INTEGRATION OF THE NURSE CLINICIAN SCIENTIST ROLE INTO THE

CLINICAL SETTING

by

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The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, a thesis entitled:

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Abstract

Problem: Evidence-based practice (EBP) includes integrating best evidence when providing care. Despite the available amount of evidence, bridging the research-practice gap is an ongoing issue in healthcare. A nurse Clinician Scientist (CS) is a doctoral-prepared researcher who is clinically embedded and conducts clinically-informed research. Little evidence exists that can provide insight into the successful implementation and sustainability of this role into some British Columbia (BC) care settings.

Methods: The methodology of Interpretive Description (ID) was used to guide this study because it generates findings that are amenable to practical application. Purposive and snowball sampling techniques were used to recruit 11 Canadian individuals who participated in individual, semi-structured interviews. In addition, professional networks allowed inclusion of a subset of 3 Danish nurse CSs, whose interviews were utilized to identify some global commonalities and contextual variations in the CS role establishment.

Findings: The overarching theme of advancing healthcare delivery by embedding doctorally-prepared nurse researchers into the clinical setting was identified. Two conditions were considered fundamental in the CS role implementation: 1) shared vision among the key stakeholders, and 2) dedication and commitment to establish the nurse CS role. Four key factors that appeared to make the CS role sustainable over time included: establishing role expectations, creating clear funding channels, embedding the role into the academic and clinical settings, and creating a support system.

Implications: Role clarity and standardization are a challenge for the nurse CS role. Articulating departmental and organizational needs might improve role clarity and direct CS
role’s expectations and deliverables. Still, more questions arose from this study about how to best standardize the role across healthcare organizations. Leaders who value the nurse CS’s effect on the research capacity of the organization can support the role establishment. Further, multidisciplinary research may be a way for the nurse CSs to be integrated into the research community, access mentorship, build research expertise, and secure research funding. Finally, insights from the participatory, evidence-based, patient-focused process for advanced practice nurses (PEPPA) framework may help inform some aspects of the CS role establishment process.
Lay Summary

This project focused on the integration of the nurse Clinician Scientist (CS) role into the clinical setting. Using Interpretive Description, this study identified and described relevant factors and conditions that helped establish this role in British Columbia (BC). Interviews with leaders who helped support and establish this role were completed to gain insight into how the CS role can become a more prominent component in the healthcare delivery model in this province. The participants described two fundamental conditions for successful establishment and four critical factors that make the CS role sustainable over time. On the basis of these findings, insights about promoting CS role clarity and standardization, building research capacity, and using system resources to support funding were articulated. Some aspects of the strategies that support other advanced practice nursing roles may be applicable to the advancement of CS roles for nursing in BC.
Preface

Under the guidance of my supervisors, Dr. Amanda Fuchsia Howard and Dr. Sally Thorne, as well as in collaboration with the committee member Dr. Paula Mahon, I completed all parts of this research. To date, no part of this thesis work has been published. This study received University of British Columbia Behavioural Research Ethics Board approval. The certificate number is H18-03193.
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<tr>
<td>APN</td>
<td>Advanced Practice Nurse</td>
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<td>BC</td>
<td>British Columbia</td>
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<td>BREB</td>
<td>Behavioural Research Ethics Board</td>
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<tr>
<td>CINAHL</td>
<td>Cumulative Index to Nursing and Allied Health Literature</td>
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<td>CNA</td>
<td>Canadian Nurses Association</td>
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<td>CNS</td>
<td>Clinical Nurse Specialist</td>
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<td>CS</td>
<td>Clinician Scientist</td>
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<td>EBP</td>
<td>Evidence-Based Practice</td>
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<td>ID</td>
<td>Interpretive Description</td>
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<tr>
<td>MEDLINE</td>
<td>Medical Literature Analysis and Retrieval System Online</td>
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<tr>
<td>MD</td>
<td>Doctor of Medicine</td>
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<tr>
<td>NP</td>
<td>Nurse Practitioner</td>
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<td>NRS</td>
<td>Nurse Research Scientist</td>
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<tr>
<td>PEPPA</td>
<td>Participatory, evidence-based, patient-focused process, for advanced practice nurses</td>
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<td>RN</td>
<td>Registered Nurse</td>
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<td>SON</td>
<td>School of Nursing</td>
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<td>UBC</td>
<td>University of British Columbia</td>
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<td>US</td>
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I would like to acknowledge the financial support I received from the UBC School of Nursing’s Helen Shore Nursing Endowment Fund. The research grant I received enabled me to complete my thesis studies.

