NURSE PRACTITIONER RESIDENCY PROGRAMS: A LITERATURE REVIEW

by

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A CULMINATING PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

MASTER OF NURSING – NURSE PRACTITIONER

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(School of Nursing)

THE UNIVERSITY OF BRITISH COLUMBIA

Vancouver

April 2018

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Abstract

New-graduate Nurse Practitioners (NPs) have identified many challenges during the transition period from a student to a full-scope NP. Some of these challenges included the inability to practice at full-scope, which caused role ambiguity. Consequently, role ambiguity has led to poor job satisfaction and low retention rates. Nurse Practitioner Residency Programs (NPRPs) have been explored as a viable support option for new-graduate NPs during the transition period. The primary objectives of this literature review were to 1.) examine participant perceptions on the usefulness of NPRPs to facilitate a smooth transition from a student NP to a full-scope NP, 2.) determine the most effective program structure, and 3.) identify the barriers preventing the development of NPRPs. The secondary objective of this project was to create a NPRP prototype framework that could be used within the Canadian health care system. Based on the current literature, the findings showed that NPs perceived NPRPs to be useful during the transition period because it increased clinical knowledge, built confidence, consolidated skills, clarified duty boundaries, and successfully integrated NPs into the health care team. Secondly, the findings revealed the most effective program structure to include combined didactic and clinical experiences, reflective journaling, regular performance assessments, and comprehensive program evaluations. Thirdly, the barriers recognized in the literature included inadequate funding, insufficient research regarding the impact of NPRPs, a failure to standardize programs, and the lack of support from key stakeholders. Using the findings from objectives one and two, a NPRP prototype framework, called the Canadian Nurse Practitioner Residency Program, was created. Finally, using the findings from objective three, key recommendations for future NPRPs were provided.

Chapter One

Nurse Practitioner Professional Development

The Nurse Practitioner (NP) scope of practice has increased as previous restrictions for autonomous practice are slowly being lifted (Gadbois, Miller, Tyler, & Intrator, 2015). NPs are now taking on roles that demand complex care management and this trend is likely to continue in the future as the population ages (Brown, Poppe, Kaminetzky, Wipf, & Woods, 2015; Goudreau et al., 2011; Martsolf, PhuongGiang, Freund, & Poghosyan, 2017). There are currently 234,000 licensed NPs in the United States (US) (American Association of Nurse Practitioners [AANP], 2017) where NPs have been practicing since the 1960's (Houser & Player, 2004). In comparison, Canada has a workforce of 4,540 NPs (Canadian Nurses Association [CNA], 2016). This number has been increasing steadily since the Canadian Nurse Practitioner Initiative (CNPI) was established by the CNA with support and funding from the Government of Canada (CNPI, 2006). The CNPI prioritized the delivery of Primary Health Care [PHC] by "promoting the broader determinants of health; balancing institutional care with illness prevention and health promotion; early intervention strategies that focus on maintaining wellness; and examining ways and means to effectively utilize human resources" (p. 9). The government recognized that the NP workforce would be key to meeting these priorities and collaborated with the CNA to outline the integration of NPs into the health care system to meet the need for safe, timely, and cost-effective PHC (CNPI, 2006). As both the NP scope of practice and workforce are projected to increase significantly (Auerbach, 2012; Brown et al., 2015; Gadbois et al., 2015; Goudreau et al., 2011), the professional development of NPs have come to the forefront of discussion among many nursing experts and educators.

Transition from Student to Full-scope Nurse Practitioner

The professional development of a NP begins after becoming fully licensed. New-graduate NPs are expected to be independent health providers who can deliver care in a variety of practice settings for patients with complex health issues (CNA, 2017). Unfortunately, recent studies have shown that the transition from being a student NP to a full-scope NP presents with many challenges (Duke, 2010; Harris, 2014; Hart & Bowen, 2016; Heitz, Steiner, & Burman, 2004). This transition period is defined as the first six to eighteen months following graduation (Duke, 2010) and some of the most identified challenges during this period includes patient complexity, an increasing scope of practice, and role ambiguity.

Decades of data and multitudes of published studies have shown NPs to be fully capable of managing patients in PHC settings (Horrocks, Anderson, & Salisbury, 2002; Laurant, Reeves, Hermens, Braspenning, Grol, & Sibbald, 2005; Stanik-Hutt et al., 2013). However, patients are becoming more complex largely due to an aging population, comorbidities, and pre-existing mental health issues (Grant, Ashburner, Hong, Chang, Barry, & Atlas, 2011). This trend has naturally led NPs to take on complex patients. While seasoned NPs can draw on years of experience to manage their complex patient load, new NPs often face difficulties (Duke, 2010). A study by Hart et al. (2016) showed that majority of new-graduate NPs felt unprepared for practice and more specifically, felt least prepared to manage chronic conditions and complex patients. These findings are concerning as new-graduate NPs are expected to take on roles that position them as autonomous primary care providers for numerous complex patients with multiple chronic conditions.

With NPs caring for increasing numbers of complex patients (Brown et al., 2015; Goudreau et al., 2011), governing bodies have progressively expanded the NP scope of practice

(Gadbois et al., 2015). For example, in 2014, the College of Registered Nurses of British Columbia approved the prescribing of controlled substances by NPs, thereby allowing them to prescribe opioids and independently manage patients with acute or chronic pain. While the expansion of the NP scope has led to the creation of roles, especially in acute care, recent studies (Dillon, Dolansky, Casey, & Kelley, 2016; Harris, 2014; Hart et al., 2016) have shown that new-graduate NPs are unable to practice to their full-scope. An article by Dillon et al. (2016) outlined the experiences of new acute care NPs in intensive care settings and determined they were comfortable with history taking and physical examinations but were highly uncomfortable when performing skills and interpreting diagnostic tests in the first six months of practice. Similarly, a study by Hart et al. (2016) also found new-graduate NPs felt unprepared when ordering and interpreting diagnostic tests. These findings highlight the fact that new-graduate NPs are unable to practice at full-scope because they feel uncomfortable and unprepared in their new role (Dillon et al., 2016; Hart et al., 2016).

The third and perhaps most significant challenge new-graduate nurses experience during the transition period is role ambiguity (Chang, Mu, & Tsay, 2006). In this context, role ambiguity refers to the new-graduate NPs uncertainty regarding what their role is and what is expected of them (English, 2006). Many new-graduate NPs experience role ambiguity likely because of unclear duty boundaries (Chang et al., 2006). For example, the lack of formal training during the transition period places the burden of self-directed learning and on-the-job training in the hands of the NP (Andrade, 2015; Harris, 2014). As a result, there is no clear direction on what the NP needs to learn to be successful in the role. Harris (2014) found this to be a source of dissatisfaction for both the NP and the employer as it "creat[ed] a large gap between what is

expected and what the [NP] is capable of delivering" (p.333). The consequence of role ambiguity is professional discontent and poor job performance (Harris, 2014).

The transition from a student to a full-scope NP is an essential period in the professional development of a NP (Duke, 2010). New-graduate NPs must be supported during this period, so they can manage complex care patients, practice at full scope, and avoid the pitfalls of role ambiguity. The lack of a formal transition-to-practice program is an emerging problem and thus, nursing experts have sought to find a solution. They identified NP residency programs (NPRPs) as a possible solution. Flinter (2005) argues that a residency model is most appropriate for post-graduate NP training because it "is the training that follows education and allows that education to be translated into the broad and specific competencies in practice that are fundamental to safe, quality practice" (para. 7). While early studies (Flinter, 2012; Hollinger-Smith & Murphy, 1998) showed results favouring NPRPs, their implementation has not become widespread, especially outside of the US. With the increasing number of new-graduate NPs entering practice every year and the overall growing number of NPs practicing (Auerbach, 2012), the professional development of NPs during the transition period has become a pertinent issue and solutions, such as NPRPs, must be explored.

Purpose

The purpose of this project is to examine the current literature on NPRPs to meet three primary aims: 1) to examine participant perceptions on the usefulness of NPRPs to facilitate a smooth transition from a student NP to a full-scope NP, 2) to determine the most effective program structure, and 3) to identify the barriers preventing the development of NPRPs. In addition, the secondary aim of this project is to develop a prototype framework that could be used within the Canadian health care system. This prototype framework could assist in the future

development of a pilot NPRP program in Canada. Based on this literature review, a presentation poster (see Appendix E) was developed for presentation at the 2018 University of British Columbia School of Nursing Graduate Student Research Symposium.

Methods

This literature review was conducted using the library database of the University of British Columbia and multiple external databases, such as CINAHL, PubMed, and Web of Science. Key search terms included *nurse practitioner, residency programs, fellowship programs,* and *transition*. The bibliographies of existing literature regarding the topic were also scanned for potential articles. Since the topic of NPRPs is emerging, there are limited articles directly addressing NPRPs and thus, articles examining fellowship programs were also incorporated into the literature review. The terms residency and fellowship are also often used interchangeably in the literature but for this project, the term residency will be utilized.

