from emergency presentations.
2. Improved GP retention. This occurred through:
 - a. Increased desire of GPs to remain in their current practice setting.

Conceptual Framework

The final version of the conceptual framework depicts these impacts and outcomes from the cross-case analysis (Figure 22).

Figure 22. Final Conceptual Framework



In this conceptual framework the lines between the levels are now dotted reflecting the interconnected relationships that exist among the outcomes at different levels; outcomes at one

level create outcomes at another level. For example, improved provision of patient care at the practitioner level created increased patient access at the practice organization level; this then resulted in improved patient and community satisfaction, and decreased utilization of acute care services at the health system level. The arrows between the levels indicate that the predominant direction of the movement of the impacts and resulting outcomes is from the NP role in the centre of the framework, to health system level at the perimeter of the nested layers of relationships. This conceptual framework identifies only the key impacts and outcomes at each particular level. The relationships between the actions of the NPs and the initial impacts, impacts and outcomes are more completely detailed in the diagrams depicting each of the four levels. These were presented earlier in this chapter in Figure 17 p.222, Figure 18 p.237, Figure 19 p.244, and Figure 20 p.249.

Relating the Study Findings to the Propositions

The following propositions were developed from the literature to guide the data collection and analyses.

1. The enacted role of the NP in fee-for-service practices will have three foci.
 - i. Individual and family focused direct care activities will be the major focus.
 - ii. Population focused activities will result in an increased connection between the primary care practice and the health needs of the community, and new linkages to health-related community organizations will be established.
 - iii. Professional practice activities will result in increased educational and research activities in the practice, and changes in the administrative functioning of the practice (Martin-Misener, 2006; Reay et al., 2006).
2. The introduction of the NP in fee-for-service practices will result in improved chronic disease management for the population served by these practices (Chorney & Clark, 2009; Russell et al., 2009).
3. The introduction of the NP in fee-for-service practices will result in improved access to the practice, and a reduction in the number of visits to acute care services, for the population served by the practice (Chorney & Clark, 2009; CHSRF, 2010; Reay et al., 2006).

The results from this cross-case analysis supported all of these propositions in the following ways.

The enacted role of the NP was found to have the same three foci as identified in the first proposition; however, they were described using different categories in this study. This study

described seven types of role activities that were classified into four main categories: primary care, educational, administrative and management, and research. These directly reflected the proposition's three foci in the following manner. Direct primary care was the major focus of all of these NP roles. This direct primary care was both individual and family focused, and was undertaken in both the practice setting and the community setting. Population focused activities from the three cases included community-based education and drop-in clinics for preventative screening. The provision of both primary care and education in the community created new, direct linkages between the primary care practice and the health needs of the community. Professional practice activities undertaken across the three cases included teaching and mentoring of other health professional students, practice management activities, and a leadership role in the regional primary care practice organization and the NP professional association. Involvement in some research activities also occurred across all cases.

Improvements in chronic disease management were identified by participants to have occurred in two cases. Case 3 in particular, claimed that their patients were now meeting the target indicators for appropriate management of chronic diseases, required fewer visits to the practice, and had fewer hospitalizations for exacerbations of disease processes. Fewer visits for exacerbations of chronic disease were also noted to have occurred in the quantitative data from Case 2.

Improved access to the practice, and a reduced number of acute visits for the patients of these practices occurred in all cases following the introduction of the NP role. All cases experienced a significant decrease in wait times for patient appointments, as well as increasing their patient volume by between 400 and 800 patients. A statistically significant and large

decrease also occurred in the number of patient visits to emergency, and admissions to hospital, following the introduction of the NP role.

The results of this data analysis from the within case and cross-case analyses have demonstrated many important outcomes that can be associated with the introduction of the NP role into fee-for-service primary care practices. Some of these findings are consistent with the existing literature; other findings go beyond the existing literature and provide new knowledge about the impacts and value of the NP role in this setting. The next chapter will discuss these results, the strengths and limitations of this study, and the contributions it makes to further the knowledge and understanding of the NP role in primary care settings, particularly fee-for-service practices.

Chapter 9 Discussion and Implications

This chapter presents the discussion and interpretation of the study findings, and situates these in the context of what is already known about the NP role in primary care. The strengths and limitations of the study are presented, along with implications for policy, practice, and research. The purpose of this mixed methodology case study was to describe, understand, and to some extent explain the changes that occurred when a NP is added to a fee-for-service primary care practice. The findings from this study illustrate the enacted role of the NP in these practices, and the impacts and outcomes experienced by the practitioners, the practice, the community, and the health system as a result.

Situating the Findings in the Literature

NP role. This study found that the NP role in fee-for-service primary care practices was enacted with four types of activities: primary care, education, administrative and management, and research; and identified role proportions for each of these activities. These activities reflect both the characteristic dimensions identified by CNA for the NP as an APN role (CNA, 2008, 2009b), and the expected national and provincial competencies (CNA, 2010; CRNBC, 2010b). Consistent with the findings of other studies (de Guzman, Ciliska, & DiCenso, 2010; DiCenso et al., 2003; Koren et al., 2010; Martin-Misener, 2006; Martin-Misener & Crawford, 2010; Reay et al., 2006; Sangster-Gormley, 2011; van Soeren et al., 2009), primary care was the predominant activity and accounted for 80 to 90% of NP time in this study. This is higher than was found in other studies. Other recent Canadian studies in which role proportions are described include the 2002, 2005, and 2008 tracking studies of the development of the NP role in the PHC system in Ontario (DiCenso et al.; Koren et al.; van Soeren et al.), and the Nova Scotia practice patterns study (Martin-Misener & Crawford). The Ontario studies included some fee-for-service practice

sites (10 to 20% of data); however, it is not clear that the Nova Scotia study did. These other studies found direct primary care to represent from 70 to 80% of the role with administrative, teaching, research and scholarly, and non-nursing tasks making up the remainder; however, these studies provided little information about these other activities. The findings from this study indicate that the NP role in the fee-for-service setting is more focused on direct patient care than in other settings, therefore less time is available to devote to the other dimensions of the role. However, this conclusion is based on a small number of cases and would need to be confirmed in a larger study involving more sites. This finding is likely to be a result of the nature of the fee-for-service environment where the remuneration is based almost exclusively on providing direct patient care; this is possibly influencing the extent to which the other dimensions of the NP role are able to be carried out. If this is the case, then this may have implications for how NP roles are implemented in the fee-for-service context; there may need to be some agreement put in place to ensure that appropriate amounts of time are allocated to all the expected dimensions of the APN role.

The extent of the other dimensions of the NP role varied with the individual practitioners in the study. This variation is characteristic of different enactments of the NP role because they are designed to meet a wide variety of individual and population focused needs (CNA, 2008; Pulcini, Jelic, Gul, & Yuen Loke, 2010). While these other role components are referred to in the literature as expected dimensions of the NP role (Bryant-Lukosius & DiCenso, 2004b; Hamric, 2005), there has been little consistency in how data relating to them are collected. This makes comparison of this study's findings with other studies difficult. However, when these findings are compared with the expected NP competencies from CRNBC (CRNBC, 2010b) and the CNA NP core competency framework (CNA, 2010), it is evident that the majority of all

expected competencies are being met. The addition of this study's specific data on role proportions provides insight into how the distribution of the dimensions of the role can occur in some fee-for-service settings and identifies some potential limitations that this setting may create for full enactment of all the characteristics and competencies of the APN role in Canada.

The direct primary care provided by these NPs exemplifies the diversity of needs that can be addressed by the role. These NPs had both the typical family practice clientele that has been reported in other primary care NP studies (DiCenso et al., 2003; Koren et al., 2010; van Soeren et al., 2009), and an additional focus specific to the interests of the NP and the needs of the population. Given that these NPs were embedded in the main stream primary care delivery system for this province, fee-for-service family practice, the addition of patients from a specific focus was unusual for this setting. These specific foci included harder to serve populations. Wong and colleagues (2009) noted that primary care services for these harder to service populations in BC are normally provided by community health centres specific to these groups and that these centres are usually dependent on this population being of sufficient size to warrant their own services. This can create problems for the provision of these primary care services to underserved population groups in smaller rural and remote communities where the required population density does not exist.

The successful inclusion of these primary care services within the main stream primary care delivery system provides an important contribution to the knowledge and understanding of how services can be delivered to these populations, particularly in rural and remote locations. This mixing of primary care services for the typical family practice clientele with harder to serve populations had a second benefit as well. As identified in one case in this study, it helped

prevent practitioner “burnout” by creating a more diverse patient population with a variety of needs, rather than just the higher needs patients from the harder to serve population.

A community aspect to the NP role occurred in all cases. The inclusion of a community focus in their practise is acknowledged as an expected part of the primary care NP role (CRNBC, 2010b; DiCenso et al., 2003; Martin-Misener, 2006; RNABC, 2003). In this study, this included community-based delivery of both direct primary care and health education for practice patients and other members of the public. This represented from 10 to 40% of NP time. This is higher than reported in other studies; the Nova Scotia study found slightly less than 10% of NP time was spent in the community (Martin-Misener & Crawford, 2010) and earlier studies had even less (Holcomb, 2000). Some of this increased community component was a direct result of the specific focus of the NP role in Case 2. In the other cases, the community component was the product of the interest and commitment of the particular NPs. This was facilitated by the fact that these NPs were salaried health authority employees. If they had been paid in the same manner as the physicians, or their payment was coming directly from the fee-for-service practice itself, it is likely that they would have spent less time in the community because this focus does not benefit the business side of the practice. The inclusion of this community focus within the role of these NPs had the benefit of providing a direct link between the practice and the community in which it was situated. This will be discussed further in the section on impacts and outcomes at the community level.

The NPs in this study all identified an education component to their roles. In each case, this component had a different focus depending on the interests and expertise of the particular practitioner. This variation in focus spanned from practice-based patient education sessions, to

informal chats at group-specific events in the community, to formalized health education sessions available to community members at large. In Case 3, this activity represented an important part of how the NP, and the practice, had chosen to enact the role in their setting. The education component is an important practice domain in APN roles (Bryant-Lukosius & DiCenso, 2004b; Hamric, 2005) and is an expectation in the competencies of a NP (CNA, 2010; CRNBC, 2010b; RNABC, 2003); however, little attention appears to have been focused on it in other studies. None of the Ontario tracking studies mention an educational component to the role, other than in a combined category identified as teaching, scholarly, and research work (DiCenso et al., 2003; Koren et al., 2010; van Soeren et al., 2009). Martin-Misener (2006), in her study to define a role for PHC nurse practitioners in rural Nova Scotia, identified that “an unexpectedly large number of health care providers indicated research, education and administrative activities were ‘not applicable’ to their setting” (p.135), and only 19% of participants indicated that NPs should be involved in organizing community education. These are surprising findings given the expected characteristics and competencies for the NP role in Canada. Recognizing that NPs are undertaking educational activities, and describing the particular types of education being provided is one contribution of this study. Study participants also reported that these educational activities were having a positive impact on patients and the larger health care system; this is another important contribution of this study.

Activities undertaken in the area of administration and management were generally related to leadership and the initiation of change. This occurred at both the practice and community levels. These leadership and change agency activities also reflect characteristics expected in the NP role (Bryant-Lukosius & DiCenso, 2004b; CNA, 2010; CRNBC, 2010b; Hamric, 2005; RNABC, 2003). The involvement of all the NPs in the regional Division of

General Practice alongside their medical primary care colleagues, and the decision of one of them to take on a leadership role in this organization, represented an important step in promoting the role of the nurse practitioner. The proactive stance demonstrated by these NPs to help resolve important issues (such as the provision of methadone) affecting all the primary care practices in the region was valued by their colleagues, and demonstrated the capacity of NPs to address complex problems involving challenging sub-groups within the population. The involvement of NPs in these types of fora (Divisions of General Practice) is not unique; however, it is not known whether any of the other BC NPs have the same high level of involvement demonstrated by this particular group.

The research component of the NP role represented the smallest proportion of the enacted role (1 to 2.5%). Involvement in this research project represented the first direct undertaking into this area for most of the NPs. However, the NPs did acknowledge that they do incorporate research findings into their practise on a regular basis through their involvement in a formalized continuing clinical education program conducted by a university. This small proportion of the role is an expected finding and consistent with the findings of other studies (Holcomb, 2000; Schreiber et al., 2003; Martin-Misener, 2006). In the 2009 Nova Scotia NP practice patterns survey, research activities did not receive a mention among the eight role activities identified by the participants, despite 50% of this study's participants having graduate level education (Martin-Misener & Crawford, 2010). Research activities are included together in a category identified as teaching, research and scholarly in the Ontario studies making it impossible to determine the proportion of time devoted just to research (Koran et al., 2010; van Soeren et al., 2009). Although the research dimension of the NP role is an accepted competency (CNA, 2010; CRNBC, 2010b) and one of the reasons given for the need to have graduate level education for

the role (Schober & Affara, 2006), it is recognized that APNs face a dilemma as to how to fit research related activities into a schedule of complex and intense practice responsibilities (Kraus, 2000; Schober & Affara).

In this study, all the NPs expressed the view that their multiple other responsibilities, and associated time pressures, took precedence over the research component. This finding fits with the earlier finding that the amount of time spent in direct patient care is higher in this setting than in other settings, therefore the time available for all the other role dimensions must be considerably limited. This brings into question whether all the competencies required of NPs are being fully demonstrated in this work environment, or if this is even an appropriate expectation for this setting. This is obviously a controversial statement and one that will attract debate. However, this issue may need to be further explored, especially if the utilization of the NP role in the fee-for-service setting is expanded.

Impacts and outcomes associated with the introduction of the NP role. As identified in the literature review associated with this study, little data existed about the specific impacts and outcomes associated with adding a NP to fee-for-service primary care practices. A number of studies have indicated that there are positive contributions and outcomes from the introduction of the role into primary care in general (Chorney & Clark, 2009; CNS, 2001; DiCenso et al., 2003; Reay et al., 2006; Russell et al., 2009); however, these authors recommended that the nature of these contributions, and the reasons behind them, need to be better understood. In addition, it was important to determine whether these outcomes could be achieved in the fee-for-service setting. The key impacts and outcomes identified at each level of the study's conceptual framework (p. 271) are discussed in the following section.

Practitioner level outcomes. The introduction of the NP role into these fee-for-service practices resulted in improved overall job satisfaction of the majority of their practitioner colleagues in these practices. This outcome was the result of three impacts: improved provision of care to patients, changes in the day to day activities of the other practitioners, and increased interprofessional collaboration and teamwork among the practitioners. These impacts were also reported to have improved patient outcomes in these practices. Because this study did not include any patients as participants, confirming this was not possible; however, numerous participants, including GPs, other practitioners, and office staff, and documents included in this study, provided reports of positive outcomes for these patients that were attributed to the introduction of the NP role. These reports were taken as accurate; however, this is a limitation of this study.

Improvements in the overall provision of patient care as a result of collaborative practice between NPs and GPs have been acknowledged in the literature (Laurant et al., 2009, 2010). This study also found improved provision of care as a result of the NP's actions in these collaborative practices. The NP actions that were found to result in improved patient care in this study are consistent with existing findings in the literature. They included: (a) more time spent with patients (Dierick-van Daele, Metsemakers, Derckx, Spreeuwenberg, & Vrijhoef, 2009; Horrocks et al., 2002; Kleinpell, 2009; Laurant et al., 2004; Sangster-Gormley, 2012), (b) more comprehensive and holistic care (CNS, 2001), (c) increased patient education and teaching (Kinnarsley et al., 2000; Laurant et al., 2009; Martin-Misener et al., 2009), (d) increased knowledge about and use of community resources (Reay et al., 2006), (e) increased patient engagement and partnership (Sangster-Gormley, 2011), and (f) improved chronic disease management (Chorney & Clark, 2009; Ohman-Strickland et al., 2008; Russell et al., 2009). This

study has shown that these key features of NP practice can also occur in collaborative practice with GPs in the fee-for-service context.

The fee-for-service model for the delivery of primary care services is volume driven with time-limited visits for each patient. In the current fee-for-service environment, a normal primary care visit is often referred to as the *10 minute visit*, and frequently defined by the practitioner's requirement of *one problem, one visit*. This approach to primary care has been consistently identified as inadequate for the growing number of patients that have multiple co-morbidities, and need teaching, counselling, health promotion advice, and the development of self-help abilities (DiCenso et al., 2003; Martin-Misener et al., 2010b). The fee-for-service model was acknowledged by the participants in this study to be unlikely to change in the BC context in the foreseeable future. Given this situation, these participants identified that the extra time afforded through the addition of the NP role was the greatest means to enhance patient care within this care delivery model. This extra time was made possible by the funding of the NP role by the health authority. It was predominantly through this extra time that many of the other features of the NP role that were beneficial to patients and other practitioners became possible.

Acknowledging the significant benefits obtained by this extra time in this GP/NP model of collaborative practice is a valuable contribution. However, it is equally important to understand that there are costs associated with this extra time and these would have to be fully investigated to determine whether this model of care is sustainable, represents the best model, or there are alternate models that can be equally effective.

The introduction of the NP role created opportunities for the other practitioners in the practice to change the way they carried out their practise. These changes included: the

practitioners re-directing their service provision to focus on their strengths, expertise, and preferred areas of practise; and the sharing of knowledge and skills among the practitioners to develop shared patient care. This resulted, in most cases, in the GPs and NP developing an interprofessional collaborative practice model of patient care similar to that described by Way and colleagues (2000, 2001). Consistent with Way et al.'s model of collaborative practice, there was recognition of the strengths and integrity of each partners approach to care, as well as the equal nature of their contributions. In this study, the key to this interprofessional collaborative practice was identified to be effective interprofessional communication: This finding was also consistent with the conclusions of Jones and Way (2004). Other studies have also demonstrated that NPs can have an impact on the practise of other providers, both nurses and physicians (Reay et al., 2006; Schreiber et al., 2003).

In two of the cases in this study, the development of interprofessional collaborative practice fostered the move away from the more common siloed approach to patient care to a group style of practise in which the responsibility for patient care became shared across the whole group of practitioners, rather than with one particular practitioner. The open acknowledgement by all the practitioners that patients now “belonged” to the practice was one factor that contributed to this change in style of practice. However, the study participants attributed a larger amount of this change to the NP taking on the role of providing more in-depth reviews and education for patients, and the subsequent movement back and forth of these patients between the NP and the GPs. The move from siloed practice to shared group practice was found by Hutchinson (2004) to be an important factor necessary for the development of a more complete model of primary care that was able to focus on prevention, continuous, and more comprehensive care. Undertaking this change is generally acknowledged to be a challenging

process (Ontario College of Family Physicians, 2003). The role of NPs in facilitating this process has not been previously identified.