I must acknowledge Jennifer Wong, Allison Stewart, and Avery Nicholson who have proofread my chapters and have provided emotional support throughout this journey. I am forever grateful to my parents, Alexander and Olga, as well as my brother Pavel who have always encouraged and supported me unconditionally. Finally, I want to acknowledge my wonderful husband Alan, who has been my rock throughout this journey. Thank you for your patience, understanding, and support. I could not have completed this work without you.
Dedication

To my husband, Alan, for his endless love and support.
Chapter 1: Introduction

1.1 Background to the Issue

In today’s healthcare setting, using evidence to inform patient care is considered to be a standard of practice for healthcare professionals. The Canadian Nurses Association (CNA) describes evidence as the "information acquired through research and the scientific evaluation of practice" (Canadian Nurses Association, 2010, p. 1). Evidence-based practice (EBP), originally coined as evidence-based medicine, signifies the importance of using best evidence when providing patient care. Although there are numerous definitions and operationalizations of this term, EBP is commonly understood as the integration of the best evidence to make decisions about patient care (Sackett, Resenberg, Muir Gray, Hayes, & Richardson, 1996). EBP is a problem-solving strategy that de-emphasizes the reliance on customs or rituals; rather, this practice allows the healthcare professional to critically analyze the best available form of evidence to make care decisions (Polit & Beck, 2016). This evidence may be derived from rigorous research methods such as quantitative studies, qualitative studies, or meta-analyses (Canadian Nurses Association, 2018a; Sackett et al., 1996). However, these methodologies risk reducing the uniqueness of our patients, the healthcare setting, and the cultural context in favor of standardization (Thorne & Sawatzky, 2014). Hence, our notion of evidence must expand to include expert consultations, experiential knowledge, and patient preferences (Canadian Nurses Association, 2018a; Sackett et al., 1996). In order to make evidence-informed care decisions, healthcare practitioners must be continuously and consciously engaged with all forms of evidence to optimize outcomes for their individual patients, communities, and populations all while ensuring accountability and transparency in the decision-making process (Canadian Nurses Association, 2018a).
Within healthcare, the Cochrane Collaboration has been pivotal in the preparation, synthesis, and dissemination of research evidence to help support healthcare decision-making (Estabrooks, 1999; Polit & Beck, 2016). Incorporating research into everyday practice is the critical component of ensuring quality patient care (Jeffs, Smith, Beswick, Maoine, & Ferris, 2013). However, despite the overwhelming amount of evidence that is available, there is ongoing difficulty in bridging the gap between research and practice (Brant, 2015). In their position piece, Albert and Siedlecki (2008) theorize that this gap persists because few studies actually originate at the bedside. They suggest that this lack of clinically-embedded research may be attributed to practitioners' minimal research understanding or perceptions that research findings are not applicable to practice. Moreover, questions that drive healthcare research may not necessarily be the questions that practitioners ask (Albert & Siedlecki, 2008). To bridge the research-practice gap and make research findings more relevant to clinical practice, healthcare organizations, professional groups, and government sectors focus on strategies to help with knowledge translation, research utilization, and quality improvement strategies (BC Ministry of Health, 2014; Brant, 2015; Feo & Kitson, 2016; George & Tuite, 2008). For example, the use of clinical practice guidelines has been one strategy to help incorporate the use of best evidence into practice; however, the successful uptake of these tools in the clinical setting has been inconsistent (Bowen & Graham, 2014; Ploeg, Davies, Edwards, Gifford, & Elliott-Miller, 2007).