Chapter Two

Nurse Practitioner Education and Licensing

The CNPI (2006) defines NPs as Registered Nurses (RNs) "with additional educational preparation and experience who possess and demonstrate the competencies to autonomously diagnose, order and interpret diagnostic tests, prescribe pharmaceuticals and perform specific procedures within their legislated scope of practice". Training to become a NP involves four years of undergraduate study that is preferably in Nursing, at least two years of practice as a full-scope RN, and two years of Masters level education (University of British Columbia, 2017). Prior to applying for a NP program, an applicant must choose between the different types of NP streams that are utilized in Canada. These streams are adult, pediatric, neonatal, acute care, or family practice. The adult, pediatric, and neonatal streams focus on caring for a specific population based on their age in either hospital or community-based settings (McMaster University, 2017; University of Toronto, 2017). Conversely, acute care and family practice streams aim to provide care across the lifespan (Donald et al., 2010; Kilpatrick et al., 2010). Acute care NPs predominantly work in hospital-based settings (Kilpatrick et al., 2010), while family NPs (FNPs) can be found in community and clinic-based settings (Donald et al., 2010). In accordance with the CNPI (2006), most NP programs in Canada offer the family practice stream. Licensing requirements for NPs in Canada involves a comprehensive written examination as approved by their respective provincial or territorial regulating bodies. Two provinces, British Columbia and Quebec, also require NP program graduates to pass an Objective Structural Skills Examination to receive their license (CNA, 2016).

Role Development

The NP role was first established by Loretta Ford at the University of Colorado in the 1960's (Houser et al., 2004). NPs were introduced to Canada in the 1970's and experienced immense growth after the release of the Lalonde Report (Nurse Practitioners' Association of Ontario [NPAO], 2017), which advocated for greater emphasis on PHC through health promotion (Lalonde, 1974). The report also recognized the role nurses could play in delivering health promotion initiatives, especially in rural locations and underserved populations (Lalonde, 1974). In response to the Lalonde Report, the NP role was developed in Canada "to expand the scope of practice of RNs working in northern and under-serviced communities where access to health care services was lacking" (NPAO, 2017, para. 4). Soon after, universities began developing family practice NP programs (NPAO, 2017). Despite the early momentum brought forth by the Lalonde Report, enthusiasm for NP role development quickly faded. The NPAO (2017) speculates that insufficient support from the governing bodies of nursing and medicine, inadequate funding, and an alleged surplus of physicians greatly contributed to the downfall of the NP in the 1980's (NPAO, 2017).

Ten years later, the NP role was once again revisited when the New Democratic Party of Canada (NDP) came into political power in 1993 (NPAO, 2017). The political platform of the NDP included a comprehensive plan to help improve access to PHC and this plan included the development of the NP workforce (NPAO, 2017). In 2006, Health Canada prioritized the development of PHC services to decrease the strain on tertiary health care services (CNPI, 2006). The government sought NPs to fill the need for PHC providers and in collaboration with the CNA, funded the CNPI, which outlined the deployment and integration of NPs into the Canadian health care system (CNPI, 2006).

The Current Role

It has been over a decade since the CNPI was put into action and the NP role in Canada has become well-recognized. In 2013, the Yukon Registered Nurses Association passed new NP legislations and regulations, signifying the integration of NPs in all provinces and territories in Canada (Canadian Institute for Health Information, 2017). The presence of NP regulatory bodies throughout Canada ensures the workforce is recognized by the government, protected by law, and operated under strict practice and professional standards.

As the NP role became more recognized in Canada, the roles in which NPs practice have also expanded beyond PHC. For example, many NPs now work in acute care settings, such as emergency departments and hospital wards. There are also many NPs who are working in specialized roles, such as hematology, oncology, cardiology and urology. While these role advancements have brought further recognition to NPs, their presence in specialty areas, along with the increasing complexities of patient care, have many nursing experts asking important questions about how to best prepare NPs for the current roles they are expected to fill (Martsolf et al., 2017).

Chapter Three

Defining the Nurse Practitioner Residency Program

NPRPs are a relatively new phenomenon in NP professional development. Emerging over the last twenty years, these programs were first developed to help new-graduate NPs transition from a student NP to a full-scope NP (Flinter, 2012; Hollinger-Smith & Murphy, 1998). NPRPs are formally funded, salaried programs of varying time frames, designed to help new-graduate NPs smoothly transition to independent practice by offering didactic training and mentor-supported clinical experiences (Andrade, 2015; Brown et al., 2015; Flinter, 2012; Goudreau et al., 2011; Martsolf et al., 2017; Zapatka, Conelius, Edwards, Meyer, & Brienza, 2014). NPRPs are designed for FNPs working in community and clinic-based settings who provide generalized primary care (Martsolf et al., 2017). It is important to distinguish NPRPs from NP Fellowship Programs as the two terms are frequently used interchangeably. NP Fellowship Programs are not specifically intended for new-graduate NPs and focus on training NPs to work in specialized roles that are often located in hospitals or specialized outpatient clinics (Martsolf et al., 2017).

History of Residency Programs

Flinter (2012) first developed NPRPs in the US in 2007 for new-graduate FNPs entering practice. She established NPRPs, hoping it would be a mandatory addition to FNP training, after observing new-graduate FNPs struggle to become independent primary care providers, in comparison to medical residents who transitioned into their roles more smoothly. Since the pilot NPRP, there have been numerous programs established across the US but contrary to Flinter's initial vision, NPRPs continue to be an optional addition to the standard FNP education, rather than being a mandatory step in the development of a FNP.

The debate of whether NPRPs should be mandatory is fueled by the fact that NPRPs have limited research since it is a relatively new concept, emerging rapidly only within the past ten years (Harris, 2010). This has led to dissonance from nursing experts who argue that NPRPs would only further delay the deployment of NPs into practice (Nelson, 2017). In lieu of mandatory residency programs, the American Association of Colleges of Nursing (AACN) began to recognize a Doctorate of Nursing Practice (DNP) as the compulsory degree to become a NP (Brown et al., 2015). Consequently, many Schools of Nursing have increased the number of credits required for graduation or have established DNP programs. Interestingly, DNP programs are designed to be three to four years in duration for those entering with a Bachelor of Science in Nursing, the same amount of time it would take to complete a two-year Master of Nursing and a one-year NPRP. Therefore, if delaying deployment of new-graduate FNPs is a primary concern, DNP programs are not the solution. However, this trend of increasing educational requirements for entry to practice highlights the need for further education and clinical support beyond graduation.

While seemingly discouraging, the early stages of NPRP development is not unlike that of medicine's residency programs. Lundmerer (as cited in Howell, 2016) writes that in the late 1800's, medical school graduates searched for further clinical experiences to consolidate the knowledge they had gained in medical school, but there were few opportunities. The residency programs that were available were often affiliated with research universities that aimed to create scientists, dedicated to creating new medical knowledge, rather than clinicians. As the demand increased from medical school graduates, one-year internship programs were established in the early 1900's and by the 1930's, it became an "essential element of training" (p.127) after American licensing boards determined that there was a need for further clinical experience after

graduation. Finally, after World War II, residencies became primarily hospital-based and were mandatory to become a full-fledged doctor.

Pharmacy is another medical profession with a residency program history that mirrors nursing and medicine. Residency programs in pharmacy date back to the 1930's but did not gain momentum until the 1980's when pharmacists began "citing a growing need for expertise and skill in community pharmacy practice" (Stolpe, Adams, Bradley-Baker, Burns, & Owen, 2011, para. 6.). Since its inception, pharmacy residency programs have been in high demand from new-graduate pharmacists who recognized the programs' value to their professional development (Stolpe et al., 2011). In 2007, the American Society of Health-System Pharmacists (ASHP) generated new requirements for pharmacy education and licensing. In their document, they stated that by 2020, a four-year doctoral degree would be required for graduation and a two-year post-graduate residency program would be mandatory for entry to practice (ASHP, 2007). The Canadian Pharmacists Association (CPA) quickly adapted the ASHP's requirements and began implementing doctorate and residency programs across the country in 2009 (CPA, 2011). However, the debate for and against mandatory residency programs continues in pharmacy. Those advocating for residency programs state that "pharmacists who complete a residency are more likely to report higher satisfaction with their employment than their counterparts without postgraduate training" (Stolpe et al., 2011, para. 24) and are likely to have improved patient outcomes (Mill, 2011). On the contrary, those against residency programs claim high program costs and the need for education reform, rather than an added accreditation step, as the primary reasons why residency programs should not be mandatory (Speedie, 2007).

The road NP leaders are taking towards implementing residency programs is a path well-traveled. In examining the history of residency programs in medicine and pharmacy, three things

have become evident. First and unexpectedly, there will be resistance. The debate for and against

pharmacy residencies continue regardless of the ASHP's new guidelines for entry to practice.

This is similar the current debate for and against NPRPs, which unlike pharmacy, has not gained

the support of key stakeholders. Second, implementation takes time. It took nearly fifty years for

medical residencies and over seventy years for pharmacy residencies to become mandatory. So

far, the push for NPRPs has spanned twenty years, a diminutive amount of time in comparison.

Last, the amount of evidence-based research supporting the need for a residency program will be

the strongest determinant of successful implementation. For example, the demand for pharmacy

residency programs alone was not sufficient to convince key stakeholders. Rather, residency

advocates required countless number of published research studies supporting the positive

impact of residency programs to successfully influence the ASHP (Miller et al., 2011). Thus, for

NPRPs to be implemented as an integral step in the development of a FNP, evidence-based

research must be generated to show its benefits. Until then, it will be difficult to attain buy-in

from key stakeholders and influential nursing experts who have the potential to affect

organizational bias and funding sources.