Another major determining factor in whether shared care and an interdependent relationship can develop among the practitioners is the extent of trust and respect shown by the GPs for the clinical competence of the NP. Physicians' lack of trust and respect for the competence of other practitioners, such as NPs and pharmacists, is an important barrier to role implementation and acceptance in primary care (DiCenso et al., 2003; Farrell et al., 2010; Gould, Johnstone, & Wasylkiw, 2007; Jones & Way, 2004; Makowsky et al., 2009). In the cases in this study, the GPs developed a high level of trust and respect for the NPs' clinical competence and acknowledged that the NPs were able to function "on an equal level" with their physician colleagues. This facilitated the implementation of the role, and the development of shared care between the practitioners.

These identified impacts at the practitioner level resulted in the outcome increased job satisfaction for the practitioners. The findings from other studies (Harris et al., 2007; Lepnurm et al., 2007; Pottie et al., 2008; Van Ham et al., 2006) suggested that the introduction of the NP role into fee-for-service practices would create positive outcomes for GPs, this study supports this.

The changes that occurred at the practitioner level following the introduction of the NP role can be depicted according to the processes of change identified by Lamarche and colleagues (2003b). Lamarche et al. identified that three aspects of change were relevant in understanding how change occurs in the primary care context: the type of change, radical or convergent; the direction of change, imposed from the top (i.e., top-down) or created by the staff or practitioners (i.e., bottom-up); and the pace of change, slow or fast. They also identified that for change to be

successful there needs to be investment in the organization of the practice, acknowledgement of the demanding nature of the change processes, and an understanding that the change takes time.

In this study, the change processes that occurred were dependent on the contextual factors affecting each setting. In Case 2, a radical adjustment occurred at the same time as NP role implementation (e.g., sudden loss of practitioners and too many patients requiring services), while in Cases 1 and 3 convergent adjustments happened (the addition of another practitioner and capacity to increased patient volume). In all cases, the changes were bottom-up in which the GPs' original way of practising was adjusted through negotiations between the GPs and the NP. The speed of these changes was variable across the three cases, again dependent on the specific contextual influences affecting each setting. In Case 1, the maximization of these changes would be expected to require more time to allow the GPs to understand the impacts and outcomes from the changes, and would require continued support for the NP role by the practice and the health authority. The processes of change that occurred in these cases are also consistent with those identified in another study of the introduction of a NP into a primary care practice (Reay et al., 2006). The Reay et al. study showed that time, resources, and support to develop trust and establish linkages and relationships were important if change was to be successful; this study confirmed these findings.

Practice level outcomes. One important rationale for introducing the NP role was to improve patient access to primary care services (BCMōH, 2000; deWitt & Ploeg, 2005; DiCenso et al., 2003, 2007; Martin-Misener et al., 2009; Schreiber et al., 2003). Although some studies have claimed that patient access has been improved following NP role introduction, the majority of this literature does not describe how or to what extent this has occurred. In this study, patient

access to primary care was shown to have markedly improved following the implementation of the NP role. This improvement occurred as a result of three factors: decreased wait times for patient appointments, increased access for new patients or retention of existing patients, and increased choice in the range of providers for patients. The quantification of the extent of changes in wait times and practice volume are new contributions to the knowledge base about the impact of NP role introduction. However, because in all cases other changes happened at the same time, or soon after the introduction of the NP, that also had an impact on patient access to these practices, so it is not possible to precisely isolate the impact of NP role introduction on some of these types of access.

All the practices in this study changed their patient booking systems to incorporate the Advanced Access appointment scheduling system, at least to some degree. One of the features of this system is its ability to improve access to general practice through reduced wait times for appointments (Goodall et al., 2006; GPSCBC, 2007; Rose, Ross, & Horwitz, 2011). This scheduling change obviously had some impact on availability of appointments and therefore patient wait times; however, as discussed later in the section on health system level outcomes, there is evidence that the introduction of this system was not the most significant factor in the changes in wait times, and that the NP played an important part in achieving the reduction in wait times and improved access to primary care.

The increase in practice volume experienced by each of these practices may have had an additional benefit for the practitioners. These additional patients bring additional fee-for-service billings to the practice, while the additional practice costs are minimal as the NP's salary is being paid by the health authority. This potential benefit for the physicians was not investigated in this

study; however, other studies into the implementation of the NP role have provided evidence that this may be happening and physician incomes were acknowledged to be increasing (DiCenso et al., 2003; MacDonald & Roots, 2008). Further study into this area would be needed to confirm this outcome. If this outcome was confirmed, then this would raise additional issues relating to the appropriateness and sustainability of this model of care.

The findings from this study demonstrate how patient access to primary care has improved in all three cases since the introduction of the NP role, and quantified some aspects of these improvements. This contributes knowledge that goes beyond what is currently available in the literature. These are very important contributions to understanding the value of this NP role as they allow health care managers and decision makers to appreciate the extent of the changes that are possible with this level of investment in new services.

The other outcome identified at the practice level following the introduction of the NP role was improved workplace culture, organization, and job satisfaction for the practice staff. Although there have been studies that have identified the impact of the NP role on practitioner colleagues (DiCenso et al., 2003; Schreiber et al., 2003; Way et al., 2001), I was not able to locate any studies or other literature that examined the impact of this role on non-nursing practice staff and the organization of the practice. San Martin-Rodriguez and colleagues (2005), and D'Amour and colleagues (2005), have identified a number of factors related to improved collaboration among practitioners. These include: communication, working together to problem solve, and mutual respect. According to participants, the NP's communication and relationship skills were an important contribution to improved communication, better relationships, and enhanced teamwork among everyone in the practice (NP, GPs and office staff). As a result, the

practice staff members felt more engaged in their role, more a member of the practice team, and thus experienced increased job satisfaction. These types of outcomes for employees and staff members are important for organizational effectiveness and successful service provision (Bateman & Zeithaml, 1990). These outcomes represent additional positive contributions of the NP role not previously identified in the literature.

Community level outcomes. There were a number of NP actions, and impacts from those actions, that contributed to improved outcomes at the community level. These included new primary care services in the community for harder to serve populations and drop-in clinics. Home visits to frail elderly to provide primary care were a significant part of the activities for the Case 2 NP. Home visits are documented in other studies of NP practice (DiCenso et al., 2003; Koren et al., 2010; Martin-Misener & Crawford, 2010), however they represented only a small amount of the NP's time in these studies. In this study, they were a routine daily event and represented the second largest amount of time for this NP. I have not been able to locate other studies that illustrate this finding. According to participants, the provision of this service by the NP enhanced the links between the primary care practice and the health authority funded community-based health care services and resulted in information transfer and teaching by the NP to the community staff. This finding extends the findings of other studies (DiCenso et al., 2003; Martin-Misener, 2006; Reay et al., 2006) where these relationships were only identified to have improved, but the nature of these improvements was not identified.

Other studies have identified that one beneficial NP activity in the community was to identify patients at high risk for mental health challenges, and those in need of social services, and to link these individuals with appropriate services (Martin-Misener, 2006; Martin-Misener et

al., 2009; Reay et al., 2006). This study further supported the need for and importance of this activity. Participants in this study identified that these individuals were less likely to connect with mainstream medically-orientated primary care services and subsequently were falling through the gaps in the system. However, through the actions of the Case 1 NP in this study, primary care services, and linkages to other social services, were made available to this population in locations in the community that they were comfortable in using. This study also provided knowledge about a different method that can be used to achieve this care through a mixed focus of patients for the NP role as explained on p.278.

In cases 2 and 3, participants of all types (GPs, office staff, community participants) referred to the NPs as the link or bridge between the practice physicians and the community. GPs acknowledged that prior to the arrival of the NP they did not know much about what was happening in the community or the services to which they could refer their patients. These NPs have played an important role in changing that for these practices. This is consistent with similar findings in studies undertaken in Alberta, Ontario, and Nova Scotia (DiCenso et al., 2003; Martin-Misener, 2006; Reay et al., 2006).

The impacts and outcomes that can be achieved by primary care services are influenced by the model used to deliver the services (Marriot & Mable, 2000). Lamarche and colleagues (2003a) undertook an international synthesis of models of primary care service delivery to identify the type of model that demonstrated the best outcomes in the areas of effectiveness, accessibility, responsiveness, quality, continuity of care, and productivity. From this synthesis, they identified and described two approaches to PHC delivery: the professional approach and the community-orientated approach. The professional approach involves the delivery of medical

services to patients to meet their primary care needs, whereas the community approach is designed to improve the health of the population and contribute to community development. Each of these approaches includes two models based on the degree of integration of primary care with other parts of the healthcare system. The integrated approaches were the professional co-ordination model and the integrated community-orientated model. The recommended optimal model for the delivery of PHC and primary care services was a combination of the professional co-ordination and integrated community-orientated models. This combined model was described as the most effective in terms of health and service provision, supplying services of the highest technical quality and relevancy to the community, having the best possibility of controlling costs and usage, and was the most responsive and accessible to patient needs. (A more detailed description and review of these models of primary care delivery is included in the literature review chapter, p. 20-22.)

In the literature review for this study I proposed that the integration of the NP role into these fee-for-service primary care practices might change the model of primary care delivery from the current professional contact model (traditional fee-for-service practice involving only GPs) to the professional co-ordination model (a team approach involving GPs and the NP) (see p.23). From the study findings I suggest that this has happened in Cases 2 and 3. With the additional involvement of this new primary care team (GP & NP) in the community, I further proposed that this could then move the delivery model to include aspects of the integrated community-orientated model. In the study, I found that none of these practices had an active role in their community before the introduction of the NP role. However, although all the NPs developed linkages with the communities in which they practised, only in Cases 2 and 3 did this extend to include the practice as a whole. In these cases this resulted in greater co-ordination

between the practice as a whole and the community services, and the involvement of the practice in activities such as education and drop-in clinics. These findings support my suggestion that the introduction of the NP role can move the model of primary care delivery from the professional contact model to the professional co-ordination model, and closer to this optimal combined model with integrated community-orientation, as recommended by Lamarche. Further investigation would be required to confirm how close to this optimal model the new style of practise is, and what further actions, if any, may be required to achieve and sustain this outcome.

Health system level outcomes. The main outcome of interest at the health system level was whether the introduction of the NP role would result in decreased utilization of health authority acute care services by the patients of these practices; this has the potential to create long term savings for the health authority. The current literature relating to the impact of the NP role on acute care utilization is conflicting. Some Canadian studies of the NP role in primary care practices have associated it with a reduction in utilization of emergency services and hospital admissions by the patients of the practice (Chorney & Clark, 2009; Reay et al., 2006); however, these outcomes were based on the perceptions of the participants rather than analysis of quantitative data. In US studies, a systematic review of APN outcomes between 1990 and 2008 found that the rates of emergency room visits (five studies) and hospitalizations (11 studies) for ambulatory patients (Newhouse et al., 2011) were equivalent for NPs and medical practitioners, although the settings and context of these practices were different than those in Canada.

This study examined the frequency of emergency presentations, and admissions from these presentations, for the patients in each of the three practices before and after the introduction of the NP role. No other Canadian studies were able to be found that have done this. Across the

study, a reduction of 37 to 47% occurred in the number of emergency visits, and the number of admissions from these emergency presentations decreased by 74 to 88%. In all cases these reductions in acute care utilization were statistically significant (emergency presentation $p = .000$ and hospitalization $p = .000$). No statistically significant differences were found between the three cases in the number of emergency presentations; however, each practice's rate of hospital admissions was significantly different from the others ($p = .002, .006, .000$). This is not a surprising finding because each practice had a slightly different emphasis, and served different population sub-groups.

The methodology used in this study did not make it is not possible to definitely relate any of these changes to the introduction of the NP role. As previously identified, other changes occurred in these practices at the same time as the introduction of the NP role that may have affected acute care utilization. These include changes to the method of patient scheduling which I have argued were not likely to account for the difference in acute care utilization and other factors such as changes in practice volumes and practitioners that contribute to confounding the situation.

Despite the inability to determine definitively whether there was a direct causal relationship between NP role introduction and health authority outcomes, a conclusion about the effect of the NP on these outcomes is strengthened by the fact that in three distinct cases the quantitative analysis produced the same results. In addition, the qualitative findings from this research can be used to triangulate and substantiate the impact of the NP on the reduced level of acute care utilization. Participants from all three cases acknowledged that because the NP was present in the practice every day, there were fewer times when patients were sent to the

emergency department just because there was no practitioner available to see them. The increased patient education provided by the NP was reported by the participants to result in more patient engagement and control over their own care; which in turn led to fewer reported exacerbations of their chronic conditions. Participants also reported that because the NPs were available for home visits, many emergency room visits were prevented. The triangulation of these findings across all cases provides substantial support for the conclusion that the NP's actions played a large part in the decreased utilization of acute care services by the patients in each practice. This was further supported by the scenario in two cases in which there was an increase in practice volume coupled with a decrease in total number of emergency presentations.

A work environment in which there is diversity of work, good relations, frequent contact with practitioner colleagues, and aligned values has been identified to enhance retention of primary care physicians (Mazzaglia et al., 2009; Sibbald et al., 2003; Van Ham et al., 2006). This study demonstrated that all these elements of the work setting were enhanced by the addition of the NP role to these practices. As a result, GPs acknowledged a positive impact on their desire to stay in their current practice. However, this study was not able to contribute anything to the supposition that the existence of the NP role would improve recruitment of new GPs to these practices.

Context. There is significant evidence to suggest that the context of the work environment is an important influence on the outcomes created when a new role is introduced into a work setting (Abelson et al., 2007; French, 2005; Marchionni & Ritchie, 2007; McCormack et al., 2002). In this study, I sought to identify the contextual factors that influenced the impacts and outcomes of the NP role at different relationship levels within the practice and

community environments. The most influential of these factors were found to be at the individual practitioner and practice organizational levels. These factors played an important role in explaining why certain outcomes occurred in some practices and did not occur in the other practices. This finding is consistent with the findings of implementation studies related to the introduction of other roles in health care. MacDonald and Green (2001), for example, showed that the interaction between an intervention (in this study the enacted NP role) and the organization into which it is implemented (in this study the fee-for-service practice) plays a more important role in determining the outcomes from the intervention than its pre-implementation design features (in this study the expected NP role prior to implementation). These findings show the importance of identifying the contextual factors influencing a particular setting before the implementation of the NP role, and determining whether these factors will support the implementation of the role and desired outcomes. A number of implementation models and frameworks have been developed to explain implementation of innovations in health care, and many of these emphasize the importance of context in understanding implementation (e.g., Graham & Logan, 2004; Graham et al., 2006; Greenhalgh, Robert, MacFarlane, Bate, & Kyriakadou, 2004; Helfrich et al., 2010; Rycroft-Malone et al., 2002). These frameworks and the results of this study reinforce the need to understand that the contextual factors at play in other settings will influence the transferability of the findings of this study to other settings.

Strengths of the Study

The strengths of this study included: the choice of methodology, the inclusion of data from multiple levels of the health care system, and the focus on describing and identifying the NP role in the context of the predominant delivery system for primary care in BC. The use of a mixed methodology case study approach, involving qualitative and quantitative data, allowed all

types of data to be harnessed to discover the outcomes of introducing the NP role. The qualitative data identified the features of the role, and the perceptions, feelings, and responses of the participants to the effects of integrating the NP role into their practices and communities. The quantitative data provided confirming numbers to support the qualitative findings, and in some case provided additional information. The triangulation of these data allow for stronger conclusions to be drawn from the results of the study. The inclusion of both types of data also addressed needs of health service managers and decision makers who generally prefer both to understand the impact of an intervention from the perspective of participants and from numerical evidence that can be related to service provision and costs.

This study also included the perspectives of multiple participants from multiple levels of the health care system. By including the points of view of support staff, other types of practitioners, physician colleagues, and managers from all the levels of the system that interacted with the practice and the NP, it strengthened the ability of the study to achieve an in-depth understanding of the changes that had occurred as a result of the implementation of the role. The variety and diversity of contexts and perspectives contributed by these participants helped create a more comprehensive picture of the processes and outcomes related to NP role introduction in fee-for-service physician practices.

This study explored the NP role when enacted in collaboration with physicians involved in the fee-for-service model of primary care delivery. Fee-for-service is the predominant model for providing primary care services to the general population across the province and the country. This study is the first study known to focus specifically on the NP role in this setting in

Canada, and to identify the impact of the NP role at multiple system levels when utilized in this setting.

Limitations of the Study

This study involved only three case sites and three NPs. This is a small number of cases to describe the enacted components of the NP role in community-based primary care practice and to identify the changes created by the introduction of the role. More case sites, and a larger number of NPs enacting the role, would have strengthened the validity not only of the descriptions of the enacted NP role in fee-for-service settings but also the validity of the conclusions about the effects of the NP role at the multiple levels of the health care system explored in this study.

This study did not include any patients as participants. However reference is made in the findings to improvements in patient outcomes and patient satisfaction. These claims are based on reports from practitioners, office staff, and other health care providers and managers, and written reports from previously conducted evaluation studies which did include interviewing patients. This makes it impossible to validate any of the claims relating to patient outcomes or satisfaction. Another study in which patients are included would be required to validate these claims.

The role proportions identified in this study were based on self-reported estimates of time spent on role activities which may not have been accurate. There are no studies available to illustrate the accuracy of this type of self-report data. Observational time and motion studies, or the use of logbooks to record participant activities over a period of time, may have been a more

accurate method to collect this data. The inclusion of data collected from patients may also have created a more complete picture of the enacted role of the NP and their impacts in each setting.

Much of the data in this study is self-reported. This creates a potential concern with social desirability bias in the reporting. This is the tendency of participants to answer questions in a manner that will be viewed favourably by others. This is a common concern in qualitative research and as a result some caution needs to be exercised with regards to the validity of the results of the study (van de Mortel, 2008). However, in this study, participants were noted to express both positive and negative examples of events and in some cases the findings did not demonstrate what would be expected to be the favourable response. The triangulation of the findings also helps to confirm the credibility of the responses.

The practice sites that participated in this study volunteered to do so. This may have created a biased sample. The one site that chose to not participate may not have had the same experiences as those sites that did participate. Therefore the outcomes from this study may not be reflective of a larger sample. At the same time, sampling in qualitative research is required to be purposive rather than representative. Participants need to have experience with the phenomenon under study and the willingness and ability to communicate those experiences to the researcher. There were only a small number of sites available in which this model of care has been implemented, which limited the number of sites that could be included in this research.

This study used a combination of exploratory, descriptive, explanatory, and interpretive types of case study. This allowed for the enacted role of the NP to be described, and outcomes resulting from the introduction of the role and that relate specifically to NP actions to be identified and, to a certain extent, explained. This notion of causality reflected in a case study

design does not allow for the same type of strong causal inference as other designs that provide opportunities to rule out rival causal explanations. At the same time, qualitative methodologies are becoming well established as approaches to identify, describe, and explain at a theoretical level the potential causal relationships between the event (introduction of the NP) and the identified changes and outcomes. The triangulation of multiple sources and types of data, and the use of a before and after design for the statistical analysis, did provide evidence to support the conclusion that introducing a NP role into fee-for-service family practice did have beneficial outcomes for the practitioners and the practice, as well as the community at large and the health care system. An important contribution of this study is that it did identify previously unreported outcomes from the introduction of the role. This now lays the groundwork for the future evaluative studies exploring the effects of NP role introduction on these outcomes using more robust designs to establish with greater certainty the causal relationships between the NP role and the identified outcomes.