Globally, nurses make up the largest body of healthcare professionals and they provide the majority of direct patient care. There are almost 21 million nurses and midwives in the world (World Health Organization, 2018). Canada employs about 431,000 regulated nurses, of which over 303,000 are registered nurses (RN’s) (Canadian Nurses Association, 2018b). Nurses represent over 48% of the Canadian healthcare workforce (Canadian Nurses Association, 2018).
They are at the forefront of the production and consumption of research evidence (Polit & Beck, 2016). Thus, to provide care that is grounded in evidence nurses need to be directly involved in conducting, evaluating, and appraising research (Canadian Nurses Association, 2018a). Questions and care queries made by nurses can have significant contribution to research and nursing scholarship. However, without strong nursing leadership within the practice setting, useful research evidence may not be translated into an actual change in practice (Albert & Siedlecki, 2008).

In the United States (US), hospitals and healthcare authorities that support nursing knowledge development, innovation, and quality improvement display the characteristics of Magnet®-recognized organizations (American Nurses Credentialing Center, 2018; Brant, 2015; Vessey, McCabe, & Lulloff, 2017). There are over 480 Magnet® recognized hospitals worldwide (American Nurses Credentialing Center, 2018). These organizations support a culture of inquiry and nurse involvement in research and evidence production (American Nurses Credentialing Center, 2018). As a result, these hospitals have better patient outcomes than those without the Magnet® status. These include: lower fall rates, lower pressure ulcer rates, and lower mortality rates (Logsdon et al., 2017; Petit dit Dariel & Regnaux, 2015). Moreover, Magnet® hospitals report better nurse job satisfaction as well as lower vacancy rates, lower turnover, and lower burnout rates (Logsdon et al., 2017; Petit dit Dariel & Regnaux, 2015). Although this program is primarily based in the US, five other countries have hospitals that hold the Magnet® status, including Australia, Belgium, and Saudi Arabia. Currently, Mount Sinai Hospital in Ontario is the only Canadian site that has applied for and obtained the Magnet® status (American Nurses Credentialing Center, 2018).
Regardless of holding the Magnet® status, organizations that incorporate research-active practitioners into their clinical and operational processes demonstrate an increase in nursing engagement; this in turn can enhance job satisfaction, facilitate nursing retention, improve patient care, decrease patient adverse events, and positively affect patient outcomes (Brant, 2015; Gawlinski, 2008; Giallonardo, Wong, & Iwasiw, 2010; Smith, Gullick, Ballard, & Perry, 2018; Spence Laschinger & Finegan, 2005). Within the current Canadian healthcare structure, nurses have limited opportunities to be active generators of nursing research. Nurses in leadership roles, such as the clinical nurse specialist (CNS) or the nurse practitioner (NP), are commonly assisting, partnering, or encouraging others to conduct research, rather than generating their own research evidence or leading their own research projects (Mackay, 2009).

A nurse clinician scientist\(^1\) (CS) is a relatively novel role in the Canadian healthcare system. This role is sometimes termed as a nurse scientist, nurse research scientist, advanced nurse practitioner, or nurse researcher (Hølge-Hazelton, Kjerholt, Berthelsen Bøttcher, & Thomsen Grothe, 2016; Mackay, 2009; Vessey et al., 2017). Despite having a variety of titles, CSs are doctorally-prepared nurses who function primarily as career scientists with portions of time devoted to both clinical practice and education (Mackay, 2009). They have the expertise and capacity to serve as mentors and supervise research activities, whereas master-prepared researchers act in more of a supportive role or lead quality improvement projects within their healthcare department or organization (Albert & Siedlecki, 2008). CSs sustain a culture of scholarly inquisitiveness, conduct original nursing research, and support knowledge translation