Current Nurse Practitioner Residency Programs

A scoping study by Martsolf et al. (2017) showed that there are currently sixty-eight

formal post-graduate programs in the US and out of that number, twenty-six programs are

designated as NPRPs intended specifically for FNPs. There has recently been rising interest in

the implementation of NPRPs for FNPs. This has been fueled by an increasing amount of

published studies from the US showing the benefits of NPRPs (Flinter & Hart, 2017; Harris,

2014; Hart et al., 2016; Martsolf et al., 2017; Andrade, 2015; Zapatka et al., 2014). There have

also been more practicing FNPs calling for programs that will help new-graduate FNPs transition

smoothly (Hart et al., 2016). From an employer point of view, many are beginning to understand the complexity of the patients FNPs are required to care for (Brown et al., 2015; Gadbois et al., 2015; Goudreau et al., 2011). Employers are also recognizing the impact of role ambiguity on job satisfaction, which consequently affects retention rates and increases cost due to high employee turnover (Dillon et al., 2016; Lee, Tzeng, Lin, & Yeh, 2009). As more FNPs are deployed in various PHC settings, NPRPs are emerging as the likely solution in the US.

The same cannot be said in Canada where, as of 2017, there are no known formal NPRPs. There are also no available studies from Canada regarding the topic. While seemingly discouraging, it is important to remember that the NP workforce in Canada is far less in comparison to the US (CNA, 2016) and many regulatory bodies and health authorities are still in the infancy stages of integrating NPs into their health systems (CNA, 2016). Regardless, the NP workforce is increasing at a rapid rate and out of the total workforce, seventy-five percent are FNPs trained to work in PHC (CNA, 2016). This number displays the fact that NPs are likely to work in primary care roles located in clinic and community-based settings where there may not be immediate clinical support available for the new-graduate FNP (Flinter, 2012). Learning from the experiences of NPs in the US, NPRPs should be implemented in Canada prior to the surge of new-graduate NPs in the workforce, thereby allowing those entering practice to provide optimal patient care regardless of complexity, maximize use of the NP scope of practice, and bypass role ambiguity. The next chapter of the paper will discuss the perceptions of NPs who have completed a residency program to determine if the added training does in fact adequately prepare them to manage complex patients, practice at full-scope, and avoid role ambiguity.

Chapter Four

Nurse Practitioner Perceptions

Due to the emerging nature of the topic, there are currently limited studies examining the perceptions of NPs on the usefulness of NPRPs to facilitate a smooth transition from a student NP to a full-scope NP. However, all available published studies regarding the topic have shown positive results as residents, as they were referred to while in the program, perceived NPRPs to be helpful because the program increased knowledge, consolidated skills, built confidence, clarified duty boundaries, and successfully integrated the NP role into the health care team.

Increased Knowledge and Consolidated Skills. Residents felt NPRPs improved their existing knowledge and consolidated the skills they had gained in school through combined didactic and clinical experience (Comola, 2014; Flinter et al., 2017). Webster's dictionary (n.d.) defines didactic as "designed…to teach" or "intended to convey instruction and information". The combination of didactic and clinical experience involved classroom-based lectures, seminars, journal clubs, and specialty rotations (Zapatka et al., 2014) with supervised direct patient care (Flinter, 2005). The goal was to provide pertinent theory that could be consolidated promptly through clinical experiences. Flinter et al. (2017) followed the perceptions of residents over a yearlong program and determined that they enjoyed and valued the didactic component. In fact, four months into the program, many residents felt more competent in their clinical placements as the "knowledge and skills being gained through didactics and specialty rotations emerge[d]" (Flinter et al., 2017, p.98). In his experience, Comola (2014) reported participating in weekly conferences, lectures, and a monthly journal club; this formed the didactic component of his program, while his clinical component involved independent history taking and physical assessments, followed by a discussion with his mentor to cultivate skills in diagnostic reasoning

and management planning. At the end of his program, Comola felt his knowledge and skills had improved significantly and prepared him to transition successfully into independent practice.

Built Confidence. Many residents felt the program built confidence by fostering the mentor-mentee relationship and by giving them the chance to gain experience in a safe space (Zapatka et al., 2014). The mentor-mentee relationship is a significant factor in building confidence because residents felt that the presence of a mentor made them more confident and allowed them to develop both tangible (clinical proficiency) and intangible skills (communication techniques, professionalism) (Zapatka et al., 2014). The mentor serves to "assist novice personnel to cope with pressures such as resolving conflict, sharing experiences, and feeling supported" (Andrade, 2015, p.198). For example, in the pilot program developed by Flinter (2012), many residents were placed in independent clinics where they were often the only health professional. Recognizing the limited access residents had to other health professionals, she implemented a mentor-mentee program that provided the resident with an opportunity to practice independently but with easy, direct access to a mentor for consultation (Flinter, 2012). This was a highly successful set-up as the opportunity to practice independently was consistently identified as a significant factor in building confidence because it gave residents the sense that they are actually performing the job (Camola, 2014; Flinter et al., 2017). In a later study, Flinter et al. (2017) also determined residents valued the opportunity to discuss their findings with their mentors because it improved their communication skills and gave them the chance to explore various potential care plans. This made the residents feel competent and consequently, increased their confidence (Flinter et al., 2017). Flinter et al. (2017) shared this excerpt from a journal that perfectly captures the perceptions of residents:

Slowly over the past year, I discovered a firm footing in this work, that I am capable of

practicing at the height of my scope as an FNP, that the challenges are real and can be met, and

that I was right.... this is how I want to be, how I can and will be an advocate for the peace and

health of everyone.

Another contributor to building confidence was the creation of a safe space that allowed

residents to learn in a healthy way. Zapatka et al. (2014) states NPRPs gave residents the

freedom to ask questions and make mistakes without feeling like a hindrance because it

"presented a 'safe space' to interact with different types of health professionals and [mentors]"

(p.382). By creating a safe space and establishing a successful mentor-mentee relationship, the

resident reflected on his or her practice in a way that encouraged growth and ultimately, built

confidence (Zapatka et al., 2014).

Successfully Integrated the Nurse Practitioner Role. NPRPs were also helpful in

successfully integrating residents into their roles because the program clarified duty boundaries

and gave them an opportunity to work in a team-based model (Chang et al., 2006; Flinter et al.,

2017; Zapatka et al., 2014). A study by Chang et al. (2006), showed there were often unclear

boundaries of duty during the transition period for new-graduate NPs and this was likely due to

the absence of a formal training program that outlined what the NP was expected to know in

theory and deliver in practice. Residents felt NPRPs clarified duty boundaries by providing a

framework that defined what the employer expected from them (Flinter et al., 2017). More

importantly, NPRPs clarified the level of support the employer was expected to provide the new-

graduate NP to meet expectations (Flinter et al., 2017). Clarifying boundaries removed the stress

of role ambiguity and allowed residents to focus on their learning needs (Harris, 2014). This led

to increased job satisfaction and higher retention rates, both signs of successful role integration

(Dillon et al., 2016). Another way NPRPs successfully integrated the residents into their roles was through team-based models that endorsed interprofessional collaboration. A survey by Brown et al. (2015) showed that many NPs wanted to participate in a NPRP during the early stage of their career because they felt participation developed role awareness, a key factor in attaining job satisfaction. Zapatka et al. (2014) used a team-based model in their study and found that it helped residents become more aware of their role as a NP because they could see where they fit in to the team. Chang et al. (2006) also used a collaborative, team-based model to examine the impact of NPRPs on the integration of new-graduate NPs and found that the close interactions between the NPs, physicians, and nurses provided an opportunity to build relationships, understand each other's roles and eventually, cultivate a sense of trust and teamwork.

Program Structure

Currently, a standardized framework does not exist for NPRPs. A well-organized, pre-planned program structure is key to establishing a successful and viable NPRP. Therefore, it is important to explore the most effective aspects of different programs. Based on the literature, the most effective programs include: combined didactic and clinical experiences (Andrade, 2015; Brown et al., 2015; Comola, 2014; Flinter, 2012; Varghese, Silvestri, & Lopez, 2012; Zapatka et al. 2014), established mentors (Andrade, 2015; Goudreau et al., 2011Harris, 2014; Hart et al., 2016); well-defined resident roles (Goudreau et al., 2011); regular performance assessments (Flinter, 2012; Goudreau et al., 2011); reflective resident journals (Flinter, 2012; Flinter, 2017); and comprehensive program evaluations (Brown et al., 2015; Dillon et al., 2016; Flinter, 2012; Martsolf et al., 2017; Zapatka et al., 2014).