Contributions of the Study

Although these limitations exist, the overall contributions of this study outweigh these drawbacks. This is the first study known to describe, analyse, and quantify the extent of the impacts and outcomes that occur at multiple levels of the health care system following the introduction of the NP role into fee-for-service settings. Due to the predominance of the fee-for-service model of primary care delivery in BC and Canada, identifying and specifying the impacts and outcomes that can be associated with the NP role in this model of service delivery is important. Triangulating the study's qualitative findings with the quantitative findings created important new contributions to the knowledge about the NP role. These findings will be of value to health care managers and decision makers. This study may make useful contributions to

future evaluations of the effectiveness of the NP role in community-based primary care by identifying outcomes that, with more work to refine and validate, may be able to be used as indicators in the future. These outcomes could be explored in future explanatory studies to confirm the theorized causal relationships. However, despite the inability to confirm these causal relationships definitively in this study, the findings still demonstrate the added value that the NP role can contribute to primary care. Several researchers have acknowledged that demonstrating the value added benefits of the NP role is one of the challenges in the sustainability of the role (Pringle & Doran, 2003; Pogue, 2007; Stevenson & Sawchenko, 2010).

Transferability of Findings

The conclusions drawn from this study were evaluated based on the strengths and limitations of the study and then assessed for inference transferability as recommended by Teddlie and Tashakkori (2009). Inference transferability relates to the degree to which the study conclusions can be “applied to other similar settings, people, time periods, contexts and theoretical representations” (Teddlie & Tashakkori, p.287). These authors identified four types of inference transferability: (a) ecological transferability, the extent to which the study’s inferences and recommendations might be applicable to other contexts or settings; (b) population transferability, the degree to which the study’s inferences and recommendations are applicable to other individuals, groups, or entities; (c) temporal transferability, the extent to which the recommendations may be applicable in the future; and (d) theoretical/conceptual transferability, the degree to which the findings can be replicated if the main theoretical constructs were defined, observed, and measured differently.

The findings from this study display all four types of inference transferability. The findings relating to improved provision of care, the development of links to the community, and decreased acute care utilization should have ecological transferability: This could be to other settings such as non-fee-for-service primary care sites where the NP role had been established. Population transferability would be expected to be to other entities in which a collaborative practice between a NP and GP has been established. Temporal transferability should occur as the findings and recommendations from this study would be expected to be applicable for many years to come, as long as the predominant contextual factors affecting the practice and the health care system remained reasonably constant. If major change occurred with any factor then this type of transferability would not be expected to continue. Some theoretical/conceptual transferability should also be expected. If the sources of data collection and methods of observations were changed to include the perspectives of patients or community members it would be expected that similar findings would be found. However, all these types of transferability would be dependent on the enacted role of the NP in these other situations displaying similar dimensions and role proportions to those found in this study.

Implications for Research

This study has contributed a number of findings, and identified areas where additional research is warranted. The findings of this study were derived from a small sample size. There are other locations in BC where this model, or a reasonably comparable model of NP/GP primary care practice, has been established. An expanded study to confirm and enhance these results would be beneficial to demonstrate to health system managers and decision makers the value of the role in this setting.

The development of a direct causal linkage between the NP role and the decreased utilization of acute care services was not able to be confirmed with any certainty in this study. To do this would require using an experimental or quasi-experimental design with a control group. In addition, a longitudinal tracking study of acute care utilization data from patients, using their personal health numbers, in practices where NPs have been introduced would be helpful. This would provide stronger evidence to confirm this relationship and consolidate the benefits identified in this study.

If the direct linkage between the NP role and reduced acute care utilization is confirmed, the development of a cost-effectiveness study could then be undertaken. It may also be possible to take some of the quantitative findings of this study, and by working with a health economist, identify projected cost savings to the health care system from these results through economic modelling. Both of these could produce important benefits for the sustainability of the role; however, it would be important to acknowledge the assumptions underpinning this type of research.

The findings from this study suggested that the addition of the NP role to the practice may bring additional fee-for-service billing opportunities for the physicians. There is some evidence that this may be happening, however further study is needed to confirm this outcome. If this outcome could be confirmed this could be a significant finding for primary care physician support of the NP role in the fee-for service setting. However, this finding may also have additional cost and other implications of a more negative nature for the overall health care system; this would need to be investigated further.

On the basis of my literature review, I created an initial conceptual framework for this study, in which I theorized that improvement in GP job satisfaction associated with the NP role would lead to improved success in recruitment of GPs to this model of primary care practice. I could neither confirm nor reject this hypothesis on the basis of the data in this study. Given the acknowledged shortage of primary care physicians, and the challenges of recruitment, determining the impact of the NP role on successful recruitment would be an important and potentially helpful outcome that should be pursued in a future study.

This study explored the NP role in collaborative practice with GPs in fee-for-service settings. The outcomes identified in this setting may be applicable to other models of primary care NP practice, in particular the NP role in a collaborative practice team approach to primary care in a community health centre or similar type of clinic. The exploration of the impact of the NP role at multiple levels of the system has not been undertaken, to my knowledge, in these other models of primary care NP practice. Undertaking similar research in those settings would provide further evidence as to whether these same outcomes can be achieved in other primary care settings.

This study also identified that the addition of the health authority salaried NP role into the fee-for-service practice appeared to move this model of primary care delivery from the professional contact model towards a combined professional co-ordination/community oriented model. Further research is required to determine whether this is an accurate perception. Identifying whether Lamarche et al.'s (2003a) proposed optimal model is able to achieve enhanced outcomes for the patients and the community would also contribute valuable additional knowledge.

Implications for Policy

Across the country, and particularly in BC, there are significant challenges to developing an appropriate and sustainable funding model for the NP role. Until very recently there was only a minimal increase in funding for new NP positions in BC since the initial allocation of government funds occurred in 2005. In May 2012 there was an announcement to fund another 190 positions in primary care over the next three years through an initiative entitled “NP4BC” (BCMoH, 2012). The findings from this study are already being used to support applications for new positions under this funding initiative. This study has highlighted the benefits the NP/GP model of care can bring to patients, practitioners, and the health care system. However, this model of care has a financial cost to the health care system. In this study, this addition of the NP role was shown to create improvements in patient care that were likely to be associated with cost savings in other areas, particularly reduced acute care utilization. Some of the further research that has been proposed could be used to confirm this relationship and determine the presence and extent of these cost savings. Acknowledging that relatively small additional costs associated with improved primary care delivery are likely to create larger cost savings in the acute care sector may be an important policy implication from this research.

This study highlighted the value of the community focus within the NP role, and the benefits this focus can have in enhancing the delivery of fee-for-service primary care. These benefits improved co-ordination and integration with community services, addressed community needs, and improved patient and provider satisfaction. The acknowledgement, promotion, and inclusion of a community focus to the NP role should be an important consideration in the development of future primary care NP roles.

The development of dual focused NP roles, concurrently serving both the traditional family practice population and a speciality population, was shown in this study to be advantageous to the NP, the community, and the health care system. The development of more of these dual types of roles, particularly in rural and remote locations where access for traditionally harder to serve populations is even more difficult, should be considered.

This is the first Canadian study known to provide some evidence through the triangulation of qualitative and quantitative data to support the assertion that the NP role is improving access to primary care and decreasing acute care utilization. The dissemination of this important, although provisional, finding to government and health authority decision makers and managers needs to be facilitated through all available channels. These findings not only support the need for further research to strengthen this evidence, but support the further expansion, in the interim, of the NP/GP collaborative practice model in primary care.

This study also highlighted the problems with the electronic data collection systems in place in primary care practices and need for easy access to pre and post implementation data to use in determining the changes that have occurred following the implementation of the role. The requirement for specific data to be collected prior to the implementation of a pilot project such as this, which was expected to create changes, would allow for the comparative analyses to be undertaken more easily to evaluate the outcomes of the project. The inclusion of both a guiding principle addressing this need in the process for the development of projects such as this, and a mechanism to ensure availability of data access during (and after) projects are established would be extremely beneficial for all parties.

Implications for Practice

This study has shown that the outcomes of the NP role in fee-for-service settings are influenced by the contextual factors affecting each setting. It is important to identify the contextual factors in each setting that support and facilitate positive outcomes from the role. The other practitioners in the work setting need to understand the scope of practice of the NP role, have appropriate expectations for how the role will be enacted, and understand the types of outcomes that have been achieved in these study settings. The use of these case study practices, and NPs, as models and supports for how this collaborative practice model can work, would be a benefit to future practice sites and should be encouraged.

These practice sites, and their communities, demonstrated that receptivity and openness exists to embracing both the NP role, and this new model of care in traditional primary care practices. This level of support from practices and communities needs to be harnessed to continue to identify future sites for this model of collaborative practice.

The findings from this study both support the importance of the NPs role in these fee-for-service settings and highlight some of the concerns that exist from other practitioners. While this could be viewed to be a very positive presentation of the findings, some criticisms of the impact of the role by other practitioners included making their workload heavier by “getting stuck with the heavy duty patients” and the challenges around NPs “taking over patients”. I also acknowledge that I have been involved in the implementation of the NP role in BC for 10 years and there may be some personal bias that has been inadvertently reflected in these findings. Dissemination of these finding to the practices, and the NPs concerned, needs to be facilitated to

ensure they understand the impacts that have occurred, and that they can use these outcomes to appropriately support their role within the practice and their community.

Summary

Primary care is the foundation of the health care system. Access to this care, and the provision of quality care, have been shown to have a larger impact on health outcomes for the population than the services provided by secondary and tertiary level health care (Starfield, 1998; Watson & McGrail, 2009). BC has a shortage of primary care providers and inadequate access to primary care services (BCMHS, 2010; BCNPA, 2012). Regular reports confirm that acute care services in the province are overcrowded (BCMA, 2011). This study has shown that the addition of a nurse practitioner to the main source of primary care for the population of BC, fee-for-service practices, can improve available care and create outcomes that have substantial positive effects on these fundamental problems facing the health system. Positive outcomes were demonstrated at all levels of the system, both within, and externally, to these primary care practices. The provision of care for patients was reported to have improved, relationships and teamwork involving the practitioners and the practice were reported to be enhanced, access to the practice for patients significantly increased, the practices became more connected with their communities, and the utilization of acute care services significantly decreased for the patients of the practices. These outcomes associated with the NP/GP collaborative practice primary care model demonstrate the importance of the NP role in this setting and support a conclusion that it can play an important role in meeting the primary care needs of the population (CHSRF, 2010).

References

- Abelson, J. (2001). Understanding the role of contextual influences on local health-care decision making: case study results from Ontario, Canada. *Social Sciences & Medicine*, 53, 777-793.
- Abelson, J., Forest, P. G., Eyles, J., Casebeer, A., Martin, E., & Mackean, G. (2007). Examining the role of context in the implementation of a deliberative public participation experiment: Results from a Canadian comparative study. *Social Sciences & Medicine*, 64, 2115-2128.
- ACHDHR – Federal/Provincial/Territorial Advisory Committee on Health Delivery and Human Resources. (2009). *How many are enough? Redefining self-sufficiency for the health workforce: A discussion paper*. Retrieved from www.hc-sc.gc.ca/hcs-sss/pubs/hhrhs/2009-self-sufficiency-autosuffisance/index-eng.php
- Aita, V. A., & McIlvain, H. E (1999). An armchair adventure in case study research. In B. F. Crabtree & W. L. Miller (Eds.), *Doing Qualitative Research* (2nd ed). (pp. 253-269). Thousand Oaks: Sage Publications.
- Allen, F. M. (1999). Comparative theories of the expanded role of nursing and implications for nursing practice: A working paper. *Canadian Journal of Nursing Research*, 30, 83-89. [Reprinted from *Nursing Papers*, 9, 38-45.]
- American Academy of Nurse Practitioners (AANP). (2010). *Nurse Practitioner Cost-effectiveness*. Austin, Texas: AANP.
- Anderson, R. A., Crabtree, B. F., Steele, D. J., & McDaniel, R. R. Jr. (2005). Case study research: The view from complexity science. *Qualitative Health Research*, 15, 669 – 685.
- Angrosino, M. V. (2005). Recontextualizing Observation. In N.K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (3rd ed). (pp. 729 – 745). Thousand Oaks: Sage Publications.
- Atun, R. (2004). *What are the advantages and disadvantages of restructuring a health care system to be more focused on primary care services?* Copenhagen: WHO Regional Office for Europe.
- Baer, L. C., Baldwin, K. A., Sisk, R. J., Watts, P., Grinslade, M. S., Brockschmidt, B., Dinger, M. K., Marion, L. N., & McCubbon, J. (1999). Development of an instrument to measure community acceptance of nurse practitioners and physician assistants. *Journal of Nursing Measures*, 7(1), 63-77.
- Bailey, P., Jones, L., & Way, D. (2006). Family physician/nurse practitioner: Stories of collaboration. *Journal of Advanced Nursing*, 53(4), 381-391.
- Baranek, P. M. (2005). *A review of scopes of practice of health professional in Canada: A balancing act*. Toronto: Health Council of Canada.

- Barer, M. L., Evans, R. G., Black, C., McGrail, K., Morgan, S., Stoddart, G. L., & Watson, D. (2007). Anatomy of a doctor shortage. Paper presented at iHEA 2007 6th World Congress: Explorations in Health Economics. Retrieved from http://papers.ssrn.com/sol13/papers.cfm?abstract_id=995062
- Barnes, D., Eribes, C., Juarbe, T., Nelson, M., Proctor, S., Sawyer, L., Meleis, A. I. (1995) Primary health care and primary care: A confusion of philosophies. *Nursing Outlook*, 43(1), 7 – 16.
- Barton, A., Baramée, J., Sowers, D., & Robertson, K. (2003). Articulating the value-added dimension of NP care. *Nurse Practitioner*, 28(12), 34 – 40.
- Bateman, T. S., & Zeithaml, C. P. (1990). *Management: Function and strategy*. Boston, MA: Irwin.
- Bauer, J. C. (2010). Nurse practitioners as an underutilized resource for health reform: Evidence-based demonstrations of cost-effectiveness. *Journal of the American Academy of Nurse Practitioners*, 22, 228-231.
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559.
- Bergen, A., & While, A. (2000). A case for case studies: Exploring the use of case study design in community nursing research. *Journal of Advanced Nursing*, 31(4), 926-934.
- Besner, J., Doran, D., McGillis Hall, L., Giovannetti, P., Girard, F., Hill, W., ... Watson, L. (2005). *A systematic approach to maximizing nursing scopes of practice*. Ottawa: Canadian Institute of Health Research.
- Boling, P. A. (2009). Care transitions and home health care. *Clinical Geriatric Medicine*, 25, 135-148.
- Boudreau, T.J. (1972). *Report of the committee of nurse practitioners*. Ottawa: The Department of National Health and Welfare, Canada.
- Brackley, M. E., & Penning, M. J. (2004). Residence, income and cancer hospitalizations in British Columbia during a decade of policy change. *International Journal of Equity in Health*. 3(2).
- British Columbia College of Family Physicians (BCCFP). (2007). *Working with nurse practitioners: A collaborative relationship*. Retrieved from www.bccfp.bc.ca/prjfmignp.htm
- British Columbia Medical Association (BCMA). (2011). *Emergency department overcrowding*. Retrieved from www.bcma.org/files/JULY2011_Emergency_Dept_Overcrowding.pdf

- British Columbia Ministry of Health (BC MoH). (2000). Advanced nursing practice explored. (press release). Retrieved from <http://www2.news.gov.bc.ca/archive/pre2001/2000/4222.asp>
- British Columbia Ministry of Health Services (BC MoHS). (2004a). Information bulletin. Nurse practitioner regulations introduced. Retrieved from <http://www2.news.gov.bc.ca/archive/2001-2005/2004HSER0072-000909.htm>
- British Columbia Ministry of Health Services (BC MoHS). (2004b). Primary health care organizations: Operations manual. Version 1.0 Victoria, BC: Government of British Columbia.
- British Columbia Ministry of Health Services (BC MoHS). (2006). *Resource Manual for Nurse Practitioners*. Victoria, BC: Government of British Columbia.
- British Columbia Ministry of Health Services (BC MoHS). (2007). *Primary Health Care Charter: A Collaborative Approach*. Victoria, BC: Government of British Columbia.
- British Columbia Ministry of Health Services (BC MoHS). (2008). *Health networks bring team-based focus to patient care*. Victoria, BC: Government of British Columbia.
- British Columbia Ministry of Health Services (BC MoHS). (2010). BC commits to a family doctor for everyone by 2015. (Press release). Victoria, B.C. Government of British Columbia.
- British Columbia Ministry of Health (BC MoH). (2011). *Fee-for-service funding for nurse practitioners*. Power point presentation prepared and presented to BCNPA by the MOH. Retrieved from www.bcnpa.org/members/meeting-minutes.asp
- British Columbia Ministry of Health (BC MoH). (2012). *BC funds more nurse practitioner positions*. Retrieved from http://www2.news.gov.bc.ca/news_releases_2009-2013/2012HLTH0056-000775.htm
- British Columbia Ministry of Advanced Education, Training and Technology (BCMAETT). (2001). New post-secondary funding boosts practical nursing program. (Press release). Retrieved from <http://www2.news.gov.bc.ca/archive/pre2001/2001/4702.asp>
- British Columbia Nurse Practitioners Association (BCNPA). (2011). *Special meeting minutes, Fee-for-service billing for NPs*. Retrieved from www.bcnpa.org/members/meeting-minutes.asp
- British Columbia Nurse Practitioners Association (BCNPA). (2012). *Nurse practitioners need to be seen in BC. Do you see a nurse practitioner?* Retrieved from www.bcnpa.org
- Broemeling, A. M., Watson, D., & Black, C. (2005). *Chronic conditions & co-morbidity among residents of British Columbia*. Vancouver, B.C.: Centre for Health Services and Policy Research, University of British Columbia.

- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32(7), 513-531.
- Brown, M. A., & Olshansky, E. (1998). Becoming a primary care nurse practitioner: Challenges of the initial year of practice. *Nursing Research*, 23, 46-66.
- Browne, A. J., & Tarlier, D. S. (2008). Examining the potential of nurse practitioners from a critical social justice perspective. *Nursing Inquiry*, 15(2), 83-93.
- Bryant-Lukosius, D. (2009, June). *Economic Evaluation of APN Roles*. Presentation the APN Chair Program meeting. Hamilton, Ontario : McMaster University.
- Bryant-Lukosius, D., & DiCenso, A. (2004a). 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. (2004b). Advance practice nursing roles: development, implementation and evaluation. *Journal of Advanced Nursing*, 48(5), 519 – 529.
- Bryczynski, K. A. (2005). Role development of the advanced practice nurse. In A. B. Hamric, J. A. Spross, C. M. Hanson (Eds), *Advanced Practice Nursing: An Integrative Approach*. (3rd ed., pp.109-139). St-Louis, MO: Saunders.
- Burgener, S. C., & Moore, S. J. (2002). The role of advanced practice nurses in community settings. *Nursing Economics* 20(3) 102- 108.
- Burke, T. A., McKee, J. R., Wilson, H. C., Donahue, R. M., Batenhorst, A. S., & Pathak, D. S. (2000). A comparison of time-and-motion and self-reporting methods of work measurement. *The Journal of Nursing Administration* 30(3), 118-125.
- Burke Johnson, R. (2009). Comments on Howe: towards a more inclusive “scientific research in education”. *Educational Researcher*, 38(6), 449-457.
- Calnan, R., & Rodger, G. (2002). *Primary health care: A new approach to health care reform*. Retrieved from http://cna-aiic.ca/CNA/documents/pdf/publications/PHC_presentation_Kirby_6602_e.pdf
- Campbell, D. T. (1979). Degrees of freedom and the case study. In T.D. Cook & C.S. Reichardt (Eds.), *Qualitative and Quantitative Methods in Evaluation Research*. (pp.49-67). Thousand Oaks, CA: Sage Publications.
- Campbell, D.T. (2003). Forward. In Yin, R. Case study research: Design and methods. (pp. ix-x) Thousand Oaks, CA: Sage Publications.
- Canadian Association of Schools of Nursing (CASN). (2006). *Nurse practitioner education in Canada, position statement*. Ottawa: Canadian Association of Schools of Nursing.

- Canadian Health Services Research Foundation (CHSRF). (2010). *Interior health, British Columbia: Nurse practitioners in a fee-for-service setting*. Retrieved from http://www.chsrf.ca/Pass_It_On/apn_e.php
- Canadian Healthcare Network. (2012, April 19). Record number of medical graduates matched this year: CaRMS. Retrieved from www.canadianhealthcarenetwork.ca/physicians/news/professional
- Canadian Institute for Health Information (CIHI). (2003). *Health Care in Canada: Primary health care in transition?* Ottawa: Canadian Institute for Health Information.
- Canadian Institute for Health Information (CIHI). (2006a). *The regulation and supply of nurse practitioners in Canada*. Ottawa: Canadian Institute for Health Information.
- Canadian Institute for Health Information (CIHI). (2006b). *Understanding physician satisfaction at work: Results from the 2004 national physician survey*. Ottawa: Canadian Institute for Health Information.
- Canadian Institute for Health Information (CIHI). (2009). *Supply of physicians in Canada: How many physicians were there in Canada?* Ottawa: Canadian Institute for Health Information.
- Canadian Medical Association (CMA). (2008). *Canadian Medical Association launches major campaign for more doctors*. Retrieved from www.cma.ca/index.cfm/ci_id/55128/la_id/1.htm.
- Canadian Medical Association (CMA). (2009). *National Physician Survey 2007*. Retrieved from www.cma.ca/index.cfm
- Canadian Medical Association (CMA). (2010). *Health care transformation in Canada: Change that works: Care that lasts*. Ottawa: Canadian Medical Association. Retrieved from www.cma.ca
- Canadian Medicine News. (2008). Those new “more doctors” ads and the CMA’s allegedly muddled logic. *Canadian Medicine News*. Retrieved from www.canadianmedicineneeds.com/2008/03/those-new-more-doctors-ads-andcmas.html
- Canadian Nurses Association – Canadian Medical Association (CNA/ CMA) (1973). *The expanded role of the nurse: A joint statement of CNA/CMA*. Ottawa: CNA.
- Canadian Nurses Association (CNA). (2002). *Cost-effectiveness of the Nurse Practitioner Role*. Retrieved from <http://www.cna-nurses.ca/frames/issuestrends/issuestrendsframe.htm>
- Canadian Nurses Association (CNA). (2003). *Nursing Now: Issues and trends in Canadian nursing: Primary health care, 16*. Retrieved from <http://www.cna-nurses.ca/frames/issuestrends/issuestrendsframe.htm>

- Canadian Nurses Association (CNA). (2005). *Backgrounder: Primary health care: A summary of the issues*. Retrieved from http://www.cna-aiic.ca/CNA/documents/pdf/publications/BG7_Primary_Health_Care_e.pdf
- Canadian Nurses Association (CNA). (2008). *Advanced nursing practice: A national framework*. Retrieved from http://www.cna-aiic.ca/CNA/documents/pdf/publications/ANP_National_Framework_e.pdf
- Canadian Nurses Association (CNA). (2009a). *Recommendations of the Canadian Nurse Practitioner Initiative: Progress Report*. Ottawa: CNA.
- Canadian Nurses Association (CNA). (2009b). *The Nurse Practitioner: Position statement*. Ottawa: CNA.
- Canadian Nurses Association (CNA). (2010). *Canadian Nurse Practitioner Core Competency Framework*. Ottawa: CNA.
- Canadian Nurses Association (CNA). (2011). *Collaborative Integration Plan for the Role of Nurse Practitioners in Canada: 2011- 2015*. Ottawa: CNA.
- Canadian Nurse Practitioner Initiative (CNPI). (2005). *Literature review of NP legislation and regulation*. Retrieved from http://www.cnpi.ca/documents/pdf/Legislation_Regulation_Litertaure_Review_e.pdf
- Canadian Nurse Practitioner Initiative (CNPI). (2006). *Nurse practitioners: The time is now*. Retrieved from http://www.cnpi.ca/documents/pdf/Nurse_Practitioners_The_Time_is_Now_e.pdf
- Carr, J., Armstrong, S., Hancock, B., & Bethea, J. (2002). GPs' perceptions of the nurse practitioner role in primary care. *British Journal of Community Nursing*, 7(8), 408-413.
- Centre for Nursing Studies. (CNS) (2001). *The Nature of the Extended/Expanded Role of Nursing in Canada*. Retrieved from <http://www.cns.nf.ca/research/finalreport.htm>
- Chambers, L. W., Burke, W., Ross, J., & Cantwell, R. (1978). Quantitative assessment of the quality of medical care provided in five family practices before and after attachment of a family practice nurse. *Canadian Medical Association Journal*, 118, 1060-1064.
- Chambers, L. W., & West, A.E. (1978a). Assessment of the role of the family practice nurse in urban medical practices. *Canadian Journal of Public Health*, 69, 459-468.
- Chambers, L. W., & West, A. (1978b). The St John's randomized trial of the family practice nurse: Health outcomes of patients. *International Journal of Epidemiology*, 7(2), 153-161.
- Chauban, T. S., Jong, M., & Buske, L. (2010). Recruitment trumps retention: Results of the 2008/09 CMA Rural Practice Study. *Canadian Journal of Rural Medicine*. 15(3), 101-107.

- Chen, C., McNeese-Smith, C., Cowan, M., Upenieks, V., & Afifi, A. (2009). Evaluation of a nurse practitioner-led care management model in reducing inpatient drug utilization and cost. *Nursing Economics*, 27(3), 160-168.
- Cherryholmes, C. H. (1992). Notes on pragmatism and scientific realism. *Educational Researcher*, 21(6), 13-17.
- Chorney, M., & Clarke, E. (2009). *Impact of Nurse Practitioners in Primary Health Care Fee-for-Service Practice Settings*. Conference presentation at the 4th British Columbia Nurse Practitioner Conference, Richmond BC, Canada.
- College of Family Physicians of Canada (CFPC)/ Canadian Medical Association. (CMA) (2009). *The wait starts here: The primary care wait time partnership*. Mississauga, Ontario: College of Family Physicians of Canada.
- College of Family Physicians of Canada (CFPC)/ Canadian Medical Association. (CMA) (2011). *2010 National Physician Survey*. Retrieved from www.nationalphysiciansurvey.ca
- College of Registered Nurses of British Columbia (CRNBC). (2006a). *Prior learning assessment and recognition framework for assessing nurse practitioners*. Vancouver, B.C.: College of Nurses of British Columbia
- College of Registered Nurses of British Columbia (CRNBC). (2006b). *Creating a regulatory framework for nurse practitioners in British Columbia: The consultation process*. Vancouver, B.C. College of Nurses of British Columbia
- College of Registered Nurses of British Columbia (CRNBC). (2008a). *Scope of practice for nurse practitioners (Family): Standards, limits and conditions*. Vancouver, B.C.: College of Nurses of British Columbia
- College of Registered Nurses of British Columbia (CRNBC). (2008b). *Scope of practice for nurse practitioners (Adult): Standards, limits and conditions*. Vancouver, B.C. College of Nurses of British Columbia
- College of Registered Nurses of British Columbia (CRNBC). (2008c). *Scope of practice for nurse practitioners (Pediatric): Standards, limits and conditions*. Vancouver, B.C.: College of Nurses of British Columbia
- College of Registered Nurses of British Columbia. (2010a). *Nurse practitioner streams of practice*. Retrieved from <http://www.crnbc.ca/Registration/RegistrationResources/StreamsofNPPractice.pdf>
- College of Registered Nurses of British Columbia (CRNBC). (2010b). *Competencies Required for Nurse Practitioners in British Columbia*. Vancouver, B.C. College of Nurses of British Columbia

- College of Registered Nurses of British Columbia (CRNBC). (2011). *Scope of practice for nurse practitioners: Standards, limits and conditions*. Vancouver, B.C. College of Nurses of British Columbia
- Collier, R. (2010). Higher percentage of medical school graduates seek family medicine residencies. *Canadian Medical Association Journal News*. (May 11, 2010). Retrieved from www.cma.ca
- Cowan, M., Shapiro, M., Hay, R., Afifi, A., Vazirani, S., Ward, C. R., & Ettner, S.L. (2006). The effect of a multidisciplinary hospitalist/physician and advanced practice nurse collaboration on hospital costs. *Journal of Nursing Administration*, 36(2), 79-85.
- Crabtree, B. F., & Miller, W. L. (1999). Using codes and code manuals: A template organizing style of interpretation. In B. F. Crabtree & W. L. Miller (Eds.), *Doing Qualitative Research* (2nd ed). (pp. 163-177). Thousand Oaks: Sage Publications.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches*. (2nd ed). Thousand Oaks, CA: Sage Publications.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. (3rd ed). Thousand Oaks, CA: Sage Publications.
- Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications.
- Cronbach, L. (1975). Beyond the two disciplines of scientific psychology. *American Psychologist*, 30 116-127.
- Cummings, G. G., Fraser, K., & Tarlier, D. (2003). Implementing advanced nurse practitioner roles in acute care. *Journal of Nursing Administration*, 33(3), 139-145.
- Curtis, L., & Netten, A. (2007). The costs of training a nurse practitioner in primary care: The importance of allowing for the cost of education and training when making decisions about changing the professional mix. *Journal of Nursing Management*, 15(4), 449-57.
- D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, (Supplement 1), 116-131.
- Davidson, A. R. (1999). British Columbia's health reform: "New directions" and accountability. *Canadian Journal of Public Health*, 90 (Supp 1), S35-38.
- Davies, E., & Fox-Young, S. (2002). Validating a scope of nursing practice decision-making framework. *International Journal of Nursing Studies*, 39, 85-93.
- de Guzman, A., Ciliska, D., & DiCenso, A. (2010). Nurse practitioner role implementation in Ontario public health units. *Canadian Journal of Public Health*, 101(4), 309-13.

- Denis, J. L. (2002). *Governance and management of change in Canada's healthcare system*. Health Canada: Commission on the Future of Health Care in Canada.
- De Leon-Demare, K., Chalmers, K., & Askin, D. (1999). Advanced practice nursing in Canada: Has the time really come? *Nursing Standard*, 14(7), 49-54.
- deWitt, L., & Ploeg, J. (2005). Critical analysis of the evolution of a Canadian nurse practitioner role. *Canadian Journal of Nursing Research*, 37(4), 116-137.
- DiCenso, A. (2008). Roles, research, and resilience: The evolution of advanced practice nursing in Canada. *Canadian Nurse*, 104(9), 37-40.
- DiCenso, A., Auffrey, L., Bryant-Lukosius, D., Donald, F., Martin-Misener, R., Matthews, S. & Opsteen, J. (2007). Primary health care nurse practitioners in Canada. *Contemporary Nurse* 26, 104-115.
- DiCenso, A., Guyatt, G., & Ciliska, D. (2005). *Evidence-Based Nursing: A Guide to Clinical Practice*. St. Louis, MO: Elsevier Mosby.
- DiCenso, A., & Matthews, S. (2005). *Report on the integration of primary health care nurse practitioners into the province of Ontario*. Retrieved from http://www.health.gov.on.ca/english/public/pub/ministry_reports/nurseprac03/exec_sum.pdf
- DiCenso, A., Paech, G., & IBM Corporation. (2003). *Report on the integration of primary health care nurse practitioners into the province of Ontario*. Toronto, ON: Ministry of Health and Long-Term Care. Retrieved from http://www.health.gov.on.ca/english/public/pub/ministry_reports/nurseprac03/nurseprac03_mn.html
- Dierick-van Daele, A., Metsemakers, J. F. M., Derckx, E. W. C. C., Spreeuwenberg, C., & Vrijhoef, H. (2009). Nurse practitioners substituting for general practitioners: randomized control trial. *Journal of Advanced Nursing*, 65(2), 391-401.
- Dierick-van Daele, A., Steuten, L. M. G., Metsemakers, J. F. M., Derckx, E. W. C. C., Spreeuwenberg, C., & Vrijhoef, H. J. M. (2010). Economic evaluation of nurse Practitioner versus GPs in treating common conditions. *British Journal of General Practice*, 60(570), e28-e35.
- Dontje, K., Corser, W., Kreulen, G., & Teitelman, A. (2004). A unique set of interactions: The MSU sustained partnership model of nurse practitioner primary care. Michigan State University. *Journal of the American Academy of Nurse Practitioners*, 16(2), 63-69.
- Drummond, M. F., Sculpher, M. J., Torrance, G. W., O'Brien, B. J., & Stoddart, G. L. (2005). *Methods for the Economic Evaluation of Health Care Programmes* (3rd ed.). Oxford, England: Oxford University Press.

- Dye, J. F., Schatz, I. M., Rosenberg, B. A., & Coleman, S. T. (2000, January) Constant comparison method: A kaleidoscope of data. *The Qualitative Report*, 4 (1/2) Retrieved from <http://www.nova.edu/ssss/QR/QR4-1/index.html>
- Earl, S., Carden, F., & Smutylo, T. (2001). Outcome Mapping – Building Learning and Reflection into Development Programs. Evaluation Unit of the International Development Research Centre of Canada. Retrieved from <http://www.idrc.ca/EN/Resources/Publications/Pages/IDRCBookDetails.aspx?Publicaito nID=121>
- Edwards, N., Mill, J., & Kothari, A. (2004). Multiple interventions research programs in community health. *Canadian Journal of Nursing Research*, 36(1), 40-54.
- Eibner, C. E., Hussey, P. S., Ridgely, M. S., & McGlynn, E. A. (2009). *Controlling Health Care Spending in Massachusetts: An Analysis of Options*. RAND Corporation. Retrieved from www.rand.org/pubs/technical_reports/TR733.html
- El Jardali, F. (2003, March). *Barriers to effective collaboration between nurse practitioners and family physicians: a discussion paper*. Retrieved from <http://www.caapn.com/discussionpaper.pdf>
- Enhancing Interdisciplinary Collaboration in Primary Health Care Initiative. (EICPHCI) (2005). *The Principles and Framework for Interdisciplinary Collaboration in Primary Health Care*. Retrieved from <http://www.eicp.ca/en/principles/sept/EICP-Principles%20and%20Framework%20Sept.pdf>
- Ettner, S. L., Kotleman, J., Abdemonem, A., Vazirani, S., Hays, R. D., Shapiro, M., & Cowan, M. (2006). An alternative approach to reducing the costs of patient care? A controlled trial of the multi-disciplinary doctor-nurse practitioner (MDNP) model. *Medical Decision Making*, 26, 9- 17.
- Fahey-Walsh, J. (2004). *Advanced nursing practice and the primary health care nurse practitioner: Title, scope and role*. Canadian Nurse Practitioner Initiative, Practice Component Literature Review. Ottawa: Canadian Nurses Association.
- Farrell, B., Pottie, K., Woodend, K., Yao, V., Dolovich, L., Kennie, N., & Sellors, C. (2010). Shifts in expectations: Evaluating physicians' perceptions as pharmacists become integrated into family practice. *Journal of Interprofessional Care*, 24(1), 80-89.
- Flanagan, L. (1998). Family physicians and nurse practitioners – a perfect team. *American Family Physician*, 5, 60-64.
- Fooks, C. (2004). *Implementing primary care reform in Canada: Barriers and facilitators*. Ottawa: Canadian Policy Research Network Inc.
- Fooks, C., & Lewis, S. (2002). *Romanow and Beyond: A Primer on health reform issues in Canada*. Discussion Paper No H/05. Ottawa: Canadian Policy Research Network Inc.

- Freeman, T. (2006). 'Best practice' in focus group research: making sense of different views. *Journal of Advanced Nursing*, 56(5), 491-497.
- French, B. (2005). Contextual factors influencing research use in nursing. *Worldviews Evidence-Based Nursing*, 2(4), 172-183.
- Frohlich, K. L., Corin, E., & Potvin, L. (2001). A theoretical proposal for the relationship between context and disease. *Sociology of Health & Illness*, 23 (6), 776-797.
- Frohlich, K. L., Potvin, L., Chabot, P., & Corin, E. (2002). A theoretical and empirical analysis of context: neighbourhoods, smoking and youth. *Social Sciences & Medicine*, 54, 1401 - 1417.
- Furlong, E., & Smith, R. (2005). Advanced nursing practice: Policy, education and role development. *Journal of Clinical Nursing*, 14, 1059-1066.
- Gangeness, J., & Yurkovich, E. (2006). Revisiting case study as a nursing research design. *Nurse Researcher*, 13(4), 7 – 18.
- Gardner, G., Gardner, A., Middleton, S., Gibb, M., Della, P., & Duffield, C. (2010). Development and validation of a novel approach to work sampling: a study of nurse practitioner work patterns. *Australian Journal of Advanced Nursing*, 27(4), 4-12.
- General Practitioners Services Commission of BC (GPSCBC). (2007). *Advanced Access*. Retrieved from www.gpsc.bc.ca/psp-learning/module-overview/advanced-accessoffice-efficiency
- Gilchrist, V. J., & Williams, R. L. (1999). Key informant interviews. In B. F. Crabtree & W. L. Miller (Eds.), *Doing Qualitative Research* (2nd ed). (pp. 71-88). Thousand Oaks: Sage Publications.
- Gillis, A., & Jackson, W. (2002). *Research for nurses: Methods and interpretation*. Philadelphia: F.A. Davis Company
- Gilmer, M. J., & Smith, M. (2009). The nurse practitioner provides a substantive opportunity for task substitution in primary care – YES. *Journal of Primary Health Care*, 1(2), 140- 142.
- Glaser, B. (1965). The constant comparison method of qualitative analysis. *Social Problems*, 12(4), 436-445.
- Glaser, B. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.
- Glaser, B. & Strauss, A. (1967). *Discovery of grounded theory* Chicago: Aldine.
- Goodall, S., Montgomery, A., Banks, J., Sampson, F., Pickin, M., & Salisbury, C. (2006). Implementation of Advanced Access in general practice: a postal survey of practices. *British Journal of General Practice*, 56(533), 918-923.