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\(^1\) The research team decided to use the term “Clinician Scientist” throughout the paper to designate this role because it was a more widely recognized designation for this role. Initially, we began conducting the research project using the designation “Nurse Research Scientist” (NRS) and it was the designation used for the appended documents.
and EBP (Brant, 2015; Ellis & Lee, 2005; Vessey et al., 2017). Florence Nightingale was considered the first nurse scientist by virtue of studying the effects of hygiene and environment on infection (Brant, 2015). Despite such a long history, few nurse CS positions exist today in Canada (Brant, 2015; Mackay, 2009). This is partly due to the fact fewer than 0.1% of all nurses have a doctorate level of education (Canadian Association of Schools of Nursing, 2018; Institute of Medicine, 2011). Mackay (2009) noted that the nurse CS role is virtually non-existent in Africa and Asia. Although Mackay's article was published a decade ago, it is unlikely that the situation has significantly changed in the intervening years.

Unlike Florence Nightingale's work, which was firmly embedded within the practice setting, current nursing research is primarily carried out by nursing academics who are often removed from clinical practice (Brant, 2015; Jeffs et al., 2013). Among allied health disciplines, CS positions are often restricted to appointments at either universities or healthcare facilities, not both. Furthermore, their role descriptions do not typically combine service with research (Mackay, 2009). Factors such as fiscal restraints, lack of research mentorship, a limited number of officially funded research programs, and competing organizational priorities are all barriers to embedding research-active clinicians in the practice setting (Brant, 2015; Vessey et al., 2017). As a result, clinical nursing staff have little to no awareness or knowledge about research and do not feel confident in their ability to shape practice (Black, Balneaves, Garossino, Puyat, & Qian, 2015).

1.2 Research Purpose and Research Questions

Currently, a typical nurse leadership team in British Columbia (BC) is comprised of nurse educators, nurse clinicians, CNSs, NPs, and chief nursing officers. Both the CNS and the NP roles have research as a component of their job description (Canadian Nurses Association, 2019).
However, competing job priorities and clinical demands often constrain nursing-led research, despite its importance to patient care, nursing education, and nursing professional development (Brant, 2015).

In my professional nursing experience — working over a decade in critical care in a quaternary care facility — I have been surrounded by physician-led clinical trials, practice changes, and hospital-led initiatives. Physician-led research is highly visible and is a valued part of their role as specialists. By contrast, nursing research is virtually absent. In spite of the decade I spent working in an academic hospital, I was not aware that the nurse CS role existed until I entered graduate studies. Although nursing leadership roles such as the CNS and NP are growing in today’s BC healthcare environment, these practitioners must serve their respective patient populations, participate in policy development, and support their nursing staff (Canadian Nurses Association, 2019). While the health authorities encourage employees to apply for grants for quality improvement initiatives as a way to stimulate EBP activities, without experienced nursing research mentorship, great ideas and research questions that originate at the bedside have less potential to become research projects or affect large-scale practice changes (Brant, 2015).

In BC, there is a lack of skilled, doctorally-prepared nurse researchers embedded into the clinical setting. The nurse CS role is not well understood, as there are a limited number of practitioners who are functioning in this capacity. In particular, to conduct clinically-informed research and remain embedded in the practice setting, nurse CSs often must create their own job descriptions because no standardized model exists for such a role (Lewallen & Kohlenberg, 2011). This may be achieved without necessarily considering or understanding the full conceptualization of the scope or nature of the CS role (Lewallen & Kohlenberg, 2011).
Therefore, it is vital to understand how this role has been implemented and sustained in the BC healthcare setting.

In this study, I intended to identify the inroads that have been made to successfully establish the CS role in some care settings, and explore how and why they were created. These insights are essential for considering ways in which more nurse CS positions might be created and sustained in other care settings in BC. The specific research questions were:

1. What inroads have been made to facilitate the implementation of the nurse CS role in clinical settings in BC?
2. What can be learned from the experiences of individuals involved in the implementation of the nurse CS role in BC that might inform further development of such positions within other health care settings?