Combined Didactic and Clinical Experiences. There was overwhelming evidence supporting the inclusion of combined didactic and clinical experiences in NPRPs. Resident perceptions also reinforced the importance of this approach as it was the most identified factor that led to successful transition to full-scope practice (Zapatka et al., 2014). Brown et al. (2015) claimed didactic methods complemented clinical experiences by "provid[ing] additional knowledge that would enhance patient care" (p. 149). Considering this, the didactic content covered topics that would be most pertinent to primary health care settings. A weekly didactic lecture schedule was proposed by Flinter (2012) and some of the topics included were: immunizations, insulin initiation, anticoagulant therapy, contraception, pediatric asthma, tobacco cessation, kidney failure, liver failure, anxiety and depression, pre-operative physical exams, orthopedics, hepatitis, and sexually transmitted infections. Andrade (2015) claimed didactic methods should also encompass journal clubs and conferences because these promote the development of communication skills and professionalism. Zapatka et al. (2014) echoed these sentiments and further claimed that participation in journal clubs encouraged interprofessional collaboration and teamwork.

With regards to clinical experiences, residents and residency program administrators identified differing desires. Residents valued minimal supervision from their mentors as this made them feel autonomous, thereby increasing their confidence level (Comola, 2014; Flinter et al., 2017). However, residents expressed the need for discussions with their mentors after each case to validate their findings, diagnosis, and management plans (Comola, 2014; Flinter et al. 2017). This need decreased as time progressed and discussions with mentors slowly transformed into sporadic consultations that were reserved only when the resident had questions or concerns (Comola, 2014; Flinter et al. 2017). From an administrator perspective, several studies (Brown

et al., 2015; Flinter, 2012) advocated for programs to incorporate specialty rotations and simulated skills training (Dillon et al., 2016; Varghese et al., 2012). Flinter (2012) believed giving residents an opportunity to experience the various specialties was valuable as this would give them an awareness of the services available for referral and an understanding of each services' purpose. Varghese et al. (2012) and Dillon et al. (2016) recommended continuous opportunities to practice skills such as suturing, incision and drainage, and foreign body removal in simulated settings to increase the preparation level of residents when they encounter such procedures in practice. These clinical recommendations by residency program administrators, when taken in conjunction with the perceived needs of residents, have the potential to amalgamate into a strong clinical program. When further combined with didactic teaching, the program becomes increasingly effective in facilitating a smooth transition into full-scope practice.

Established Mentors. The presence of established mentors was the second most identified need by residents (Andrade, 2015; Goudreau et al., 2011; Harris, 2014; Hart et al., 2016) who felt mentors contributed greatly to their development by providing clinical guidance, constructive feedback, and emotional support (Comola et al., 2014; Zapatka et al., 2014). The NPRPs included in this literature review, utilized NPs and physicians as mentors. In some programs, the residents had multiple mentors that included a combination of NPs and physicians. While it was not identified if residents preferred NP or physician mentors, much of the literature highlighted the need for both (Andrade, 2015; Goudreau et al., 2011; Zapatka et al., 2014). However, a pilot study by Goudreau et al. (2011) determined that residents felt it was necessary to have a NP mentor to help with role integration. On the contrary, rather than focusing on the professional title of the mentor, Andrade (2015) claimed the success of a mentor depended their

familiarity with the program's curriculum and expected learning outcomes. Considering the strong influence of a successful mentor-mentee relationship in building the residents' confidence, it is imperative that mentors are knowledgeable and reputable in their field, willing to teach, and well-aware of the programs' goals.

Well-Defined Resident Roles. Role clarification that produced well-defined resident roles was identified by Goudreau et al. (2011) as an important part of a successful program structure. They conducted a NPRP pilot study with a single resident and quickly uncovered one significant issue they did not anticipate: computer access. While seemingly minute and solvable, they uncovered that computer access was not granted by the organization to the resident because it was unclear whether she was a trainee, student, or licensed nurse. Further investigations revealed some mentors were also unclear regarding the scope of practice of the resident and in some cases, struggled to correctly introduce the resident to patients due to role confusion. Through these discoveries, Goudreau et al. determined it was important to clearly articulate the role of the resident as a fully-licensed health care practitioner to the organization, mentors, and other health care professionals. As well, since the resident would be practicing at full-scope, outlining the scope of the NP was important to clarify the level of expectations for practice.

Regular Performance Assessments. Flinter (2012) and Goudreau et al. (2011) promoted the implementation of regular performance assessments because they recognized these as vital to the development residents. Both studies determined regular performance assessments from mentors ensured residents were meeting the goals of the program (Flinter, 2012; Goudreau et al., 2011). Regular mentor evaluations involved constructive on-the-spot feedback and more formal weekly check-ins (Flinter, 2012). Taking assessments one step further, Goudreau et al. (2011)

also determined self-assessments by residents were required to identifying learning needs and thus, was key component of effective performance appraisals.

When selecting an assessment tool, Goudreau et al. (2011) argued evaluations needed to be evidence-based and rigorous "in an effort to be competency-based rather than anecdotal" (p.384), and subsequently, adopted and modified an evaluation tool created by the National Task Force of the National Organization of Nurse Practitioner Faculty (NONPF). The NONPF tool was chosen because it consisted of core competencies that residents would be able to meet based on their education (Goudreau et al., 2011). Using this tool, residents were required to rate their competence level when dealing with certain disease processes and procedures. The competencies scored lowest were identified as learning needs and in collaboration with mentors, learning plans for improvement were created. Over time, the residents' initial ratings, were then compared with subsequent self and mentor ratings; having both increased self and mentor ratings indicated improvement in competency. By selecting a competency-based tool like the one Goudreau et al. (2011) utilized, NPRPs can prioritize the development of the resident over the duration of the program and ensure all identified learning needs are met.

Reflective Journals. Reflective journals by residents were frequently mentioned in the literature as an important source of insight (Flinter, 2012; Flinter, 2017). Residents felt journaling benefited them because it gave them an opportunity to engage in "a critical, self-directed process that challenge[d] [their] own beliefs, attitudes, and values that often result[ed] in deep, meaningful learning and promote[d] successful transitioning" (Flinter et al., 2017, p.103). These journals were created weekly and shared with mentors. In some cases, the reflective journals were also shared with researchers as the insight of residents offered an emic view of

NPRPs (Flinter, 2017). This allowed researchers to generate qualitative data that could improve existing NPRPs or further support its mandatory implementation.

Program Evaluation. Performing a comprehensive evaluation of each program was a frequently recommended action in the literature (Brown et al., 2015; Dillon et al., 2016; Flinter, 2012) because the information derived from the evaluations could generate data supporting the mandatory implementation of NPRPs. Considering NPRPs are an emerging topic, additional research is required to move forward. Martsolf et al. (2017) discussed how key stakeholders understood the positive impact NPRPs could have on job satisfaction and patient outcomes but concluded that "no empirical evidence exist[ed] as to whether these programs do indeed lead to improvements" (p.486). Thus, it is important to consider sources of research data and program evaluations present as a potential source. Brown et al. (2015) suggested program evaluations be performed to produce measureable clinical and cost outcomes that would promote the sustainability of NPRPs, while Flinter (2012) suggested program evaluations must be done longitudinally to determine the effects of NPRPs on retention, leadership, and quality of care. From a practice perspective, Dillon et al. (2016) recommended a performing a program evaluation that involved a comparative analysis of residents at six months and then at twelve months to define the direct impact of NPRPs on clinical practice over a one-year time span. The recommendations of these nursing experts suggest the existence of a largely unexplored topic and indicate the need for both qualitative and quantitative studies using data generated from comprehensive program evaluations.

Team-Based Model. A team-based model was a frequently identified program structure that residents valued. Similarly, the literature (Andrade, 2015; Zapatka et al., 2014) supported a team-based model when discussing methods to assists new-graduate NPs during the transition

period. However, it is important to note that the studies using a team-based model were hospital-based and therefore, had more health care team members present. In contrast, FNPs often operate in community and clinic-based settings that are independent (Flinter, 2012). For this reason, a team-based model as part of an effective NPRP structure was deliberately excluded.

Barriers Preventing Development

It has been twenty years since the concept of residencies for NPs first arose. Unfortunately, the uptake of NPRPs has been slow. In the US, where nursing educators and experts have been advocating to implement NPRPs, steady progress is being made but they have faced many barriers. The foremost barriers preventing NPRP development are inadequate funding (Harris, 2014; Norwick, 2016), insufficient research regarding its impact, failure to standardize programs (Donald et al., 2010; Martsolf et al., 2017), and lack of support from key stakeholders (Nelson, 2017).

Inadequate Funding. The most evident barrier to NPRP development is funding. Who will fund the program? This is likely the first question asked when discussing the mandatory implementation of NPRPs. Simply put, residencies cost a significant amount of money conduct. The costs primarily revolve around the residents' salaries and benefits and the mentors' salaries (due to lost revenue from decreased patient appointments). Other costs include stipends for lecturer and specialty rotation mentors, classroom and office costs, and administrative costs. To date, only a few studies have explored funding for NPRPs. Out of these studies, federal funding has been identified as a feasible source.

In early planning studies for the pilot NPRP, Flinter (2005) discussed the likely possibility of utilizing US federal funding since the NPRPs were taking place in federally qualified health centers (FQHC). She speculated that residents would increase the workforce in

the clinics, which would then increase the clinics' capacity to accommodate patient appointments. Ultimately, this increase in appointment capacity would create added revenue for the FQHCs and perhaps, fund future NPRPs. Regrettably, Flinter's (2005) speculation did not come to fruition as there are currently no federally funded residency programs. Most NPRPs are funded by external sources or internal funds (Harris et al., 2014). One example of an externally funded program is Norwick's (2016) NPRP, which operates from FQHCs. After failing to receive adequate funding from the federal government, Norwick (2016) applied for and received an external grant from the Health Resources and Services Administration. On the other hand, internal funds are often derived from hospitals, but this funding is usually reserved for NP Fellowship Program's aimed at Acute Care NPs or FNPs in specialized practice (Varghese et al., 2012). In the case of NPRPs in the US, unless a clinic is funded by a local hospital, internal funds are an unlikely source of funding.