- Gorman, D. (2009). The nurse practitioner provides a substantive opportunity for task substitution in primary care – NO. *Journal of Primary Health Care, 1*(2), 142-143.
- Goss Gilroy Inc. (2001). *Report on the evaluation of implementation of the role of nurse practitioner-primary health care in Newfoundland and Labrador*. St John's Newfoundland: Health & Community Services Province of Newfoundland & Labrador.
- Gould, O., Johnstone, D., & Wasylkiw, L. (2007). Nurse practitioners in Canada: beginnings, benefits, and barriers. *Journal of the American Academy of Nurse Practitioners, 19*(4), 165-171.
- Graham, I. & Logan, J. (2004). Innovations in knowledge transfer and continuity of care. *Canadian Journal of Nursing Research 36*, 89-103.
- Graham, I.D., Logan, J., Harrison, M.B., Straus, S.E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in translation: Time for a map. *Journal of Continuing Education in the Health Professions 26*(1), 13-24.
- Green, L. (2006). Public health asks of systems sciences: To advance our evidenced-based practice, can you help us get more practice-based evidence? *American Journal of Public Health, 96*(3), 1-4.
- Green, L., & Kreuter, M. (1999). *Health promotion planning: An educational and ecological approach* (3rd ed). Mountain View, California: Mayfield Publishing Co.
- Greenhalgh, T., Robert, G., MacFarlane, F., Bate, P., & Kyriakadou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Quarterly 82*(4), 581-629.
- Hallas, D. M., Butz, A., & Gitterman, B. (2004). Attitudes and beliefs for effective pediatric nurse practitioner and physician collaboration. *Journal of Pediatric Health Care, 18*, 77-86.
- Hamric, A. (2005). A definition of advanced nursing practice. In Hamric, A., Spross, J., & Hanson, C. (Eds.), *Advanced nursing practice: An integrative approach* (3rd ed.) (pp. 53-73). Philadelphia: W. B. Saunders Co.
- Hancock, D. R., & Algozine, B. (2006). *Doing case study research*. New York: Teachers College Press.
- Harris, M. F., Proudfoot, J. G., Jayasinghe, U. W., Holton, C. H., Powell Davies, G. P., Amoroso, C. L., ... Beilby, J. J. (2007). Job satisfaction of staff and the team environment in Australian general practice. *Medical Journal of Australia, 186*(11), 570-573.
- Harbour Peaks Management. (2008) *British Columbia rural physician programs review: Final report*. Vancouver, B. C: Harbour Peaks Management Inc.

- Hass, J. (2006). Nurse practitioners now able to work across Canada. *Canadian Medical Association Journal*, 174 (7), 911.
- Health Canada. (2003). *First Ministers' accord on health care renewal*. Ottawa: Health Canada.
- Health Canada. (2004). *Interprofessional education for collaborative patient-centred practice*. Retrieved from http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/interprof/index_e.html#Collaborative
- Health Canada. (2007a). *About the health transition fund*. Retrieved from www.hc-sc.gc.ca/hcs-sss/ehealth-esante/infostructure/finance/hf-fass/about-apos/index-eng.php
- Health Canada. (2007b). *Primary health care transition fund*. Retrieved July 22, 2010 from www.hc-sc.gc.ca/hcs-sss/prim/phctf-fassp/index-eng.php
- Health Council of Canada (HCC). (2004). *Primary health care: A background paper to accompany Health care renewal in Canada: Accelerating change*. Toronto, Canada: Health Council. Retrieved from www.healthcouncilcanada.ca
- Health Council of Canada (HCC). (2008). *Rekindling reform: Health care renewal in Canada, 2003 – 2008*. Toronto, Canada: Health Council. Retrieved from www.healthcouncilcanada.ca
- Health Council of Canada (HCC). (2009). *Teams in action: Primary health care teams for Canadians*. Toronto, Canada: Health Council. Retrieved from www.healthcouncilcanada.ca
- Helfrich, C., Damschroder, L.J., Hagedorn, H.J., Daggett, G.S., Sahay, J., Ritchie, M., Damush, T., Guihan, M., Ullrich, P.M., & Stetler, C.B. (2010). A critical synthesis of literature on the promoting action on research implementation in health services (PARIHS) framework. *Implementation Science* 5:82.
- Hillmer, T. (2011). The Canadian Constitution. *The Canadian Experience*. Retrieved from www.cdnexperience.ca/read-the-series/6-the-canadian-constitution.
- Hodgson, C. (1982). Ambiguity and paradox in outpost nursing. *International Nursing Review*, 29(4), 108-111, 117.
- Hollander, M. J., Kadlec, H., Hamdi, R., & Tessaro, A. (2009). Increasing value for money in the Canadian healthcare system: New findings on the contributions of primary care services. *Healthcare Quarterly*, 12(4), 30-42.
- Hogg, W., Rowan, M., Russell, G., Geneau, R., & Muldoon, L. (2008). Framework for primary care organizations: the importance of a structural domain. *International Journal for Quality in Health Care*, 20(5), 308-313.

- Holcomb, L. O. (2000). A Delphi survey to identify activities of nurse practitioners in primary care. *Clinical Excellence for Nurse Practitioners: The International Journal of NPACE*, 4(3), 163-172.
- Hollinghurst, S., Horrocks, S., Anderson, E., Salisbury, C. (2006). Comparing the cost of nurse practitioners and GPs in primary care: modelling economic data from randomised trials. *British Journal of General Practice*, 56(528), 530-5.
- Hooker, R. S. (2006). Physician assistants & nurse practitioners: The United States experience. *Medical Journal of Australia*, 185(1), 4 – 7.
- Horrocks, S., Anderson, E., & Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal*, 321, 819-823.
- Howe, K.R. (2012). Mixed methods, triangulation, and causal explanation. *Journal of Mixed Methods Research*, 6(2), 89-96.
- Howell, D. C. (2004). *Fundamental Statistics for the Behavioral Sciences* (5th ed.). Belmont CA: Brooks/Cole-Thomson Learning.
- Huse, I., McDavid, J. C., & Hawthorn, L. R. L. (2006). Concepts and issues in economic evaluation. In J.C. McDavid & L. R. L. Hawthorn (Eds.), *Program Evaluation & Performance Measurement: An Introduction to Practice*. (pp. 241-280). Thousand Oakes: Sage Publications.
- Hutchinson, B. (2004). Primary health care renewal in Canada: Are we nearly there? In R. Wilson, S. Shortt, & J. Dorland (Eds.), *Implementing primary care reform: Barriers and facilitators* (pp. 111-128). Montreal & Kingston: School of Policy Studies McGill-Queen's University Press.
- Hutchinson, B. (2008). A long time coming: Primary health care renewal in Canada. *Health care Papers*, 8(2), 10-24.
- Hutchison, B., Ableson, J., & Lavis J. (2001). Primary care in Canada: So much innovation, so little change. *Health Affairs*, 20(3), 116-131.
- Ingersoll, G., McIntosh, E., & Williams, M. (2000). Nurse sensitive outcomes of advanced practice. *Journal of Advanced Nursing*, 32(5), 1272 – 1281.
- Johnson, R. B., & Christensen, L. B. (2004). *Educational research: Quantitative, qualitative and mixed methods* (2nd ed). Boston: Pearson.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.

- Jones, L., & Way, D. (1997). Is there room for NPs and MDs ... in a community health centre? In J. Patterson (Ed.) *Visions and voices: The nurse practitioner today*. (pp.112-128). Brantford, Ontario: JPatt Publishing.
- Jones, L., & Way, D. (2004). *Delivering primary health care to Canadians: Nurse practitioners and physicians in collaboration*. Canadian Nurse Practitioner Initiative: Practice Component Literature Review Report. Retrieved from http://www.cnpi.ca/documents/pdf/Models_of_Collaboration_Literature_Review_e.pdf
- Kasperski, M. J. (2001). Where have all the family doctors gone: A discussion document. Toronto, Ontario: Ontario College of Family Physicians. Retrieved from www.cfpc.ca
- Katz, A., & MacDonald, J. (2002). Physicians' perceptions of nurse practitioners. *Canadian Nurse*, 98(7), 28-31.
- Kinnersley, P., Anderson, E., Parry, K., Clement, J., Archard, L., Turton, P., ... Rogers, C. (2000). Randomized controlled trial of nurse practitioners versus general practitioners care of patients requesting "same day" consultations in primary care. *British Medical Journal*, 320, 1043-1048.
- Kirby, M. (2002). *The health of Canadians – The federal role. Volume six: Recommendations for reform*. Standing Senate Committee on Social Affairs, Science & Technology. Ottawa: Government of Canada.
- Klassen, K., Lamont, L., & Krishnan, P. (2009). Setting a new standard of care in nursing homes. *Canadian Nurse*, 105(9), 24-30.
- Kleinpell, R. (Ed.). (2009). *Outcome assessment in advanced practice nursing* (2nd ed). New York, NY: Springer Publishing Co.
- Koren, I., Mian, O., & Rukholm, E. (2010). Integration of nurse practitioners into Ontario's primary health care system: Variations across practice settings. *Canadian Journal of Nursing Research* 42(2), 48-69.
- Kraus, V.L. (2000). The research basis for practice: the foundation of evidence-based practice. In J.V. Hickey, R.M. Ouimette, S.L. Venegoni (Eds) *Advanced practice nursing: changing roles and clinical applications*, 2nd Edition, pp. 317-329. Philadelphia: Lippincott Williams & Wilkins.
- Lague, G. (2008). Do nurse practitioners pose a threat to family physicians? YES. *Canadian Family Physician*, 54, 1668, 1670.
- Lamarche, P. A., Beaulieu, M., Pineault, R., Contandriopoulis, A., Denis, J., & Haggerty, J. (2003a). *Choices for change: The path for restructuring primary healthcare services in Canada*. Report submitted to Canadian Health Services Research Foundation Retrieved from http://www.chsrf.ca/final_research/commissioned_research/policy_synthesis/pdf/choices_for_change_e.pdf

- Lamarche, P. A., Beaulieu, M., Pineault, R., Contandriopoulos, A., Denis, J., & Haggerty, J. (2003b). *Choices for change: The path for restructuring primary healthcare services in Canada. Appendix 2- Analysis of impacts associated with models for organizing primary healthcare*. Report submitted to Canadian Health Services Research Foundation Retrieved from http://www.chsrf.ca/final_research/commissioned_research/policy_synthesis/pdf/choices_for_change_e.pdf
- Lamarche, P. A., Beaulieu, M., Pineault, R., Contandriopoulos, A., Denis, J., & Haggerty, J. (2003c). *Choices for change: The path for restructuring primary healthcare services in Canada. Appendix 3 - The process of converting primary healthcare*. Report submitted to Canadian Health Services Research Foundation Retrieved from http://www.chsrf.ca/final_research/commissioned_research/policy_synthesis/pdf/choices_for_change_e.pdf
- Laughren, J. J. (2005). Fixing family medicine in Ontario: Is increasing the number of residency positions enough? *University of Toronto Medical Journal*, 82(3), 210-11.
- Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R., & Sibbald, B. (2004). Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Reviews*, 4. Art. No.: CD001271.DOI:10.1002/14651858.CD001271.pub
- Laurant, M., Harmsen, M., Wollersheim, H., Grol, R., Faber, M., & Sibbald, B. (2009). The impact of non-physician clinicians: Do they improve the quality and cost-effectiveness of health care services? *Medical Care Research and Review*, 66, 36S- 89S.
- Laurant, M., Harmsen, M., Faber, M., Wollersheim, H., Sibbald, B., & Grol, R. (2010). *Revision of professional roles and quality improvement: a review of the evidence*. London: The Health Foundation. Retrieved from www.health.org.uk
- Lazar, H. (2009). A cross-provincial comparison of health care reform in Canada: Building blocks and some preliminary results. *Canadian Political Science Review*, 3(4), 1-14.
- Lees, R. E. M. (1973). The nurse practitioner – to be or not to be? *Canadian Medical Association Journal*, 108, 955-957.
- Lefort, S., & Kergin, D. (1978). The nurse practitioner – what happened? *Canadian Nurse*, 74, 14-17.
- Lenz, E., Mundinger, M., Hopkins, S., Lin, S., & Smolowitz, J. (2002). Diabetic care processes and outcomes in patients treated by nurse practitioners or physicians. *The Diabetes Educator*, 28(4), 590-598.
- Lenz, E., Mundinger, M., Kane, R., Hopkins, A., & Lin, S. (2004). Primary care outcomes in patients treated by nurse practitioners and physicians: Two year follow-up. *Medical Care Research and Review*, 61(3), 332-351.

- Lepnurm, R., Dobson, R., Backman, A., & Keegan, D. (2007). Factors associated with career satisfaction among general practitioners in Canada. *Canadian Journal of Rural Medicine*, 12(4), 217-230.
- Lewis, S. (2008). Afterword. In G.R. Baker, A. MacIntosh – Murray, C. Porcellato, L. Dionne, K. Stelmacovich & K. Born (Eds.) *High Performing Healthcare Systems: Delivering Quality by Design* (pp. 268-272). Toronto, Canada: Longwoods
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage.
- Linzer, M., Baier Manwell, L., Williams, E., Bobula, J. A., Brown, R. L., Varkey, A. B., ... Schwartz, M. D. (2009). Working conditions in primary care: Physician reactions and care quality. *Annals of Internal Medicine*, 151(1), 28-36, W6-9.
- London Business School. (2004). Measuring social impact: the foundation of social return of investment. London Business School. Retrieved from www.stoi.london.edu/Measuring-Social-Impact.pdf
- Luck, L., Jackson, D., & Usher, K. (2006). Case study: A bridge across the paradigms. *Nursing Inquiry*, 13(2), 103-109.
- Mable, A., & Marriott, J. (2000). Opportunities and potential: A review of international literature on PHC reform and models. Ottawa: Health Canada. Retrieved from www.hc-sc.gc.ca/hcs-sss/pubs/acces/2000-htf-fass-prim/app_ann_a-eng.php
- Mable, A., & Marriott, J. (2002). Sharing the learning: Health transition fund: Synthesis Series: Primary health care. Ottawa: Health Canada. Retrieved from www.hc-sc.gc.ca/hcs-sss/pubs/acces/2002-htf-fass-prim/app_ann_a-eng.php
- MacCarthy, D. (2009). Divisions of family practice: New initiative of General Practice Services Committee. *BC Medical Journal*, 51(2), 59-61.
- MacDonald, M. A., & Green, L. W. (2001). Reconciling concept and context: The dilemma of implementation in school-based health promotion. *Health Education & Behaviour*, 28(6), 749-768.
- MacDonald, M., Regan, S., Davidson, H., Schreiber, R., Crickmore, J., & Moss, L. (2006). Knowledge translation to advance the nurse practitioner role in British Columbia. *Healthcare Policy*, 1(2), 80-89.
- MacDonald, M., & Roots, A. (2008). *Exploring influences on the implementation of the nurse practitioner role in British Columbia*. Manuscript submitted to BC Ministry of Health.
- MacDonald, M., Schreiber, R., Hammond, C. & Wright, N. (2001). *Advanced nursing practice: Exploring the potential for the development of the NP role in BC*. Final report submitted to the British Columbia Ministry of Health Planning. Victoria, BC.

- Macinko, J. B., Starfield, B., & Shi, L. (2003). The contribution of primary care systems to health outcomes within Organization for Economic Co-operation and Development (OECD) countries, 1970 – 1998. *Health Services Research*, 38(3), 831-65.
- Makowsky, M. J., Schindel, T. J., Rosenthal, M., Campbell, K., Tsuyuki, R. T., & Madill, H. M. (2009). Collaboration between pharmacists, physicians and nurse practitioners: A qualitative investigation of working relationships in the inpatient medical setting. *Journal of Interprofessional Care*, 23(2), 169-184.
- Marchionni, C., & Ritchie, J. (2008). Organizational factors that support the implementation of a nursing best practice guideline. *Journal of Nursing Management*, 16, 266- 274.
- Marsden, J., Dolan, B., & Holt, L. (2003) Nurse practitioner practice and deployment: Electronic mail Delphi study. *Journal of Advanced Nursing*, 43(6), 595-605.
- Marshall, D., Demers, C., O'Brien, B., & Guyatt, G. (2005). Economic evaluation. In A. DiCenso, G. Guyatt, & D. Ciliska (Eds.), *Evidenced-Based Nursing: A Guide to Clinical Practice*. (pp. 298-317). St. Louis, MO: Elsevier Mosby.
- Martin-Misener, R., (2006). *Defining a role for primary health care nurse practitioners in rural Nova Scotia*. (Doctoral dissertation, University of Calgary). Ottawa: Library and Archives Canada, 2007.
- Martin-Misener, R. (2010). Will nurse practitioners achieve full integration into the Canadian health care system? *Canadian Journal of Nursing Research*, 42(2), 9-16.
- Martin-Misener, R., & Crawford, T. (2010). *A survey of the practice patterns of nurse practitioners in primary health care in Nova Scotia*. Halifax, N.S. Dalhousie University & College of Registered Nurses of Nova Scotia.
- Martin-Misener, R., Downe-Wambolt, 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 & Development*, 10, 14- 25.
- Martin-Misener, R., Bryant-Lukosius, D., Harbman, P., Donald, F., Kaasalainen, S., Carter, N., ... DiCenso, A. (2010a). Education of advanced practice nurses in Canada. *Canadian Journal of Nursing Leadership*, 23 (Special Issue), 61-84.
- Martin-Misener, R., Reilly, S. M., & Robinson Vollman, A., (2010b). Defining the role of primary health care nurse practitioners in rural Nova Scotia. *Canadian Journal of Nursing Research*, 42(2), 30 -47.
- Mazzaglia, G., Lapi, F., Silvestri, C., Roti, L., Giustini, S. E., & Buiatti, E. (2009). Association between satisfaction and stress with aspects of job and practice management among primary care physicians. *Quality in Primary Care*, 17, 215-23.
- Maxwell, J. (1997). Designing a qualitative study. In L. Bickman & D. J Rog (eds.), *Handbook of applied social research methods* (pp. 69-100). Thousand Oaks, CA: Sage.