1.3 Overview of Thesis Proposal

The purpose of this thesis work is to better understand the inroads created to facilitate the implementation of the CS role in the BC healthcare setting. Chapter 1 provided a background for healthcare delivery and the important role that nurses play in supporting EBP. It outlined the novelty of the nurse CS role in Canada and underscored our limited understanding of how this role is implemented into the healthcare setting, particularly in BC. Chapter 2 summarizes the available literature about this role and its importance to healthcare delivery. Due to a lack of evidence about the nurse CS role in Canada, the literature review includes international sources of evidence to highlight the importance of this role in patient care and healthcare delivery. Chapter 3 details the methodology and research methods utilized to conduct the study. Interpretive description is used for this project, as it is the most fitting methodology to answer the research questions. Moreover, Chapter 3 outlines the serendipitous access to international
participants as a way contrast the Canadian data set. Chapter 4 describes the findings from the
data set. Finally, Chapter 5 provides a discussion of the findings and implications for future
nurse CS role development. This research study concludes with the thesis findings, where the
implications for other healthcare leaders are outlined.
Chapter 2: Literature Review

2.1 Introduction

In Chapter 1, I provided an overview of the CS role and its importance to healthcare delivery. In this chapter, I summarize the findings from an in-depth literature review to gain a comprehensive understanding about the nature of the CS role and its establishment. A literature review is a critical component of the research process, as it is the point where researchers make conclusions about what is known and what is yet to be discovered about the topic of interest (Thorne, 2016). It grounds the study within existing knowledge about the integration of the nurse CS role into the clinical setting and "offers interpretive commentary on the strengths and weaknesses within the overall body of knowledge" (Thorne, 2016, p. 67). A comprehensive literature review can help guide the research question and determine what can be contributed to the body of knowledge (Polit & Beck, 2016). Furthermore, Thorne (2016) points out that when scaffolding a study, it is important to consider what I, as a researcher and a nurse, bring to the research study. Hence, during the literature review and data analysis of the CS’s effect on healthcare delivery, I must remain consciously aware of how my clinical background influences the importance that I place on EBP, clinically-embedded research, and clinically-involved nurse researchers. With this in mind, I am able to articulate my position as a researcher in this chapter in order to lay the foundation for the carrying out of my study.

2.2 Literature Criteria and Search Strategy

In the current BC healthcare delivery model, the CS role is not common. Hence, there was limited research specific to its implementation and sustainability. In order to obtain a well-rounded perspective, I expanded my literature review to include other disciplines such as medicine, midwifery, and physiotherapy. Particularly in medicine, the physician CS role is more
prominent. While recognizing that healthcare delivery structures differ in other countries, I included literature from outside Canada to gain global insight into the nurse CS role and its implementation.

To conduct this literature search I accessed the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Medical Literature Analysis and Retrieval System Online (MEDLINE) databases. The use of truncation symbols and Boolean operators "AND" and "OR" helped to produce an initial list of relevant articles (Polit & Beck, 2016). I was able to narrow the specific professional role I wanted to review by using search terms such as "research scientist", "nurse scientist", and "clinician-scientist". I combined these terms with secondary search terms "implement*", "integrat*", and "healthcare" to produce articles relating to the establishment and sustainability of this professional role. I prioritized primary sources, peer-reviewed papers, or academically published pieces. However, with the limited number of actual studies available I have included academic position papers and evaluation reports in this literature review. Additionally, some periodicals and opinion papers written by healthcare practitioners were utilized in this review. While I acknowledge that periodicals and opinion papers are not typically used in literature reviews, I included them because they can inform the current attitude about the nurse CS role and its importance to healthcare delivery. Finally, I utilized an ancestry approach to locate previous seminal works related to the subject (Polit & Beck, 2016).

2.3 Literature Review

To comprehensively interpret the existing knowledge about the nurse CS role and its place in the clinical setting, I evaluated how the current literature defines and operationalizes it. It was important to identify and describe the factors that act as supports and barriers to
establishing the CS role, as well as strategies that promote the expansion and sustainability of nursing research. Finally, from the literature, I was able to summarize how the nurse CS role affects direct patient care, institutional healthcare practice, and the broad organizational structure of healthcare delivery.