Exploring potential funding sources, Norwick (2016), like Flinter (2005) years prior, looked to the revenue residents would gain through patient encounters as a way to fund the program. Norwick (2016) performed a cost analysis of FQHCs and determined residents did not see enough patients to offset the lost production of their mentors or the cost of the residency. The analysis showed that for residents to counterbalance the costs of a NPRP, each resident would have to bill for 1,900 unique patient encounters per year based on a panel of five hundred patients (Norwick, 2016). Unfortunately, research has shown that on average, residents generally started with a panel of fifty patients that gradually increased to three hundred patients by the end of their programs (Zapatka et al., 2014). Based on these findings, it is unlikely that residents will be able to offset the program costs to make it self-sustainable. In light of these setbacks, NPRP administrators must continue to look for potential long-term funding sources.

Insufficient Research. There is currently not enough research to support the mandatory implementation of NPRPs for new-graduate FNPs and this has presented as a great barrier to development. The need for research was a common theme across the literature (Brown et al., 2015; Dillon et al., 2016; Flinter, 2012; Martsolf et al., 2017; Zapatka et al., 2014). Some identified areas requiring further research included: resident perceptions regarding usefulness, impact on patient satisfaction and quality of care, rates of long-term resident retention, and program cost analysis. While there is a great potential for research, program administrators are facing a dilemma because they require ongoing NPRPs to produce research publications but do not have the funding to sustain an ongoing NPRP that will generate sufficient longitudinal data. This is especially true in Canada where research involving NP practice is deficient and consequently, little is known regarding NPs and their impact on quality of care, health sector budgets, and the PHC provider shortage. Considering the lack of data, it has been difficult for NPRP administrators to justify the creation of NPRPs.

Fortunately, this is not the first-time residency implementation has been stalled. In the case of pharmacy residencies, Stolpe et al. (2011) claims that demand alone was insufficient to signal the creation of the program. Rather, decades of publication showing the benefits of residencies for both residents and employers was required for the establishment of a mandatory pharmacy residency program (Stolpe et al., 2011). In the case of NPRPs, studies are emerging and will undoubtedly continue to do so as more NPs are deployed into the workforce. Until nursing educators and experts can clearly exhibit the benefits of NPRPs to residents, patients, and employers, the insufficient amount of research publications will remain a pervasive barrier.

Failure to Standardize. The fact that NPRPs are not standardized has created a barrier to development. Programs are mandated by different organizations, each with their own distinct

curriculum, based on their facilities, faculty members, and available funds (Harris, 2014). A lack of standardization has contributed to questions regarding the quality of NPRPs (Martsolf et al., 2017). Furthermore, Donald et al. (2010) suggested failure to standardize NPRPs has inhibited FNP role integration because it has often caused confusion amongst health care team members on factors like which skills the resident is capable of performing and what the resident may or may not know. One step towards standardization would be to determine the most effective NPRP structure, which can then be used to develop a prototype framework for future programs.

      Lack of Support. Another significant barrier to implementation is the lack of support from key stakeholders. Former American Association of Nurse Practitioners (AANP) president, Cindy Cooke stated that "the evidence supports the current NP education model…[as] a strong model based on both undergraduate and graduate education and clinical experience" (Nelson, 2017, p.20). Cooke further asserted her point by claiming that there is not enough evidence supporting the need for NPRPs (Nelson, 2017, p.20). Her statement, however, is contradictory to a study by Dillon et al. (2016) and Barnes (2014) that determined previous nursing experience had no effect on the success of a NP. It is also contradictory to the study by Hart et al. (2016) that revealed new-graduate NPs frequently felt like they were practicing outside of their competence level. Yet, like Cooke, Linda H. Aiken, Professor in Nursing and Director of the Centre for Health Outcomes and Policy Research at the University of Pennsylvania, has been quoted stating "there is little support within the [Advanced Practice Registered Nurse] community that a post degree residency should be required for practice" (Nelson, 2017, p. 20). This statement again is clearly contradictory to the Hart et al. (2016) who found current NPs calling for the establishment of formal NPRPs to facilitate a smooth transition from a student NP to a full-fledged NP.

With limited research to support NPRPs, it is understandable why some key stakeholders are opposed to the implementation of NPRPs. However, like the development of medical and pharmacy residencies, buy-in from key stakeholders will be necessary for NPRPs to receive the much-needed funding and resources required to sustain NPRPs. More importantly, the buy-in of key stakeholders is crucial to gaining the universal support of the NP profession for NPRPs. Regrettably, the stance of nursing authorities like Cooke and Aiken are unlikely to change until a sufficient amount of evidence-based research is generated supporting the mandatory implementation of NPRPs.

Chapter Five

Nurse Practitioner Residency Programs in Canada

At this time, there are no known formal residency programs in Canada for FNPs. The establishment of any NPRP would be the first of its kind. Looking back at the history of the medical and pharmaceutical professions, the natural progression of professional development in the medical fields appear to ultimately lead to the creation of residency programs for new-graduates. While the creation of these programs took multiple decades, the gradual publication of evidence-based research supporting their existence eventually convinced key stakeholders and led to mandatory implementation. Based on this past precedent, it would be fair to assume NPRPs may follow the same progression. Unfortunately, as discussed in the previous chapter, there is limited research in Canada regarding the professional development of FNPs, making it difficult for those advocating for NPRPs to justify the creation of a program. Regardless, NPs and key stakeholders in Canada should take notice of the emerging need for post-graduate mentorship through residency and fellowship programs. By taking notice, NP development in Canada could take a more progressive direction in comparison to the US and most significantly, nurture a generation of Canadian NPs to practice at the highest level of excellence.

Canadian Nurse Practitioner Residency Program Goals

The purpose of implementing a Canadian NPRP (CNPRP) is to facilitate a smooth transition for new-graduate FNPs from student to full-scope NP. In the short-term, program goals would include developing new-graduate FNPs to competently manage complex patients, practice safely at full-scope, and integrate successfully into the health care team. This would greatly benefit the employers, just as much as it would the FNPs, because it would prevent role ambiguity and job dissatisfaction, potentially halting the costly cycle of high workforce turnover

(Dillon et al., 2016; Lee et al., 2009). In the long-term, one significant program goal would be to transform CNPRPs into self-sustaining entities that are not dependent on federal, internal or external sources of funding. Another long-term goal would be to nurture a generation of FNPs and then utilize them as mentors for the development of future generations, thus creating a continuous cycle of practice excellence.

Canadian Nurse Practitioner Residency Program Barriers

One significant barrier to CNPRP development is the fact that many FNPs are not being utilized in PHC roles (Donald et al., 2010). FNPs in specialized and hospital roles have become a common occurrence in Canada as the NP scope of practice has expanded (Donald et al., 2010). As a result, FNPs are now being placed in departments such as Oncology, Emergency, and Intensive Care (Donald et al., 2010). This trend is contrary to the mandate put forth by the CNA and Government of Canada (CNPI, 2006) to integrate NPs predominantly into the PHC system. While the successful integration of NPs into acute and specialized roles have been viewed a positive step for NPs, it does not fulfill the initial intention for the role. As such, this current trend will be a significant barrier to the development of CNPRPs that are designed for community-based, PHC roles where FNPs are currently not practicing.

Canadian Nurse Practitioner Residency Program Structure

This section will propose a prototype framework for a CNPRP. The CNPRP framework will include program structure details, such as duration, weekly clinical rotation schedule (see Appendix A), specialty rotation schedule (see Appendix B), didactic lecture topics (see Appendix C) and reflective journaling. Additionally, a performance assessment rubric will be proposed (see Appendix D). Potential CNPRP funding models will also explored in this section.

As discussed in chapter four, the most effective program structure is comprised of

multiple components. Didactic methods, in combination with clinical experiences, were identified as key components. Strong mentors who were familiar with the program goals and FNP role greatly influenced the residents' experience. Having well-defined resident roles was also identified as crucial to the process of integrating the resident into the health care team, while reflective journaling was determined to be a necessary process for self-analysis of progress and meaningful learning. Lastly, comprehensive program evaluations were highly recommended to generate data for research in support of future NPRPs. All of these components summated to a successful program and thus, are all incorporated within the CNPRP.

Duration. According to Martsolf et al. (2017) and Andrade (2015), twelve months is the most common duration for NPRPs. A twelve-month duration was also identified by Flinter et al. (2016) as the ideal amount of time required for residents to feel comfortable and start to take ownership of their role as a full-scope FNP. Similarly, residents also identified twelve months as the point in time when they became proficient in their skills and gained the confidence to consistently make independent decisions (Flinter et al., 2016). Based on this evidence, the CNPRP will operate over a twelve-month duration.