- Maxwell, J. (2004). Causal explanation, qualitative research, and scientific inquiry in education. *Educational Researcher*, 33(2), 3-11.
- McCloskey, B., Grey, M., Deshefy-Longhi, T., & Grey, L. J. (2003). APRN practice patterns in primary care. *The Nurse Practitioner*, 28(4), 39 -44.
- McCormack, B., Kitson, A., Harvey, G., Rycroft-Malone, J., Titchen, A., & Seers, K. (2002). Getting evidence into practice: the meaning of 'context'. *Journal of Advanced Nursing* 38 (1), 94-104.
- McDonnell, A., Lloyd Jones, M., & Read, S. (2000). Practical considerations in case study research: the relationship between methodology and process. *Journal of Advanced Nursing*, 32(2), 383-390.
- McLain, B. (1988). Collaborative practice: the nurse practitioner's role in its success or failure. *Nurse Practitioner*, 13(5), 31-40.
- McLaren, L., & Hawe, P. (2005). Ecological perspectives in health research. *Journal of Epidemiology and Community Health*, 59(1), 6 -14.
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15(4), 351-377.
- Meijers, J., Janssen, M. A. P., Cummings, G., Wallin, L., Estabrooks, C. A., & Halfens, R. Y. G. (2006). Assessing the relationships between contextual factors and research utilization in nursing: systematic literature review. *Journal of Advanced Nursing*, 55(5), 622-635.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass Publishers.
- Mikhael, N., Ozon, P., & Rhule, C. (2007). *Defining the physician assistant role in Ontario: Ontario physician assistant scope of practice statement and Ontario physician assistant competency profile*. Toronto, Ontario: Healthforce Ontario.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded source book*. (2nd ed) Thousand Oaks, CA: Sage Publications.
- Miller, W. L., Crabtree, B. F., Nutting, P. A., Stange, K. C., & Jaén, C. R. (2010). Primary care practice development: A relationship-centred approach. *Annals of Family Medicine*, 8 (Suppl. 1), S68-79.
- Miller, W. L., & Crabtree, B. F. (1999). Clinical research: A multimethod typology and qualitative roadmap. In B. F. Crabtree & W. L. Miller (Eds.), *Doing Qualitative Research* (2nd ed). (pp. 3-30). Thousand Oaks: Sage Publications.
- Moneo, S. (2010, July 05). Nurse practitioners key to Falcon's health plan. *The Globe and Mail*, Page S01.

- Mundinger, M., Kane, R., Lenz, E., Totten, A., Tsai, W., Cleary, P., ... Shelanski, M. L. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: A randomized trial. *Journal of the American Medical Association*, 283, 59-68.
- Nagel, J. (2010, June 7). B.C. fails to use many nurse practitioners. *Abbotsford News*. Retrieved from www.bclocalnews.com/bc_valley_abbotsfordnews/opinion/
- Nastasi, B. K. & Hitchcock, J. (2009). Challenges in evaluating multilevel interventions. *American Journal of Community Psychology*, 43, 360-376.
- Naylor, M. D. & Kurtzman, E. T. (2010). The role of nurse practitioners in reinventing primary care. *Health Affairs*, 29(5), 893-899.
- Newhouse, R. P., Stanik-Hull, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., ... Weiner, J. P. (2011) Advanced practice nurse outcomes 1990-2008: A systematic review. *Nursing Economics*, 29(5), 230-250.
- Norquay, G. (2011, December, 23). Health-care funding: How Harper views the Canadian federation. *The Globe and Mail*, Retrieved from www.theglobeandmail.com
- Nurse Practitioner Organization of Saskatchewan (NPOS). (2010). History of NPs in Saskatchewan. Retrieved from http://www.npos.ca/nps_in_saskatchewan/history?ssid
- “NP-led clinics: Ontario leads the way.” (2010, November). *Canadian Nurse*, 106(9), 30-35.
- Organization for Economic Co-operation and Development (OECD). (2008). *Sourcebook on Emerging Good Practices in Managing for Development Results*. (3rd ed). Retrieved from www.mfdr.org/sourcebook/3rdedition/sourcebook3FINAL.pdf
- Oelke, N. D., White, D., Besner, J., Doran, D., McGillis Hall, L., & Giovannetti, P. (2008). Nursing workforce utilization: an examination of facilitators and barriers on scope of practice. *Nursing Leadership*, 21(1), 58-71.
- Ohman-Strickland, P. A., Orzano, A. J., Hudson, S. V., Solberg, L. I., DiCiccio-Bloom, B., & O'Malley, D. (2008). Quality of diabetes care in family medicine practices: Influence of nurse-practitioners and physician's assistants. *Annals of Family Medicine*, 6(1), 14-22.
- Ontario College of Family Physicians. (2003). The leadership connect and the leadership project management program. Unpublished work.
- 100 Mile House Free Press. (2010, July 20). Nurse practitioners needed. *100 Mile House Free Press*. Retrieved from www.bclocalnews.com/bc_cariboo/100milefreepress/opinion/98889759.html
- Paez, K. & Allen, J. (2006). Cost-effectiveness of nurse practitioner management of hypercholesterolemia following coronary revascularization. *Journal of the American Academy of Nurse Practitioners*, 18(9), 436-444.

- Pallant, J. (2007). *SPSS Survival Manual* (3rd ed). Berkshire, England: McGraw-Hill Education.
- Patterson, C. (Ed.) (2001). *Nurse practitioners... the catalyst of change*. Brantford, Ontario: JPatt Publishing.
- Payton, L. (2011, December, 19). Premiers split over Flaherty health-funding bombshell. *The Globe and Mail*. Retrieved from www.globeandmail.com
- Pelletier, D., & Duffield, C. (2003). Work sampling: Valuable methodology to define nursing practice patterns. *Nursing and Health Sciences*, 5, 31-38.
- Picard, A., (2010, June 30). We need more primary care, not more physicians. *The Globe and Mail* Retrieved from <http://license.icopyrightnet/user/viewFreeUse.act?fuid+ODk3ODMONA%3D%3D>
- Pierard, E. (2009). *The effect of physician supply on health status as measured in the national population health survey*. Waterloo Economic Series. Working Paper #09-01. Waterloo, Ontario: University of Waterloo.
- Pogue, P. (2007). The nurse practitioner role: Into the future. *Canadian Journal of Nursing Leadership*, 20 (2), 34 -38.
- Pottie, K., Farrell, B., Haydt, S., Dolovich, L., Sellors, C., Kennie, N., ... Martin, C. M. (2008). Integrating pharmacists into family practice teams. *Canadian Family Physician*, 54, 1714-5.e1-5.
- Pringle, D. (2007). Nurse practitioner role: Nursing needs it. *Canadian Journal of Nursing Leadership*, 20 (2), 1-5.
- Pringle, D., & Doran, D. (2003). Patient outcomes as an accountability. In D. M. Doran (Ed) *Nursing-Sensitive Outcomes: State of the Science* (pp.1 – 26). Sudbury, Massachusetts: Jones and Bartlett.
- Pulcini, J., Jelic, M., Gul, R., & Yuen Loke, A. (2010). An international survey on advanced practice nursing education, practice, and regulation. *Journal of Nursing Scholarship*, 42(1), 31-39.
- QSR International. (2010). *NVivo 9 Getting Started*. Melbourne, Australia: QSR Property Ltd.
- Quagliette, S., & Anderson, B. (2002). Developing the adult NPs role in home care. *The Nurse Practitioner*, 27(3), 14, 81-82.
- Reay, T., Patterson, E. M., Halma, L., & Steed, W. (2006). Introducing a nurse practitioner: Experiences in a rural Alberta family practice clinic. *Canadian Journal of Rural Medicine*, 11 (2), 101-107.

- Registered Nurses Association of British Columbia (RNABC). (2003). *Competencies required for nurse practitioners in British Columbia*. Retrieved from <http://www.crnbc.ca/downloads/416.pdf>
- Richards, L. (2006). *Up and Running in your project: A Post-workshop Handbook for NVivo 7*. Retrieved from www.sagepub.co.uk/richards/
- Robinson, R. (1993a). Economic evaluation and health care: What does it mean? *British Medical Journal*, 307, 670-673.
- Robinson, R. (1993b). Economic evaluation and health care: Cost-effectiveness analysis. *British Medical Journal*, 307, 793-5.
- Robles, L., Slogoff, M., Ladwig-Scott., E., Zank, D., Larson, M. K., Aranha, G., & Shoup, M. (2011). The addition of a nurse practitioner to an impatient surgical team results in improved use of resources. *Surgery*, 150(4), 711-717.
- Roblin, O. W., Howard, D. H., Becker, E. R., Adams, E., & Roberts, M. H. (2004). Use of midlevel practitioners to achieve labor cost savings in the primary care practice of a MCO. *Health Services Research*, 39, 607-26.
- Romanow, R. (2002). *Building on values: The future of health care in Canada*. Ottawa: Commission on the future of health care in Canada.
- Roots, A. (2008, December). *How does the nurse practitioner role implementation in British Columbia constitute a "population health intervention"?* Paper presented in defence of PhD Candidacy Examination, University of Victoria, December, 2008.
- Roots, A. (2011, November). *NPs in British Columbia, 2011: Profile of Positions – Update to the BCNPA*. Unpublished report provided to British Columbia Nurse Practitioner Association, November, 2011.
- Roots, A., & MacDonald, M. (2008). *3 Years down the road: Exploring the implementation of the nurse practitioner role in British Columbia*. Poster presented at the 5th International Council of Nurses International Nurse Practitioner / Advanced Practice Nursing Network (INP/APNN) Conference, Toronto, Canada.
- Roots, A., & MacDonald, M. (2010). *NPs in British Columbia, 2009: Profile of Positions and Practice*. Poster presented at the 5th British Columbia Nurse Practitioner Conference, Richmond BC, Canada.
- Rose, K. D., Ross, J. S., & Horwitz, L. I. (2011) Advanced access scheduling outcomes: a systematic review. *Archives of Internal Medicine*, 171(13), 1150-9.
- Rosenberg, J. P., & Yates, P. (2007). Schematic representation of case study research designs. *Journal of Advanced Nursing*, 60(4), 447-452.

- Running, A., Hoffman, L., & Mercer, V. (2008). Physician perceptions of nurse practitioners: A replication study. *Journal of the American Academy of Nurse Practitioners*, 20, 429-433.
- Rural Healthnet BC. (2009). Nurse practitioner in fee-for-service office. *Rural Healthnet Stories*, Retrieved from www.ruralhealthnetbc.org/index.php
- Russell, G. M., Dabrouge, 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.
- Rycroft-Malone, J. (2005). Getting evidence into practice: a contact sport. *Worldviews on Evidence-Based Nursing*, 2 (1), 1 -3.
- Rycroft-Malone, J. (2008). Evidence-informed practice: from individual context. *Journal of Nursing Management*, 16, 404-408.
- Rycroft-Malone, J., Harvey, G., Kitson, A., McCormack, B., Seers, K., & Titchen, A. (2002). Getting evidence into practice: Ingredients for change. *Nursing Standard*, 16, 38-43.
- Rycroft-Malone, J., Seers, K., Titchen A., Harvey, G., Kitson, A., & McCormack, B. (2004). What counts as evidence in evidence-based practice? *Journal of Advanced Nursing*, 64 (1), 81-90.
- Sangster-Gormley, E. (2012). *Nurse practitioner – sensitive outcomes: A summary report. 2011 update* Prepared for the College of Registered Nurses of Nova Scotia. Retrieved from <http://www.crns.ca/documents/NPSensitiveOutcomes2011.pdf>
- Sangster-Gormley, E. V. (2011). *A case study of the process of nurse practitioner role implementation within a health authority in British Columbia*. (Doctoral dissertation, Dalhousie University). Retrieved from <http://www.library.dal.ca>
- Sangster- Gormley, E., Martin-Misener, R., Downe-Wambolt, B., & DiCenso, A. (2011). Factors affecting nurse practitioner role implementation in Canadian practice settings: an integrative review. *Journal of Advanced Nursing*, 67(6), 1178-1190.
- San Martin-Rodriguez, L., Beaulieu, M. D., D'Amour, D., & Ferrada-Videla, M. (2005). The determinants of successful collaboration: A review of theoretical and empirical studies. *Journal of Interprofessional Studies*, (Supplement 1), 132-147.
- Sawchenko, L., Fulton, T., Gamroth, L., & Budgen, C. (2011). Awareness and acceptance of the nurse practitioner role in one BC health authority. *Canadian Journal of Nursing Leadership*, 24(4), 101-111.
- Schober, M., & Affara, F. (2006) *Advanced Nursing Practice*. International Council of Nurses. Oxford: Blackwell Publishing Ltd.

- Schreiber, R., MacDonald, M., Davidson, H., Crickmore, J., Moss, L., Pinelli, J., ... Hammond, C. (2003). *Advanced nursing practice in British Columbia: Opportunities and challenges*. Final report, CHSRF #RC1-0533-10.
- Schuiling, K., & Slager, J. (2000). Scope of practice: Freedom within limits. *Journal of Midwifery and Women's Health*, 45(6), 465-71.
- Schuttelaar, M. L. A., Vermeulen, K. M., & Coenraads, P. J. (2011). Costs and cost-effectiveness analysis of treatment in children with eczema by nurse practitioner vs. dermatologist: results of a randomized, controlled trial and review of international costs. *British Journal of Dermatology*, 165(3), 600-611.
- Seigfried, C. H. (1998). Pragmatism. In A. Jaggar & I. Young (Eds.), *A companion to feminist philosophy* (pp. 49-57). Malden, MA: Blackwell.
- Shoultz, J., & Hatcher, P. (1997). Looking beyond primary care to primary health care: An approach to community-based action. *Nursing Outlook*, 45(1), 23-26.
- Sibbald, B., Bojke, C., & Gravelle, H. (2003). National survey of job satisfaction and retirement intentions among general practitioner in England. *British Medical Journal*, 326, 22-4.
- Sidani, S., & Irvine, D. (1999). A conceptual framework for evaluating the nurse practitioner role in acute care setting. *Journal of Advanced Nursing*, 30(1), 58-66.
- Sidani, S., Irvine, D., & DiCenso, A. (2000). Implementation of the primary care nurse practitioner role in Ontario. *Canadian Journal of Nursing Leadership*, 13(3), 13-19.
- Sidani, S., Doran, D., Porter, H., LeFort, S., O'Brien-Pallas, L., Zahn, C., ... Sarkissian, S. (2006). Processes of care: comparison between nurse practitioners and physician residents in acute care. *Canadian Journal of Nursing Leadership*, 19(1), 69-85.
- Spitzer, W. O. (1984). The nurse practitioner revisited: Slow death of a good idea. *New England Journal of Medicine*, 310(16), 1049-1051.
- Spitzer, W. O. & Kergin, D. J. (1973). Nurse practitioners in primary care I. The McMaster University educational program. *Canadian Medical Association Journal*, 108, 991-995.
- Spitzer, W. O., Kergin, D. J., Yoshida, M. A., Russell, W., Hackett, B. C., & Goldsmith, C. H. (1973). Nurse practitioners in primary care III. The southern Ontario randomized trial. McMaster University educational program. *Canadian Medical Association Journal*, 108, 1005-1016.
- Spitzer, W. O., Sackett, D. L., Sibley, J. C., Roberts, R. S., Gent, M., Kergin, D. J., ... Wright, K. (1974). The Burlington randomized trial of the nurse practitioner. *New England Journal of Medicine*, 290(5), 251-256.
- St. Julien, J. (2011). On complex theories, social networking and learning. *Complicity: An International Journal of Complexity and Education*, 8(2), 67-75.

- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- Stake, R. E. (2006). *Multiple case study analysis*. New York: Guilford Press.
- Starfield, B. (1992) *Primary care: Concept, evaluation and policy*. New York: Oxford University Press.
- Starfield, B. (1998) *Primary care: Balancing health needs, services and technology*. New York: Oxford University Press.
- Starfield, B., Shi, L. Y., & Macinko, J. (2005). Contribution of primary care to health systems and health, *Millbank Quarterly*, 83(3), 457-502.
- Stevenson, L., & Sawchenko, L. (2010). Commentary. *Canadian Journal of Nursing Research*, 42(2), 17-18.
- Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion*, 10(4), 282-298.
- Stone, S. (1999). Where is primary health care in health care reform? *Nursing BC*, 331(1), 29-30.
- Sunstrom, E., De Meuse, K. P., & Futrell, D. (1990). Workteams: Applications and effectiveness. *American Psychologist*, 54, 120-133.
- Tarlier, D. S., Johnson, J. L., & Whyte, N. B. (2003). Voices from the wilderness: An interpretive study describing the role and practice of outpost nurses. *Canadian Journal of Public Health*, 94, 180-184.
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research*. Thousand Oaks, CA: Sage Publications.
- Thomas, D. R. (2003). *A general inductive approach for qualitative data analysis*. Retrieved from www.fmhs.auckland.ac.nz/soph/centres/hrmas/_docs/Inductive2003.pdf
- Thomas-MacLean, R., Tarlier, D, Ackroyd-Stolarz, S., Fortin, M., & Stewart, M. (2009). "No cookie-cutter response": *Conceptualizing primary health care*. Retrieved from www.uwo.ca/fammed/csfm/tutor_phc/pdf/TUTOR
- Tomblin Murphy Consulting Inc. (2004). *Recruitment and retention of primary health care nurse practitioners in Canada*. Canadian Nurse Practitioner Initiative, Health Human Resources Component Literature Review Report. Ottawa: Canadian Nurses Association.
- Tomblin Murphy Consulting Inc. (2005). *Health human resources planning / modelling activities for primary health care nurse practitioners*. Canadian Nurse Practitioner Initiative, Health Human Resources Component Literature Review Report. Ottawa: Canadian Nurses Association.