2.3.1 The Multidimensional Nature of the CS Role

A CS is a doctorally-prepared nurse who spends the majority of his or her time conducting research (Green & Tranmer, 2007; Hølge-Hazelton et al., 2016; Logsdon et al., 2017). However, as noted in Chapter 1, the title "Clinician Scientist" is not universal. Within the literature, this role may be referred to as an advanced nurse practitioner, a nurse scientist, a nurse research scientist, or even a nurse researcher (Hølge-Hazelton et al., 2016; Mackay, 2009; Vessey et al., 2017). For the purpose of this project and thesis, I will continue to use “Clinician Scientist” to identify such a role, because in BC the majority of practitioners in this role are titled as such².

After assessing the literature, it is clear that these clinicians typically have multiple roles with varying objectives within the same job. They embody dual roles as scientists and advanced practice nurses or nurse administrators, functioning between these two professional identities with the expectation to fulfill both job expectations concurrently (Kluijtmans, de Haan, Akkerman, & van Tartwijk, 2017). They lead their own research projects, participate in research activities within the organization, and take on administrative and mentorship duties. In medicine, physician CSs may spend up to 75% of their professional time on research, with the remainder dedicated to patient care or educational activities (Mackay, 2009; Schafer, 2010). However, this

² The other title used to designate this role in BC is Nurse Research Scientist.
is not as well delineated in the nursing or other allied-health fields. As a result, how this role is operationalized may significantly vary between care settings (Mackay, 2009).

As part of their role, CSs primarily design, conduct, and utilize nursing research to develop and test theories, ultimately guiding healthcare practice and improving patient care (Green & Tranmer, 2007; Hill et al., 2014). In a phenomenological study from the Netherlands, Kluijtmans and colleagues (2017) described how CSs are the key to not only transforming clinical observations into the research hypothesis, but also translating evidential knowledge to patient care. In a multi-centre survey of nurse researchers in the United States, Sawin and colleagues (2010), and later Logsdon and colleagues (2017), found that CSs self-identify their responsibilities to include conducting their own research, facilitating the research of others, leading EBP activities, and managing administrative duties. Additionally, they noted that CSs participate in projects related to knowledge translation, research translation, quality improvement, and education. Sawin (2010) further identified some of the tangible activities that CSs are involved with, such as journal publications, EBP project presentations, and teaching sessions. Moreover, Brant (2015) explained in her descriptive article that nurse CSs are active as chairs or facilitators in nursing research councils, organizational research councils, journal clubs, and research symposiums.

Finally, CSs are considered to be teachers and mentors to nursing and other healthcare professionals (Brant, 2015; Logsdon et al., 2017). They are often the cheerleaders within an organization, supporting the integration of new evidence into practice, stimulating EBP activities, and encouraging thoughtful research endeavors (Brant, 2015). Jeffs and colleagues (2013) elucidated how one Canadian hospital improved its nursing research capacity, detailing that CSs were integral in shaping the culture of inquiry and research conduction. Moreover, CSs
were an invaluable resource to help clinical queries become EBP questions or research projects, which in turn, helped shape nursing practice that is grounded in research literacy (Jeffs et al., 2013).

2.3.2 Factors that Support the CS Role Establishment

Successful implementation of the nurse CS role requires a series of supports that shape the culture of nursing research within an organization. These come from organizational commitments, tangible departmental resources, and personal nursing leader attributes. First, both Sawin (2010) and Logsdon (2017) stressed the importance of broad support from all levels of the administration and commitment to research throughout the institution. They noted that these organizational visions and goals must be paired with clear mission statements that support the CS role integration into the organization (Logsdon et al., 2017; Sawin et al., 2010). Operationally, the healthcare organization model must recognize and articulate the value of on-site nurse CSs. By improving their visibility to the front-line staff, CSs are more effective in conducting clinically-informed research (Brant, 2015). Moreover, well-outlined strategies that provide long-term support are necessary to promote sustainability of this role, such as securing funding for research priorities, or establishing more training programs with key partners (DeVon, Rice, Pickler, Krause-Parello, & Richmond, 2016). Finally, affiliations with academic research institutes or universities further develop an organization's research focus and commitment, as well as support the CS’s research agenda (Green & Tranmer, 2007; Harvey, Plummer, Nielsen, Adams, & Pain, 2016; Sawin et al., 2010).