Scheduling. Zapatka et al. (2014) proposed a NPRP framework that encompassed combined didactic methods and clinical experiences. Since this structure was identified in the literature to be the main cause of knowledge and skill consolidation in residents (Andrade, 2015; Brown et al., 2015; Comola, 2014; Flinter, 2012; Varghese et al., 2012; Zapatka et al. 2014), the CNPRP will adapt the framework proposed by Zapatka et al. (2014). However, this framework is comprised of approximately nine hours of work per day over a four-day work week, which under Canada's Labour Code is not allowed as there is a maximum of eight hours of work per day (Government of Canada, 2017). Considering Canada allows for a maximum of forty work hours

over five days (Government of Canada, 2017), the CNPRP will be compromised of eight-hour work days from Monday to Friday.

The CNPRP weekly schedule will include one classroom day (Monday) and four clinic days (Tuesday to Friday) (see Appendix A). A full-time schedule should allow for immersive clinical experiences; this is a significant factor in helping residents transition into their new role (Zapatka et al., 2014). During the classroom day, the residents will participate in a four-hour classroom-based lecture discussing how to assess, diagnose, and manage commonly encountered PHC disease processes. The lecture topics will vary on a weekly basis. A case study pertaining to the weekly topic will follow the lecture. Next, residents will lead a journal club by presenting published articles to the group and discussing its significance to practice. Both the case study and journal club are designed to develop diagnostic reasoning abilities, increase awareness regarding evidence-based research, and expand overall knowledge, while encouraging team-based learning for successful role integration (Comola, 2014; Zapatka et al., 2014). To conclude the classroom day, residents will be given time for simulated skills practice, such as suturing and pelvic examinations. This opportunity for hands-on practice will hopefully improve the residents' ability and confidence to perform procedures in the clinic independently (Comola, 2014; Flinter et al., 2017).

The four days the residents are expected to undertake will be integral to their development as a FNP because it will give them an abundance of direct experience with patients. More importantly, the full-time nature of the CNPRP should provide residents with a sense of actually performing the FNP role, which has been shown to effectively build confidence and pave the way for successful role integration (Comola, 2014; Flinter et al., 2017). During the clinic days, residents will have patient appointments booked for approximately seven hours a day

(one hour of lunch is allotted from the eight-hour day), giving a total of twenty-eight hours of direct patient care each week. Over a twelve-month program duration (minus two weeks of Christmas break, one week of spring break, and one week of combined civil holidays), the expected total time for direct patient care in the CNPRP should equate to approximately 1,344 hours. While this appears to be a large amount of time, it is important to note that no previous studies have made concrete suggestions regarding the amount of direct patient care time required before residents begin to perceive or exhibit improved clinical performance.

To accommodate Brown et al. (2015) and Flinter's (2012) acknowledgement of specialty rotations as an important component of NPRPs, specialty clinic experiences have been incorporated into the CNPRP monthly schedule. The purpose of these specialty clinic experiences is to help residents increase their ability to manage complex diseases and attain an understanding of the specialty services available for referrals (Brown et al., 2015; Flinter, 2012). During this period, the resident will spend one to two weeks under the service of a specialist, either in a clinic or hospital. It should be noted that in these specialty clinic experiences, the resident moves to various clinics, whereas primary care clinic days are predominantly based out of one clinic (likely the clinic of their mentor) for the duration of the entire residency program. To maintain cohesiveness in the program, the residents' specialty clinic experience will coincide with the weekly lecture topic. For example, if the current lecture topic was cardiovascular diseases, the specialty clinic experience will be with a Cardiologist (see Appendix B). In terms of duration, each specialty clinic experience will be one week, with the exception of Pediatrics, Geriatrics, Women's health, Men's health, and Mental health. Instead, these five topics will be two weeks in duration because they involve specific populations that require special considerations for optimal deliverance of care.

Lecture Topics. The purpose of incorporating classroom-based lectures within the

CNPRP is to address resident identified gaps in knowledge and to reinforce the education

provided by Universities and Colleges (Flinter, 2012; Wilbeck et al., 2017). Wilbeck et al.

(2017) advocated the importance of reinforcing the residents' knowledge and skills in commonly

encountered diseases and procedures within the area they will be practicing. In the case of

CNPRPs, that area is PHC. This method by Wilbeck et al. (2017) ensures that residents will be

well-versed in the diseases and skills they are expected to manage and perform, thereby

minimizing the possibility of misunderstanding between what the FNP can do and what the

employer expects them to be able to do (Hart et al., 2016).

Flinter's (2012) model was used to develop the lecture topics for the CNPRP because she

outlined the most pertinent PHC topics. Some examples of the topics included in Flinter's (2012)

model are anxiety, depression, asthma, upper and lower back disorders, hepatitis C, tobacco

cessation, and contraception. Correspondingly, the topics above were included in the CNPRP,

along with common primary care disorders that are listed in the University of British Columbia

Master of Nursing – Nurse Practitioner Program Curriculum (2018) and the College of

Registered Nurses of British Columbia document entitled, *Applying the Competencies Required*

for Nurse Practitioners in British Columbia (2017). Some disorders included are hypertension,

iron deficiency anemia, diabetes, dementia, strep throat, substance use disorders, and meningitis

(see Appendix C). It is important to note that some of the disorders listed, like rheumatoid

arthritis and celiac disease are outside the NP scope of practice (College of Registered Nurses of

British Columbia, 2017). Despite this, these topics have still been included because it is

important for NPs to be able to identify their signs and symptoms to refer patients accordingly.

Also included in the CNPRP are topics pertaining to populations that have specific care

considerations, such as Pediatrics, Geriatrics, Mental Health, and Women's and Men's health. By placing increased emphasis on these populations, the residents should develop into well-rounded clinicians who can provide comprehensive care across the life-span. Finally, taking into account the needs identified by new-graduate NPs (Hart et al., 2016), two lecture weeks (one week each) will be dedicated to the interpretation of twelve-lead electrocardiograms and radiographs, and a one lecture week will be allocated to office management processes, such as diagnostic coding and billing to familiarize residents with the administrative side of the health care system (Hart et al., 2016).

Reflective Journaling. Reflective journaling was identified by residents to be an important component of their experience because journals provided insight into their practice, giving them a sense of how much they have developed and what they must continue to improve (Flinter, 2012; Flinter, 2017). When completed in conjunction with regular performance assessments, reflective journaling can be used as a source of critical self-assessment, allowing for further identification of learning needs. For this reason, the CNPRP will require residents to perform weekly reflective journals that are to be reviewed by their mentors monthly and discussed simultaneously with their performance assessment.

Performance Assessments. Following Goudreau et al. (2011), the CNPRP performance assessments rubric will utilize the NONPF competency tool. This tool outlines practice competencies that new-graduate FNPs are expected to meet before their entrance into the CNPRP because it is designed to measure improvements in existing knowledge and skills, rather newly acquired ones. Goudreau et al. (2011) determined mentors responded this tool to favourably as they found it to be clear, concise, and specific to NP practice.

Since the study by Goudreau et al. (2011) was published, multiple updated versions of the

tool have been released. For the CNPRP, the 2017 version of the NONPF will be utilized to form the CNPRP performance assessment rubric (see Appendix D). The 2017 version of the NONPF tool lists nine core NP competencies: *Scientific Foundation Competencies*, *Leadership Competencies*, *Quality Competencies*, *Technology and Information Literacy Competencies*, *Practice Inquiry Competencies, Health Delivery and System Competencies*, *Policy Competencies, Ethics Competencies*, and *Independent Practitioner Competencies*. Incorporating this tool into the CNPRP, it is evident that residents should be able to successfully meet seven out of the nine competencies. For example, core competencies one and four under *Quality Competencies*, which require the resident to "[use the] best available evidence to continuously improve quality of clinical practice" and "appl[y] skills in peer review to promote a culture of excellence" (NONPF, 2017), will be met through the journal club sessions incorporated into the CNPRP. Similarly, with the CNPRP promoting a mentor-mentee relationship that strives to produce independent practitioners, residents will be able to meet core competency one under *Independent Practitioner*. On the contrary, the competencies that are unlikely to be met through the CNPRP are the areas of *Policy Competencies* and *Technology and Information Literacy Competencies* because these require the resident to be involved in policy creation, as well as develop electronic resources and information databases that can improve the quality and delivery of care. These competencies are not in accordance with the goals of the CNPRP and thus, have been removed from the CNPRP performance assessment rubric.

The schedule for performance assessments will be based on a study by Flinter (2012) who called for regular and consistent assessments to ensure the residents were developing as planned and program goals were being met. Based on her suggestion, mentors should have a weekly informal check-in with residents because this will allow them to discuss any issues or

clarify any clinical questions in a timely manner. She also suggested more formal and thorough assessments by mentors on a monthly basis. It is during these monthly assessments that the CNPRP performance assessment rubric will be utilized. The monthly assessments will begin at the start of the CNPRP with the resident identifying learning needs within the competencies. It is expected that the resident and mentor develop learning plans to meet these needs. Subsequent performance assessments will require reassessment of prior identified learning needs, as well as identifying other learning needs and developing learning plans accordingly.