- Trickett, E. J. (2009). Multilevel community-based culturally situated interventions and community impact: An ecological perspective. *American Journal of Community Psychology*, 43, 257-266.
- Trochim, W. M. (2006). *The research methods knowledge base* (2nd ed). Cincinnati, Ohio: Atomic Dog Publishing.
- Urden, L. D., & Roode, J. L. (1997). Work sampling: A decision-making tool for determining resources and work design. *Journal of Nursing Administration*, 27, 34-41.
- van de Mortel, T.F. (2008) Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25(4), 40-48.
- Van Ham, I., Verhoeven, A., Groenier, K. H., Groothoff, J. W., & De Haan, J. (2006). Job satisfaction among general practitioners: A systematic literature review. *European Journal of General Practice*, 12, 174-180.
- van Soeren, M., Hurlock-Chorostecki, C., Kenaszchuk, C., Abramovich, I., Reeves, S., & Li Ka Shing Knowledge Institute. (2009). *Research Project: The integration of specialty nurse practitioners into the Ontario healthcare system*. Report to Ontario Ministry of Health and Long-Term Care
- van Soeren, M., & Micevski, V. (2001). Success indicators and barriers to acute nurse practitioner role implementation in four Ontario hospitals. *AACN Clinical Issues*, 12 (3), 424 – 437.
- Venning, P., Durie, A., Roland, M., Roberts, C., & Leese, B. (2000). Randomised controlled trial comparing cost effectiveness of general practitioners and nurse practitioners in primary care. *British Medical Journal*, 320, 1048-53.
- Vukic, A., & Keddy, B. (2002). Northern nursing practice in primary health care setting. *Journal of Advanced Nursing*, 40(5), 542-48.
- Walshe, C. E., Caress, A. L., Chew-Graham, C., & Todd, C. J. (2004). Case studies: A research strategy appropriate for palliative care? *Palliative Medicine*, 18(8), 677-84.
- Watson, D. E., & McGrail, K. M. (2009). More doctors or better care? *Healthcare Policy*, 5(1), 26-31.
- Watson, D., Mooney, D., McKendry, R., Martin, D., McLeod, C., Regan, S., & Wong, S. (2009). *On the road to renewal: Mapping primary health care in British Columbia*. Vancouver: Centre for Health Services and Policy Research, University of British Columbia.
- Watts, R. (2010, March 11). Part nurse, part doctor, no job. *Times Colonist*. Retrieved from www.timescolonist.com
- Way, D., & Jones, L. (1994). The family physician-nurse practitioner dyad: indications and guidelines. *Canadian Medical Association Journal*, 151, 29-34.

- Way, D., Jones, L., Baskerville, B., & Busing, N. (2001). Primary health care services provided by nurse practitioners and family physicians in shared practice. *Canadian Medical Association Journal*, 165(9), 1210-1214.
- Way, D., Jones, L., & Busing, N. (2000). *Implementation strategies: Collaboration in primary care - family doctors and nurse practitioners delivering shared care. Report for the Ontario College of Family Physicians*. Retrieved from http://www.uottawa.ca/academic/med/family/pdf/research/np_fp/ocfp_paperho.pdf
- Wearing, J., Black, J., & Kline, K. (2010). A model for nurse practitioner regulation: Principles underpinning the three registration categories approach. *Canadian Journal of Nursing Leadership*, 22(4), 40-49.
- Weaver, K., & Olson, J. K. (2006). Understanding paradigms used for nursing research. *Journal of Advanced Nursing*, 53(4), 459-469.
- Weiss, C. (1998). *Evaluation*. (2nd ed). Prentice Hall: Upper Saddle River, New Jersey.
- White, D., Oelke, N. D., Besner, J., Doran, D., McGillis Hall, L., & Giovannetti, P. (2008). Nursing scope of practice: Descriptions and challenges. *Nursing Leadership*, 21(1), 44-57.
- Wilson, K., Coulon, L., & Hillege, S. (2005). Nurse practitioners' experiences of working collaboratively with general practitioners and allied health professional in New South Wales, Australia. *Australian Journal of Advanced Nursing*, 23(2), 22-27.
- Wilson-Grau, R. (2008). *Customising definitions of outputs, outcomes and impacts*. Retrieved from www.outcomemapping.ca/resource/resource.pdf?id=189.
- Wong, S. T., MacDonald, M., Valaitis, R. K., Kaczorowski, J., Munroe, V., & Blatherwick, J. (2009). *An environmental scan of primary care and public health in the province of British Columbia*. Vancouver: Centre for Health Services and Policy Research, University of British Columbia.
- Wong, S. T., Peterson, S., Regan, S., Watson, D. E., & Black, C. (2007). *Understanding British Columbians' experiences with primary health care: Developing a sector specific survey*. Vancouver, BC: Centre for Health Services and Policy Research, University of British Columbia.
- Wong, S. T., & Regan, S. (2009). Patient perspectives on primary care in rural communities: effects of geography on access, continuity and efficiency. *Rural and Remote Health*, 9 (online) 1142. Retrieved from www.rrh.org.au
- World Health Organization (WHO). (1978). *Primary health care: Report on the international conference on primary health care*. Geneva: WHO
- Worster, A., Sarco, A., Thrasher, C., Fernandes, C., & Chemeris, E. (2005). Understanding the role of nurse practitioners in Canada. *Canadian Journal of Rural Medicine*, 10(2), 89 -94.

- Wuest, J. (2007). Grounded theory: The method. In P. L. Munhall (Ed.) *Nursing Research: A qualitative perspective (4th ed)*. Sudbury MA: Jones and Bartlett.
- Yin, R. K. (1999). Enhancing the quality of case studies in health services research. *Health Services Research*, 34 (5) Part II, 1209-1224.
- Yin, R. K. (2003a). *Applications of case study research*. (2nd ed). Thousand Oaks, CA: Sage Publications.
- Yin, R. K. (2003b). *Case study research: Design and methods*. (3rd ed). Thousand Oaks, CA: Sage Publications.
- Yin, R. K. (2009). *Case study research: Design and methods*. (4th ed). Thousand Oaks, CA: Sage Publications.
- Yukon Registered Nurses Association (YRNA). (2009). *Legislation opens door for nurse practitioners*. Whitehorse, Yukon: Yukon Registered Nurses Association.
- Zainal, Z. (2007). Case study as a research method. *Jurnal Kemanusiaan*, 9 (June), 1 – 6.
- Zelmer, J., & Lewis, S. (2003). Looking back, looking ahead: Primary healthcare renewal in Canada. *Hospital Quarterly*, 6(4), 39-43.




University
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Appendix A University of Victoria Certificates of Ethical Approval

Human Research Ethics Board
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Victoria British Columbia V8W 2Y2 Canada
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Certificate of Approval

PRINCIPAL INVESTIGATOR: Alison Roots	ETHICS PROTOCOL NUMBER: 11-208
UVic STATUS: Ph.D. Student	ORIGINAL APPROVAL DATE: 13-May-11
UVic DEPARTMENT: NURS	APPROVED ON: 13-May-11
SUPERVISOR: Marjorie MacDonald	APPROVAL EXPIRY DATE: 12-May-12
PROJECT TITLE: Outcomes associated with family nurse practitioner collaborative practice in community-based primary care practice	
RESEARCH TEAM MEMBERS: None	
DECLARED PROJECT FUNDING: BC Ministry of Health; CHSRF/CIHR in Advance Practice Nursing	
CONDITIONS OF APPROVAL	
<p>This Certificate of Approval is valid for the above term provided there is no change in the protocol.</p> <p>Modifications To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.</p> <p>Renewals Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.</p> <p>Project Closures When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.</p>	
Certification	
<p>This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.</p> <p style="text-align: center;">  <hr/> Dr. Rachael Scarth Acting Associate Vice-President, Research </p>	

11-208
Roots, Alison

Certificate Issued On: 13-May-11



University
of Victoria

Human Research Ethics Board

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Modification of an Approved Protocol

PRINCIPAL INVESTIGATOR: Alison Roots	ETHICS PROTOCOL NUMBER: 11-208
UVic STATUS: Ph.D. Student	ORIGINAL APPROVAL DATE: 13-May-11
UVic DEPARTMENT: NURS	MODIFIED ON: 28-Sep-11
SUPERVISOR: Marjorie MacDonald	APPROVAL EXPIRY DATE: 12-May-12
PROJECT TITLE: Outcomes associated with family nurse practitioner collaborative practice in community-based primary care practice	
RESEARCH TEAM MEMBERS: None	
DECLARED PROJECT FUNDING: BC Ministry of Health; CHSRF/CIHR in Advance Practice Nursing (previous fundings)	
CONDITIONS OF APPROVAL	
<p>This Certificate of Approval is valid for the above term provided there is no change in the protocol.</p> <p>Modifications To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.</p> <p>Renewals Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.</p> <p>Project Closures When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.</p>	
Certification	
<p>This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.</p> <p style="text-align: center;"><i>Rachael Scarth</i></p> <hr style="width: 20%; margin: auto;"/> <p style="text-align: center;">Dr. Rachael Scarth Associate Vice-President, Research</p>	

Certificate Issued On: 28-Sep-11

11-208
Roots, Alison

Appendix B Letter of Invitation to Participate in Study

Email Script for [REDACTED] to send to NPs at NP/Family Physician Collaborative Practice Sites

Introduction and Recruitment to study

Subject Line: Research Study – Outcomes of NP /FP Collaborative Practice Model

Email message:

A research study is being undertaken by Alison Roots, a PhD candidate in the School of Nursing, University of Victoria, to identify what are the outcomes of introducing a nurse practitioner into a fee-for-service community-based primary care practice. This study will form the basis of her PhD dissertation.

[REDACTED] is fully supportive of this research and is assisting the study by inviting its NPs and associated group practices who participate in the *NP/Family Physician Primary Health Care* project (NP/FP PHC) to participate in the study.

Attached to this email is a letter of introduction for the study and a request for group practices associated with the NP/FP PHC project to volunteer to participate in the study. The study is a case study of the practice, and its relationships with the local community and the health care system to identify changes associated with the introduction of the NP role. The study involves interviews, observations at the practice, and the collection of data in the form of documents and statistical data relating to indicators of access, chronic disease management, and utilization of acute care services by patients of the practice.

As the NP receiving this email, and the attached letter, you are asked to decide if you are interested in participating in this study. If you are interested in participating you are then asked to share this email and the attached letter with the professional colleagues you work with in the primary care practice, and staff in the primary care practice. If the practice, as a group, is interested in participating in this study please contact Alison Roots directly using the contact information in the attached letter of introduction.

Please note participation by all members of the practice (practitioners and staff) is not required for the practice as a group to participate, however the majority of the members of the group practice who work with you, the NP, need to be interested in participating. Consent will be sought from each of the individual participants by the researcher at the practice site prior to any data collection and the other members of the practice will not be informed of who is participating in the data collection.

Participation in this research is voluntary and choosing to participate or not will not impact your relationship with [REDACTED]. [REDACTED] and the researcher appreciate your voluntary participation in this data collection. We believe that the information gathered in this study will be of benefit to

furthering the implementation and development of the NP role in primary health care in [REDACTED] and BC.

Appendix C Letter of Information and Written Consent for NP-FP Primary Care Practices



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LETTER OF INFORMATION AND WRITTEN CONSENT FOR

NP-FP PRIMARY CARE PRACTICES

Outcomes Associated with Family Nurse Practitioner Collaborative Practice in Community-Based Primary Care

You are invited to participate in a research study entitled **Outcomes Associated with Family Nurse Practitioner Collaborative Practice in Community-Based Primary Care**. This research is being conducted by Alison Roots, a PhD candidate in the School of Nursing at the University of Victoria, and you may contact her if you have further questions by email or phone:

Email: [REDACTED]

Phone: [REDACTED]

As a graduate student, Alison is required to conduct research as part of the requirements for a Doctorate in Philosophy in Nursing. This research is being conducted under the supervision of Dr. Marjorie MacDonald. You may contact her supervisor by email or phone:

Email: [REDACTED]

Phone: [REDACTED]

This research is being funded in part by the BC Ministry of Health and the CHSRF/CIHR Chair in Advanced Practice Nursing, and supported by [REDACTED]

The purpose of this study is to conduct multiple case studies to identify the changes and outcomes associated with the introduction of a NP into a fee-for-service community-based primary care practice. These changes are expected to occur at the different levels of relationships that exist within a primary care practice. The objectives of this study are:

- (a) describe the different components of the enacted NP role;
- (b) describe what changes have occurred at the practitioner, internal organizational, external organizational, and health system levels since the introduction of the NP role;
- (c) identify the outcomes from these changes.

NP research to date has largely focused on the direct patient care aspects of the role to confirm their capacity to safely and effectively provide primary care to individuals and families. Little is known about how the NP role has been enacted in a collaborative practice model in community-based primary care settings, especially in BC, and how this enactment of the role can create changes that impact on their practitioner colleagues, the organization of primary care practices, and the community and local health system associated with these practices. Studies from other settings have identified that collaborative practice models can improve outcomes on many levels. This study is going to investigate what outcomes have occurred in community-based fee-for-service primary care practices.

In order to obtain information about the changes and outcomes associated with a NP- Family Physician collaborative practice model in community-based primary care settings, group

practices participating in [REDACTED] *Nurse Practitioner / Family Physician Primary Health Care* project (NP/FP PHC project) are being invited to participate in this study.

This study requires the voluntary participation of the NP as well as the majority of the members of the group practice who work with the NP. The members of the group practice would include family physicians, other practitioners working at the practice if applicable, and office staff. Some members from each of the physician/practitioner and office staff categories need to participate, however not all members of each of these categories have to participate.

If your group practice agrees to participate in this research, the practitioners (NP, physicians and others if applicable) and office staff of the practice will be asked to participate in interviews, and observation of the practice site will be undertaken. The practice will also be asked to provide access to practice records, service data and documents that could be used to determine what the role of the NP is in the practice, and what changes in access and utilization of the practice by the practice patients have occurred since the role was introduced. All the research activities described below will occur at the practice and will take place over a period of approximately two non-consecutive working weeks.

The face to face interviews will be undertaken to identify how the NP role has been enacted in the practice, and the changes that have occurred within the practice, with community organizations and services, and at the local acute care level of the health authority services, since the enactment of this role. These interviews are expected to take 60 – 90 minutes to complete; they will be audio taped and then transcribed verbatim.

Observation of the practice will be used to identify the physical arrangements of the practice, the types of interactions that occur between the NP and other members of the practice, and other specific activities and events related to the role undertaken by the NP in the practice setting. Observations will only involve those members of the practice that have consented to participate in the research study. The length of time of these observations will be determined by the length of the specific activities and will take place over approximately a one week period. The observations at the practice **will not** include observations of interactions with patients.

Documents related to the practice of the NP will be used to identify how the NP role has been enacted in the practice and changes that have occurred within the practice since the introduction of the role.

Practice records and service data will be used to identify changes in access and utilization of the practice by the practice patients. This is expected to include records such as practice schedules, number of patients seen per day, overall practice volume, wait times for patients' scheduled visits and records relating to chronic disease management within the practice population. The exact nature of these records is expected to be different in each group practice; therefore a two-step process to collect this part of the research data will be used. The first step will involve the researcher meeting with your group practice members to investigate what records and service data are available to meet the objective of identifying changes in the access and utilization of the practice by the practice population, and to determine how these records can be accessed. Following this, a modification to the original ethics approval will be sought from both UVic and

Research Ethics Boards to allow the accessing of this data. After the ethics modifications have been approved, the second step of data collection will occur where researcher will return to the practice site to collect the actual data.

Statistical data identifying the frequency of emergency room presentations and hospital admissions for patients of your group practice will be obtained from Health Information records to identify changes in the utilization of acute care services. This data will be identified by using the names of the family physicians working with the NP and then drawn from the 'Family Physician cell' of the emergency and inpatient admission forms used by . Data from all the physicians in your practice who work with the NP will be aggregated to provide a total number of emergency presentations and admissions to hospital per month for your practice site. The data will be sought on a monthly basis for two time periods, a six month period commencing one year before the NP started in your practice and a second six month period ending with the most current data available.

In choosing to participate in this research study there are no foreseeable inconveniences beyond the time commitment associated with the interviews, the inconvenience of having an observer in the practice setting, and the time required to identify and collect appropriate documents and records.

There are no known or anticipated risks to you by participating in this research. Your participation in this research is important as you will be contributing to knowledge about the contributions and value that the NP role can bring in the collaborative practice model of delivery of community-based primary care, and the impact it can have at the community and health care system levels. This knowledge is important for the development, future implementation and sustainability of the NP role.

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. During the interview you may decline to answer any of the questions you do not wish to answer. You may choose whether you want the researcher to observe interactions and activities in the practice setting. You may also choose the documents and records that you wish to share with the researcher. If you do withdraw from the study your interview data will be used only if you give permission for it to be included in the research findings. Data obtained through interviews and observations; if it is individual it will only be used if you give permission for it to be included in the research findings, or if it is linked to group data it will be used in summarized form with no identifying information. Any documents and records provided by you will be used only if you give permission for them to be included in the research findings.

To make sure that you continue to consent to participate in this research, verbal consent will be confirmed with you on each visit to your practice before any data is collected.

In order to protect your anonymity, all data collected will be coded and any identifying names or other information removed. You may decline to answer any questions you are asked if you are concerned that you might be identified with the statements. Your data will be combined with all other data from your case study site and will only be identified in the research as data from your

case site (e.g. case 1, 2 or 3). Participants in this study will only be identified if absolutely required in the findings. If participants are identified it will only be as being from one of the three categories: NPs, professional staff or other staff. However, due to the small number of NP/FP PHC project sites in [REDACTED] it is not possible to guarantee anonymity of your data. After the data has been collected and analyzed by the researcher your practice site will be asked to review the findings from your site and validate and approve the findings before the final version of the dissertation is completed.

To assure your confidentiality and the confidentiality of the data, the access to the data will be limited to the members of the researcher's supervisory committee. All members are required to sign confidentially agreements. All data collected will be stored in the password protected computer of the researcher or in a separate locked filing cabinet.

The data from this study will be kept for five years after the completion of this research study and then all paper data associated with this research will be disposed of by shredding and the computer files and audiotapes will be erased.

It is anticipated that the results of this study will be shared with others in the following ways: A dissertation to fulfil the requirements of the degree of Doctor of Philosophy (Nursing), the findings may be presented directly at scholarly conferences, and through the submission of publications to scientific journals. An executive summary of the findings of the study will be provided directly to [REDACTED].

The following individuals may be contacted for questions regarding this study: Alison Roots and Dr. Marjorie MacDonald (please see the beginning of this form for contact details). In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca) and / or the Chair of [REDACTED] Research Ethics Board through the Research Office [REDACTED].

If your group practice is interested in participating in this research please send an email to Alison Roots [REDACTED] indicating your desire to participate. The researcher will then contact you directly to organize your participation as a case study site.

Each member of the group practice (NP, practitioner and staff) will be provided with this informational letter and when the researcher comes to your practice site if they agree to participate will be asked to sign the consent below indicating their voluntary participation in this research.

By agreeing to participate in the case study indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researcher.

By signing below you indicate that you have agreed to participate in this research.

Name of Participant

Signature

Date

Please retain a copy of this letter for your reference.