Funding Models

Similar to NPRP development in the US, CNPRP development will likely face issues around inadequate funding. To examine possible funding sources, it is important to understand where and for whom Canadian NPs are currently practicing. In the US, the federal government would have the most to gain from funding NPRPs because FNPs primarily work in FQHCs (Flinter, 2012). However, in Canada, the question remains as to who would gain the most from funding a CNPRP. Since this is an expected barrier, CNPRP administrators should place a priority towards determining potential funding sources early in the development of a CNPRP to ensure success and longevity. This section will examine some funding models within the Canadian health care system to explore potential sources of funding.

Two possible funding sources for CNPRPs are the federal government and local health authorities (CNPI, 2006; Government of Canada, 2012). The federal government pledged to support the integration of NPs into the Canadian health care system (CNPI, 2006) and NPs responded by taking on health promotion roles in community-based clinics for marginalized populations, group medical visits, and outreach programs (Donald et al., 2010). When the CNPI (2006) was mandated, these roles were funded by the federal government. However, recent

legislation has caused Health Canada, the department in charge of national health care, to reforming its process of distributing funds for PHC services (Government of Canada, 2012). The reform has transferred the funding of PHC services into the jurisdiction of local health authorities (Government of Canada, 2012). As a result, most primary care programs are now affiliated with health authorities (Hutchison, Levesque, Strumpf, & Coyle, 2011), such as Fraser Health Authority, Calgary Health Region, Winnipeg Regional Health Authority, and Athabasca Health Authority to name a few. Not surprisingly, many practicing NPs are now employed within local health authority primary care programs. While the federal government continues to be a potential source of funding, local health authorities are now the most likely patrons for a future CNPRP.

In terms of funding, the long-term goal of CNPRPs should be to become self-sustainable through the revenue gained by the service residents provide (Norwick, 2016). For this to be feasible, NPs must utilize a fee-for-service model that would allow residents to bill according to each patient encounter (Government of Canada, 2015). Through a fee-for-service model, residents can increase their daily total of patient encounters to meet the CNPRPs budget (Government of Canada, 2015). The downside of a fee-for-service model though is that it may decrease the length of each individual patient encounter in order to increase the total number of patient encounters. Presently, NPs in Canada are salary-based and receive a pre-determined, fixed amount of money annually (Government of Canada, 2015). This model, unfortunately, is not conducive to a CNPRP that is self-sustaining because residents would not be able to increase their patient encounter volume to meet the required financial quota (Government of Canada, 2015). Therefore, Canadian NPs would be required to switch to a fee-for-service model to allow CNPRPs to become self-sustaining entities.

There have been no published documents that have stated the exact cost to operate a NPRP. Consequently, there have been no cost-analysis studies examining the effect of implementing a NPRP on the operational costs of a health system. Performing a cost-analysis study would be a crucial first step towards gaining CNPRP funding from potential sources.

Future Recommendations

Future recommendations for the development of NPRPs should involve the generation of research data supporting NPRPs, identifying potential funding sources, and creating a prototype framework for future NPRPs. Research on NPRPs should focus on examining its long-term impact on NP professional development and effect on patient care outcomes. The operational costs of NPRPs should also be assessed, along with a cost-benefit analysis. Within NPRPs, there are several obvious areas where data can be generated for research, such as the residents' reflective journals, the comprehensive program evaluations by NPRP administrators, and the programs' financial statements. Over time, using the data generated in these areas, sufficient literature should be published in favour of NPRPs. When this occurs, key stakeholders, who have the ability to influence funding sources, should receive the evidence they seek to support the development of programs. In the meantime, NPRP administrators should direct their efforts towards identifying and acquiring potential short-term (eg. external grants) and long-term (eg. federal or provincial government) funding sources. One possible source of funding that was not discussed in any of the published literature was universities, especially those with thriving NP programs. Partnering with universities is largely unexplored and could possibly sustain NPRPs long enough to allow for sufficient data generation. To further support the mandatory implementation of NPRPs, administrators should strive for standardized programs, like the CNPRP, that have been developed using evidence-based literature. By creating evidence-based standardized programs, NPRPs should continue to positively impact the professional development of NPs, begin to attract key stakeholders, and provide NPRP administrators with a stronger case for sustained funding.

Conclusion

This literature review determined that NPs perceived NPRPs to be useful during their transition from student NP to full-scope NP because it increased knowledge and consolidated skills, built confidence, and allowed for successful role integration. Current evidence showed the most effective program structures involved combined didactic and clinical experiences with specialty clinic experiences over a twelve-month period, established mentors, well-defined roles, regular performance assessments, reflective resident journals, and comprehensive program evaluations. Unfortunately, there were also several identified barriers, such as insufficient funding, an inadequate amount of research regarding the benefits of implementing NPRPs, a failure to standardize the various existing residency programs, and a lack of support from key stakeholders. Until these barriers are addressed, the implementation of mandatory NPRPs is unlikely.

NPRPs would be a great potential foundation for NP professional development. Its implementation would ensure the successful integration of NPs into primary care practice settings. Establishing mandatory NPRPs would represent a major advancement for the NP profession. While the process of implementation will take time and a great deal of effort from those who recognize the value of NPRPs during these early stages of development, the findings in this literature review provides numerous reasons for optimism and key recommendations for future programs.

Appendix A

Canadian Nurse Practitioner Residency Program: Daily Schedule

Daily Schedule	Monday (Classroom)	Tuesday (Clinic)	Wednesday (Clinic)	Thursday (Clinic)	Friday (Clinic)
0800-1200	Lecture	Patient Appointments	Patient Appointments	Patient Appointments	Patient Appointments
1200-1300	Break	Break	Break	Break	Break
1300-1600	Case Studies, Journal Club & Skills Practice	Patient Appointments	Patient Appointments	Patient Appointments	Patient Appointments

Adapted from Zapatka, Conelius, Edwards, Meyer, & Brienza (2014).

Appendix B

Canadian Nurse Practitioner Residency Program: Specialty Rotations

Specialty Rotation Schedule	Week 1	Week 2	Week 3	Week 4
July	Primary Care Clinic	Primary Care Clinic	Primary Care Clinic	Chronic Pain
August	Primary Care Clinic	Primary Care Clinic	Primary Care Clinic	Cardiology
September	Primary Care Clinic	Primary Care Clinic	Primary Care Clinic	Respirology
October	Mental Health	Mental Health	Geriatrics	Geriatrics
November	Primary Care Clinic	Primary Care Clinic	Primary Care Clinic	Ears, Nose, Throat
December (2 weeks)	Women's Health	Women's Health	Christmas Break	Christmas Break
January	Primary Care Clinic	Primary Care Clinic	Primary Care Clinic	Orthopedics
February	Primary Care Clinic	Dermatology & Integument	Pediatrics	Pediatrics
March (3 weeks)	Primary Care Clinic	Primary Care Clinic	Gastroenterology	Spring Break
April	Primary Care Clinic	Endocrinology (Diabetes)	Hematology	Infectious Diseases
May	Primary Care Clinic	Urology & Nephrology	Men's Health	Men's Health
June	Primary Care Clinic	Neurology	Primary Care Clinic	Rheumatology

Adapted from Flinter (2012).

Appendix C

Canadian Nurse Practitioner Residency Program: Lecture Topics

Month	Topic
July[1]	General • Clinical Decision Making • Pre-operative Assessments • Driver's Physical Examination • Post-assault Management • Motor Vehicle Injury Management • Work Injury Accidents • Office Management Pain (S) • Acute and Chronic Pain Management • Pharmacological Pain Control • Non-pharmacological Pain Control
August	Cardiology (S) • Hypertension • Heart Murmurs • Pre-syncope and Syncope • Dyslipidemia • Peripheral Artery Disease • Angina • Myocardial Infarction and Post Myocardial Infarction Management • Heart Failure • Valvular Disorders • Arrhythmias • Congenital Health Disease • Skills: 12-lead Electrocardiogram Interpretation
September	Respirology (S) • Asthma • COPD • Pneumonia • Bronchitis • Sarcoidosis • Tuberculosis

	• Obstructive Sleep Apnea • Pulmonary Embolism • Tobacco Cessation • Lung Cancer
October[1]	Mental Health (2S) • Depression • Dysthymia • Anxiety Disorders • Schizophrenia • Bipolar Disorder • Personality Disorders • Substance Use & Addictions • Sleep Disorders • Chronic Fatigue Syndrome • Suicidality Geriatrics (2S) • Incontinence • Delirium • Dementia • Sleep Disturbances • Falls Prevention • De-prescribing • Advanced Care Planning
November	Head, Ears, Eyes, Nose & Throat (S) • Conjunctivitis • Blepharitis • Chalazion • Nasolacrimal Duct Obstruction • Simple Foreign Body • Glaucoma • Macular Degeneration • Cataracts • Otitis Media • Otitis Externa • Cerumen Impaction

	• Tympanic Membrane Perforation • Vertigo • Rhinitis • Epistaxis • Sinusitis • Stomatitis • Oral Candidiasis • Pharyngitis • Tonsillitis • Peritonsillar Abscess • Skills: Ophthalmoscope and Otoscope Exams
December **(2 weeks)**	Women's Health (2S) • Oral Contraceptives • Human Papilloma Virus • Yeast Infections • Bacterial Vaginosis • Pelvic Inflammatory Disease • Ovarian Cysts • Pre-conception • Pregnancy – Antenatal, Postnatal • Pre-eclampsia • Placental Abruption • Placenta Previa • Molar Pregnancy • Breastfeeding • Amenorrhea and Dysmenorrhea • Pre-menstrual Syndrome • Menopause • Dysfunction Uterine Bleeding • Skills: Pelvic Exams, Pap Smears, Intrauterine Device Insertion
January	Orthopedics (S) • Common Dislocations and Fractures • Common Sprains and Strains • Acute and Chronic Back Pain • Cervical Strain • Spinal Stenosis

	• Herniated Disc • Scoliosis • Radiculopathy • Spondylolisthesis • Cauda Equina Syndrome • Costochondritis • Nerve Compression Syndromes • De Quervain's Tenosynovitis • Depuytren's Contractures • Acromioclavicular Joint Injury • Rotator Cuff Injuries • Frozen Shoulder • Subacromial Bursitis • Thoracic Outlet Syndrome • Biceps Tendon Rupture • Nursemaid's Elbow • Epicondylitis • Ganglions • Greater Trochanteric Pain Syndromes • Piriformis Syndrome • Iliotibial Band Syndrome • Osgood-Schlatter Disease • Knee Effusion • Knee Ligament Injuries • Meniscal Injury • Achilles Tendon Rupture • Morton's Neuroma • Plantar Fasciitis • Tendonitis • Bursitis • Osteoarthritis • Gout • Radiography • Skills: Radiograph Interpretation
February[2]	Dermatology & Integument (S) • Acne • Rosacea

- Sebaceous Cysts
- Rashes
- Dermatitis
- Psoriasis
- Warts
- Impetigo
- Folliculitis
- Furuncles and Carbuncles
- Cellulitis
- Tinea Infections
- Nail Disorders
- Benign Skin Disorders
- Malignant Skin Disorders
- Scabies
- Bed Bugs
- Head and Pubic Lice
- Animal and Arthropod Bites
- Foreign Bodies
- Burns
- Skills: Drain and Incision, Skin Biopsy, Suturing, Nail Wedge Resection, Cryotherapy, Foreign Body Removal, Wound Care

Pediatrics (2S)
- Croup
- Bronchiolitis
- Epiglottitis
- Asthma
- Meningitis
- Chickenpox
- Roseola
- Fifth's Disease
- Coxsackie Viral Infection
- Attention Deficit Hyperactivity Disorder
- Autism Spectrum Disorder
- Depression
- Anorexia
- Puberty

March (3 weeks)	Gastroenterology (S) • Gastroesophageal Reflux Disease • Peptic Ulcer Disease • Constipation and Diarrhea • Gastroenteritis • Irritable Bowel Syndrome • Crohn's Disease • Colitis • Celiac Disease • Non-alcoholic Steatohepatitis • Liver Cirrhosis • Appendicitis • Cholecystitis • Cholangitis • Gastrointestinal Cancers • Hernias • Lactose Intolerance • Malabsorption Syndrome • Anal Fissures
April[1]	Endocrine (S) • Hypothyroid • Diabetes • Obesity Hematology • Iron Deficiency Anemia • Vitamin B_{12} Deficiency • Bleeding Disorders • Sickle Cells Disease • Hemophilia • Thalassemia Infectious Diseases (S) • Human Immunodeficiency Virus • Gonorrhea • Chlamydia • Trichomoniasis • Syphilis

	• Herpes Simplex Virus • Strep Throat • Mononucleosis • Influenza • Infectious Hepatitis • Lyme Disease • Measles • Mumps • Rubella • Tetanus • Polio • Pertussis • Diphtheria • Vaccinations
May[1]	Urology & Nephrology (S) • Urinary Tract Infection • Cystitis • Pyelonephritis • Kidney Stones • Chronic Kidney Disease • Primary Nocturnal Enuresis Men's Heath (2S) • Prostatitis • Benign Prostatic Hypertrophy • Prostate Cancer • Balanitis • Phimosis and Paraphimosis • Epididymal Cysts • Testicular Cancer • Sexual Dysfunction • Gynecomastia • Undescended Testes • Skills: Digital Rectal Exams, Glass Test
June[1]	Neurology (S) • Concussions

	- Headaches - Peripheral Neuropathy - Stroke - Transient Ischemic Attacks - Bell's Palsy - Simple Febrile Seizures - Seizure Disorders - Tremors - Multiple Sclerosis - Parkinson's Disease Rheumatology/Immunology (S) - Rheumatoid Arthritis - Reactive Arthritis - Sjogren's Disease - Systemic Lupus Erythematous - Fibromyalgia - Ankylosing Spondylitis - Allergic Reactions

Adapted from Flinter (2012), Wilbeck, Roberts, & Rudy (2017), University of British Columbia Master of Nursing – Nurse Practitioner Program Curriculum (2018) and College of Registered Nurses of British Columbia's *Applying the Competencies Required for Nurse Practitioners in British Columbia* (2017).

[1] Two weeks allotted per topic.
[2] One week allotted for Endocrine and Hematology. Two weeks allotted for Infectious Diseases.
(S) – 1-week Specialty Clinic Rotation
(2S) – 2-week Specialty Clinic Rotation

Appendix D

Canadian Nurse Practitioner Residency Program: Performance Assessment Rubric

Competency Area	Nurse Practitioner Core Competency
Scientific Foundation Competencies	1. Critically analyzes data and evidence for improving advanced nursing practice. 2. Integrates knowledge from the humanities and sciences within the context of nursing science. 3. Translates research and other forms of knowledge to improve practice processes and outcomes. 4. Develops new practice approaches based on the integration of research, theory, and practice knowledge.
Leadership Competencies	1. Assumes complex and advanced leadership roles to initiate and guide change. 2. Provides leadership to foster collaboration with multiple stakeholders (e.g. patients, community, integrated health care teams, and policy makers) to improve health care. 3. Demonstrates leadership that uses critical and reflective thinking. 4. Advocates for improved access, quality and cost-effective health care. 5. Advances practice through the development and implementation of innovations incorporating principles of change. 6. Communicates practice knowledge effectively, both orally and in writing. 7. Participates in professional organizations and activities that influence advanced practice nursing and/or health outcomes of a population focus.
Quality Competencies	1. Uses best available evidence to continuously improve quality of clinical practice. 2. Evaluates the relationships among access, cost, quality, and safety and their influence on health care. 3. Evaluates how organizational structure, care processes, financing, marketing, and policy decisions impact the quality of health care. 4. Applies skills in peer review to promote a culture of excellence. 5. Anticipates variations in practice and is proactive in implementing interventions to ensure quality.

Practice Inquiry Competencies	1. Provides leadership in the translation of new knowledge into practice. 2. Generates knowledge from clinical practice to improve practice and patient outcomes. 3. Applies clinical investigative skills to improve health outcomes. 4. Leads practice inquiry, individually or in partnership with others. 5. Disseminates evidence from inquiry to diverse audiences using multiple modalities. 6. Analyzes clinical guidelines for individualized application into practice
Health Delivery and System Competencies	1. Applies knowledge of organizational practices and complex systems to improve health care delivery. 2. Effects health care change using broad based skills including negotiating, consensus-building, and partnering. 3. Minimizes risk to patients and providers at the individual and systems level. 4. Facilitates the development of health care systems that address the needs of culturally diverse populations, providers, and other stakeholders. 5. Evaluates the impact of health care delivery on patients, providers, other stakeholders, and the environment. 6. Analyzes organizational structure, functions and resources to improve the delivery of care. 7. Collaborates in planning for transitions across the continuum of care.
Ethics Competencies	1. Integrates ethical principles in decision making. 2. Evaluates the ethical consequences of decisions. 3. Applies ethically sound solutions to complex issues related to individuals, populations and systems of care.
Independent Practitioner Competencies	1. Functions as a licensed independent practitioner. 2. Demonstrates the highest level of accountability for professional practice. 3. Practices independently managing previously diagnosed and undiagnosed patients. a. Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end-of-life care.

	b. Uses advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings.
	c. Employs screening and diagnostic strategies in the development of diagnoses.
	d. Prescribes medications within scope of practice.
	e. Manages the health/illness status of patients and families over time.
	4. Provides patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making.
	a. Works to establish a relationship with the patient characterized by mutual respect, empathy, and collaboration.
	b. Creates a climate of patient- centered care to include confidentiality, privacy, comfort, emotional support, mutual trust, and respect.
	c. Incorporates the patient's cultural and spiritual preferences, values, and beliefs into health care.
	d. Preserves the patient's control over decision making by negotiating a mutually acceptable plan of care.
	e. Develops strategies to prevent one's own personal biases from interfering with delivery of quality care.
	f. Addresses cultural, spiritual, and ethnic influences that potentially create conflict among individuals, families, staff and caregivers.
	5. Educates professional and lay caregivers to provide culturally and spiritually sensitive, appropriate care.
	6. Collaborates with both professional and other caregivers to achieve optimal care outcomes.
	7. Coordinates transitional care services in and across care settings.
	8. Participates in the development, use, and evaluation of professional standards and evidence-based care.

Adapted from the National Task Force of the National Organization of Nurse Practitioner Faculty's *2017 Nurse Practitioner Core Competencies Content*.

Appendix E

Presentation Poster

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