Appendix D Letter of Information and Written Consent for Representatives from the Local Health Care System and Community Organizations



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LETTER OF INFORMATION AND WRITTEN CONSENT FOR

REPRESENTATIVES FROM THE LOCAL HEALTH CARE SYSTEM AND COMMUNITY ORGANIZATIONS

Outcomes Associated with Family Nurse Practitioner Collaborative Practice in Community-Based Primary Care

You are invited to participate in a research study entitled **Outcomes Associated with Family Nurse Practitioner Collaborative Practice in Community-Based Primary Care**. This research is being conducted by Alison Roots, a PhD candidate in the School of Nursing at the University of Victoria, and you may contact her if you have further questions by email or phone:

Email: [REDACTED]

Phone: [REDACTED]

As a graduate student, Alison is required to conduct research as part of the requirements for a Doctorate in Philosophy in Nursing. This research is being conducted under the supervision of Dr. Marjorie MacDonald. You may contact her supervisor by email or phone:

Email: [REDACTED]

Phone: [REDACTED]

This research is being funded in part by the BC Ministry of Health and the CHSRF/CIHR Chair in Advanced Practice Nursing, and supported by [REDACTED]

The purpose of this study is to conduct multiple case studies to identify the changes and outcomes associated with the introduction of a nurse practitioner (NP) into a fee-for-service community-based primary care practice. These changes are expected to occur at the different levels of relationships that exist within a primary care practice. The objectives of this study are:

- (a) describe the different components of the enacted NP role;
- (b) describe what changes have occurred at the practitioner, internal organizational, external organizational, and health system levels since the introduction of the NP role;
- (c) identify the outcomes from these changes.

NP research to date has largely focused on the direct patient care aspects of the role to confirm their capacity to safely and effectively provide primary care to individuals and families. Little is known about how the NP role has been enacted in a collaborative practice model in community-based primary care settings, especially in BC, and how this enactment of the role can create changes that impact on their practitioner colleagues, the organization of primary care practices,

and the community and local health system associated with these practices. Studies from other settings have identified that collaborative practice models can improve outcomes on many levels. This study is going to investigate what outcomes have occurred in community-based fee-for-service primary care practices.

In order to obtain information about the changes and outcomes that have been experienced at the community level, health care services and community organizations whose work is impacted on by the activities of the NP participating in [REDACTED] Nurse Practitioner / Family Physician Primary Health Care project (NP/FP PHC project) are being invited to participate in this study. The local health care service, or the organization you work for, has been identified by the local group primary care practice participating in this project as a community partner that the NP interacts with in carrying out his / her professional role.

If you agree to voluntarily participate in this research, you will be asked to participate in an interview, and observations of activities or events involving the NP in your setting may be undertaken. Documents will be requested that could be used to determine what is the role and impact of introducing the NP into your setting. All the research activities described below will occur in your work setting.

A face to face interview will be undertaken to identify what is the NP's role in your setting, how the introduction of the NP role has created changes, and what are the impacts of these changes on your setting, organization or activity. These interviews are expected to take 60 – 90 minutes to complete; they will be audio taped and then transcribed verbatim. In the event that a face to face interview cannot be arranged, a telephone interview maybe organized. If a telephone interview is undertaken a further verbal consent for the interview will be obtained at the time of the interview.

Observation of activities or events involving the NP in the community may also be undertaken to identify the role of the NP and the changes that have occurred since this role has been introduced. These observations will only involve identifying the locations and types of activities that the NP is involved with in your community setting and meetings with health care practitioners and other staff who have consented to be a part of this study. No activities involving interactions with patients, or health care practitioners or staff who have not consented to involvement in this study will be observed. The length of time of these observations will be determined by the length of the specific activities.

Documents related to the activities of the NP will be used to identify how the NP role has been enacted in your community or organization, and the changes that have occurred as a result of introducing this role.

In choosing to participate in this research study there are no foreseeable inconveniences beyond the time commitment associated with the interview, the inconvenience of having an observer in your setting, and the time required to identify and collect appropriate documents.

There are no known or anticipated risks to you by participating in this research. Your participation in this research is important as you will be contributing to knowledge about the

contributions and value that the NP role can bring in the collaborative practice model of delivery of community-based primary care and the impact it can have at the community and health care system levels. This knowledge is important for the development and sustainability of the NP role.

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. During the interview you may decline to answer any of the questions you do not wish to answer. You may choose whether you want the researcher to observe events or activities in your setting. You may also choose the documents that you wish to share with the researcher. If you do withdraw from the study your interview data will be used only if you give permission for it to be included in the research findings. Data obtained through observation: if it is individual it will only be used if you give permission for it to be included in the research findings, or if it is linked to group data it will be used in summarized form with no identifying information. Any documents provided by you will be used only if you give permission for them to be included in the research findings.

To make sure that you continue to consent to participate in this research, verbal consent will be confirmed with you on each occasion if more than one occasion of data collection is to occur.

In order to protect your anonymity, all data collected will be coded and any identifying names or other information removed. You may decline to answer any questions you are asked if you are concerned that you might be identified with the statements. Your data will be combined with all other community data from the local case study site and will only be identified in the research as community data from your case site (e.g. case 1, 2 or 3). Participants in this study will only be identified if absolutely required in the findings. If participants are identified it will only be as being from one of the three categories: NPs, professional staff or other staff. However, due to the small number of NP/FP PHC project sites in [REDACTED] it may not be possible to guarantee anonymity of your data. After the data has been collected and analyzed by the researcher the local NP/ FP PHC practice will be asked to review the all findings specific to their site and validate and approve the findings before the final version of the dissertation is completed. If concerns are raised about data obtained from your particular site the researcher may ask you to review and approve the findings before the final version of the dissertation is completed.

To assure your confidentiality and the confidentiality of the data, the access to the data will be limited to the members of the researcher's supervisory committee. All members are required to sign confidentially agreements. All data collected will be stored in the password protected computer of the researcher or in a separate locked filing cabinet.

The data from this study will be kept for five years after the completion of this research study and then all paper data associated with this research will be disposed of by shredding and the computer files and audiotapes will be erased.

It is anticipated that the results of this study will be shared with others in the following ways: A dissertation to fulfil the requirements of the degree of Doctor of Philosophy (Nursing), the findings may be presented directly at scholarly conferences, and through the submission of

publications to scientific journals. An executive summary of the findings of the study will be provided directly to [REDACTED].

The following individuals may be contacted for questions regarding this study: Alison Roots and Dr. Marjorie MacDonald (please see the beginning of this form for contact details). In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca) and / or the Chair of [REDACTED] Research Ethics Board through the Research Office [REDACTED]

If you are interested in participating in this research please send an email to Alison Roots [REDACTED] indicating your desire to participate. The researcher will then contact you directly to organize your participation.

By agreeing to participate in this case study indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researcher.

By signing below you indicate that you have agreed to participate in this research.

Name of Participant

Signature

Date

Please retain a copy of this letter for your reference.

Appendix E Letter of Information and Written Consent for Representatives from the Regional Health Authority



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LETTER OF INFORMATION AND WRITTEN CONSENT FOR

REPRESENTATIVES FROM THE REGIONAL HEALTH AUTHORITY

Outcomes Associated with Family Nurse Practitioner Collaborative Practice in Community-Based Primary Care

You are invited to participate in a research study entitled **Outcomes Associated with Family Nurse Practitioner Collaborative Practice in Community-Based Primary Care**. This research is being conducted by Alison Roots, a PhD candidate in the School of Nursing at the University of Victoria, and you may contact her if you have further questions by email or phone:

Email: [REDACTED]

Phone: [REDACTED]

As a graduate student, Alison is required to conduct research as part of the requirements for a Doctorate in Philosophy in Nursing. This research is being conducted under the supervision of Dr. Marjorie MacDonald. You may contact her supervisor by email or phone:

Email: [REDACTED]

Phone: [REDACTED]

This research is being funded in part by the BC Ministry of Health and the CHSRF/CIHR Chair in Advanced Practice Nursing, and supported by [REDACTED].

The purpose of this study is to conduct multiple case studies to identify the changes and outcomes associated with the introduction of a NP into a fee-for-service community-based primary care practice. These changes are expected to occur at the different levels of relationships that exist within a primary care practice. The objectives of this study are:

- (a) describe the different components of the enacted NP role;
- (b) describe what changes have occurred at the practitioner, internal organizational, external organizational, and health system levels since the introduction of the NP role;
- (c) identify the outcomes from these changes.

NP research to date has largely focused on the direct patient care aspects of the role to confirm their capacity to safely and effectively provide primary care to individuals and families. Little is known about how the NP role has been enacted in a collaborative practice model in community-based primary care settings, especially in BC, and how this enactment of the role can create changes that impact on their practitioner colleagues, the organization of primary care practices, and the community and local health system associated with these practices. Studies from other settings have identified that collaborative practice models can improve outcomes on many levels.

This study is going to investigate what outcomes have occurred in community-based fee-for-service primary care practices.

In order to obtain information about the changes and outcomes associated with a NP- Family Physician collaborative practice model in community-based primary care settings, individuals from the regional health authority responsible for [REDACTED] *Nurse Practitioner / Family Physician Primary Health Care* project (NP/FP PHC project) are being asked to participate in this study.

If you agree to voluntarily participate in this research, you will be asked to participate in an interview and provide access to documents that could be used to determine what is the role and impact of introducing the NP/FP PHC project. All the research activities described below will occur in your work setting.

A face to face interview will be undertaken to identify why the NP role was introduced through the collaborative practice model to primary care practices, what were the expectations of the health authority, and what changes and impacts have occurred, at the different levels of service provision. These interviews are expected to take 60 – 90 minutes to complete; they will be audio taped and then transcribed verbatim. In the event that a face to face interview cannot be arranged, a telephone interview may be organized. If a telephone interview is undertaken a further verbal consent for the interview will be obtained at the time of the interview.

Documents related to the expectations and outcomes from this NP role will be used to identify how the role has been enacted and the changes that were expected or have occurred.

In choosing to participate in this research study there are no foreseeable inconveniences beyond the time commitment associated with the interview and the time required to identify and collect appropriate documents.

There are no known or anticipated risks to you by participating in this research. Your participation in this research is important as you will be contributing to knowledge about the contributions and value that the NP role can bring in the fee-for-service model of delivery of community-based primary care and the impact it can have at the community and health care system levels. This knowledge is important for the development, future implementation and sustainability of the NP role.

Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. During the interview you may decline to answer any of the questions you do not wish to answer. You may choose the documents that you wish to share with the researcher. If you do withdraw from the study your interview data will be used only if you give permission for it to be included in the research findings. Any documents provided by you will be used only if you give permission for them to be included in the research findings.

To make sure that you continue to consent to participate in this research, verbal consent will be confirmed with you on each occasion if more than one occasion of data collection is to occur.

In order to protect your anonymity, all data collected will be coded and any identifying names or other information removed. You may decline to answer any questions you are asked if you are concerned that you might be identified with the statements. Your data will be combined with all other data from the research project and will only be identified in the research as data from the health authority or the case site if it is relevant to one case site only. However, due to the small size and context of this study it is not possible to guarantee anonymity of your data.

After the data has been collected and analyzed by the researcher the health authority staff concerned will be asked to review the findings relating to their data and validate and approve the findings before the final version of the dissertation is completed.

To assure your confidentiality and the confidentiality of the data, the access to the data will be limited to the members of the researcher's supervisory committee. All members are required to sign confidentially agreements. All data collected will be stored in the password protected computer of the researcher or in a separate locked filing cabinet.

The data from this study will be kept for five years after the completion of this research study and then all paper data associated with this research will be disposed of by shredding and the computer files and audiotapes will be erased.

It is anticipated that the results of this study will be shared with others in the following ways: A dissertation to fulfil the requirements of the degree of Doctor of Philosophy (Nursing), the findings may be presented directly at scholarly conferences, and through the submission of publications to scientific journals. An executive summary of the findings of the study will be provided directly to [REDACTED].

The following individuals may be contacted for questions regarding this study: Alison Roots and Dr. Marjorie MacDonald (please see the beginning of this form for contact details). In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca) and / or the Chair of [REDACTED] Research Ethics Board through the Research Office [REDACTED].

If you are interested in participating in this research please send an email to Alison Roots [REDACTED] indicating your desire to participate. The researcher will then contact you directly to organize your participation.

By agreeing to participate in this case study indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researcher.

By signing below you indicate that you have agreed to participate in this research.

Name of Participant

Signature

Date

Please retain a copy of this letter for your reference.

Appendix F Semi- structured Interview Questions – Nurse Practitioners

Semi – Structured Interview Questions Nurse Practitioners

Purpose:

Identify the NP role and the changes that have occurred since the introduction of the NP

Enactment of NP Role:

How long have you been practising as a NP?

How long have you been practising in this clinic / practice setting?

Why did you want to join this clinic / practice setting?

Could you describe your role and responsibilities (activities) in this clinic / practice?

Additional questions that may be asked:

Describe your usual work day/ work week.

Do you undertake research activities / educational activities/ administrative activities?

What were your expectations of how your role would work within the practice before your started this position?

Have your expectations been met? Please describe.

Changes that have occurred:

Practice Level:

Do you think your presence has changed how the clinic / practice functions?

What changes have happened? - Please provide as much detail as possible

Additional questions that may be asked:

Have these changes impacted on how the practice functions as a “team”?

Have these changes impacted on patient access to the practice?

Physicians and other Colleagues:

Do you think your presence has changed the way your physician colleagues undertake their practise?

What changes have happened? - Please provide as much detail as possible

Additional questions that may be asked:

Do you think these changes have impacted on your colleague’s satisfaction with their work life?

Has this impacted on your satisfaction with your work life?

Has this impacted on your desire to stay in this work environment?

Community Level:

Could you describe this practice's relationship / involvement with organizations / sectors / events in the local community?

Could you describe your role / relationship / involvement with organizations / sectors / events in the local community?

Do you think changes have occurred because of your role?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Why do you think these changes have occurred?

Local Hospital / Health Authority Services Level:

Do you think there have been changes in any aspects of the practice's interactions with the local hospital / local health authority services since your arrival?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Why do you think these changes have occurred?

Is there anything else you would like to tell me about your experience as a NP working in this practice setting?

Appendix G Semi-structured Interview Questions – General Practitioners and other practitioners

Semi – Structured Interview Questions Practitioners – General Practitioners and other practitioners

Purpose:

Identify the NP role and the changes that have occurred since the introduction of the NP

How long have you been practising in this clinic / practice setting?

Enactment of NP Role:

Why did you want to have a NP join this clinic / practice setting?

What were your expectations of what would happen?

Could you describe the NP's role and responsibilities (activities) in this clinic / practice?

Additional questions that may be asked:

Describe the NP's usual work day/ work week.

Does the NP undertake research activities / educational activities/ administrative activities?

Changes that have occurred:

Practice Level:

How has the presence of the NP changed how the clinic / practice functions?

What changes have happened? - Please provide as much detail as possible

Additional questions that may be asked:

Have these changes impacted on how the practice functions as a “team”?

Have these changes impacted on patient access to the practice?

Physician and other Colleagues:

Has the presence of the NP changed the way you personally practice?

What changes have happened? - Please provide as much detail as possible

Additional questions that may be asked:

Have these changes impacted on your satisfaction with your work life?

Has this impacted on your desire to stay in this work environment?

Community Level:

Could you describe this practice's relationship or involvement with organizations / sectors / events in the local community?

Has the presence of the NP changed these relationships in any way?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible
Why do you think these changes have occurred?

Local Hospital / Health Authority Services Level:

Has the presence of the NP changed any aspects of the practice's interactions with the local hospital/ local health authority services?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible
Why do you think these changes have occurred?

Is there anything else you would like to tell me about your experience as a physician / practitioner working with a NP?

Appendix H Semi-structured Interview Questions – Other Practice Staff

Semi – Structured Interview Questions Other Practice Staff

Purpose:

Identify the NP role and the changes that have occurred since the introduction of the NP

How long have you been working in this clinic / practice setting?

Enactment of NP Role:

Were you involved in the decision to have a NP join this clinic / practice setting?

What were your expectations of what would happen?

Could you describe the NP's role and responsibilities (activities) in this clinic / practice?

Additional questions that may be asked:

Describe the NP's usual work day/ work week.

Does the NP undertake research activities / educational activities/ administrative activities?

Changes that have occurred:

Practice Level:

How has the presence of the NP changed how the clinic / practice functions?

What changes have happened? - Please provide as much detail as possible

Additional questions that may be asked:

Have these changes impacted on how the practice functions as a “team”?

Have these changes impacted on patient access to the practice?

Has this impacted on your desire to stay in this work environment?

Physician and other Colleagues:

Do you think the presence of the NP changed the way the physicians practise in this practice?

What changes have happened? - Please provide as much detail as possible

Additional questions that may be asked:

Do you think these changes have impacted on their satisfaction with their work life?

Community Level:

Could you describe this practice's relationship or involvement with organizations / sectors / events in the local community?

Has the presence of the NP changed these relationships in any way?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Why do you think these changes have occurred?

Local Hospital / Health Authority Services Level:

Has the presence of the NP changed any aspects of the practice's interactions with the local hospital/ local health authority services?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Why do you think these changes have occurred?

Is there anything else you would like to tell me about your experience working with a NP?

**Appendix I Semi-structured Interview Questions – Community Organizations /
Community or Public Health**

**Semi – Structured Interview Questions
Community Organizations / Community or Public Health**

Purpose:

Identify the NP role and the changes that have occurred since the introduction of the NP

Did you have involvement with the primary care practice where the NP works before this NP role was introduced?

Additional questions that may be asked:

Could you describe this involvement - Please provide as much detail as possible

Could you describe the current level of involved with the primary care practice?

Additional questions that may be asked:

What activities is the NP undertaking that are impacting on this community organization?

Is your organization experiencing benefits as a result of the involvement of the NP?

Are there situations where challenges or difficulties have been experienced?

How would you describe your relationship with the NP?

Do you see other areas where there would be benefit from NP involvement? If so what areas?

Is there anything else you would like to add or discuss that I may not have asked you about?

Appendix J Semi-structured Interview Questions – Health Authority Staff

Semi – Structured Interview Questions Health Authority Staff

Purpose:

Identify the NP role and the changes that have occurred since the introduction of the NP

Why did the health authority want to implement the NP role in these primary care practices?

Did the health authority have any specific expectations of change that might occur in these practices?

Could you describe what you expected the NP's role and responsibilities (activities) in the fee-for-service practices to be?

Are you aware of changes that have happened at the practice level since the introduction of the NP?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Are you aware of changes that have happened at the community level, with community organizations / sectors or events since the introduction of the NP?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Are you aware of changes that have happened at local health authority (local hospital or other services provided by the health authority) since the introduction of the NP?

Additional questions that may be asked:

What changes have happened? - Please provide as much detail as possible

Is there anything else you would like to add or discuss that I may not have asked you about?

Appendix K Observational Protocol Form

Adapted from:

Date, Time, Location	Descriptive Notes e. g. <ul style="list-style-type: none"> - Portraits of participants, - Dialogue - Description of physical setting - Accounts of events / activities 	Reflective Notes e. g. Researcher's <ul style="list-style-type: none"> - Feelings, problems - Speculations, hunches - Ideas - Impressions - Prejudices

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oakes: Sage Publications.