Once a clear organizational vision is in place, more tangible supports are necessary for successful implementation of the CS role. A well-outlined structure for the CS role and its deliverables is imperative (Albert & Siedlecki, 2008; Sawin et al., 2010). Clearly outlined
budgets with comprehensive supports to meet departmental goals indicate that the nurse CS role implementation is a priority within the organization (Albert & Siedlecki, 2008; Harvey et al., 2016; Sawin et al., 2010). Additionally, Logsdon and colleagues (2017) pointed out that healthcare organizations must support and facilitate the creation of an educational infrastructure that increases nursing research knowledge and establishes a nursing research committee. A nurse research program is successful not only by the presence of a skilled nurse CS, but also by the availability of educational and mentorship programs, research network access, library resources, budgeted positions, and a nurse research council or committee (Harvey et al., 2016; Sawin et al., 2010).

Finally, nurse leaders who are supportive of the implementation of novel roles such as the nurse CS showcase specific personal qualities. In a case study from the Netherlands, Hølge-Hazelton and colleagues (2016) suggested that nursing leaders should embody a "post-heroic" leadership style. Such leaders accept change to the current structures and lead by listening and collaborating with their followers (Sveningsson, Alvehus, & Alvesson, 2012). They are comfortable leading a member that has more education and experience in nursing research. Moreover, these leaders must clearly outline the expectations around the CS's visibility in daily practice, participation in clinical work, their personal involvement in the research program, and partnerships with university or other educational institutions (Hølge-Hazelton et al., 2016). Nevertheless, flexibility must be allowed for the CSs to meet their own research goals (Harvey et al., 2016). For ultimate growth and improvement of nursing scholarship and practice, leaders must take some risks and let the CSs pursue clinical questions or research studies which may be unsuccessful in changing care practice (DeVon et al., 2016).
2.3.3 Strategies for Expansion and Sustainability of Nursing Research

Several strategies aid in the sustainability of nursing research culture within a healthcare organization: engagement, collaboration, and knowledge translation. In the literature, engagement with clinical staff has been the most commonly identified factor that helps with the sustainability of nursing research (Sawin et al., 2010). Creating a successful nursing research program within an institution requires bedside nurses to be active in generating, appraising, and utilizing research evidence (Sawin et al., 2010). Sawin (2010) and Logsdon (2017) both commented that involvement of the bedside nursing staff in research is critical; however, achieving this may be challenging. As previously mentioned, CSs should be visible and embedded in the clinical setting to improve nurse research engagement (Brant, 2015). It is essential for the CSs to maintain a collegial presence among frontline nurses. They should present research participation as an accessible activity for frontline staff (Cazzell, 2016). This can be achieved by clearly identifying steps in the research process to make research participation less intimidating (Cazzell, 2016). Furthermore, nurse leaders should have the expectation that clinical staff be involved in research and facilitate this (Sawin et al., 2010). Ultimately, research evidence that is generated by the CSs must have significance to bedside practice, and research findings must be effectively communicated to both the clinical staff and the leadership team (Logsdon et al., 2017). When the CSs demonstrate insight into the daily work of the clinical staff and can explain the relevance of research data to both the clinical staff and the leadership team, nurse CSs can be fully integrated into the clinical setting (Kluijtmans et al., 2017).

Next, collaboration is necessary when CSs provide education and disseminate evidence. Staff education should be focused on research and EBP at the local clinical setting because
without meaningful connection to bedside practice, it is unlikely that the research-practice gap will decrease (Kluijtmans et al., 2017; Logsdon et al., 2017; Sawin et al., 2010). In their report, Albert and Siedlecki (2008) provided an overview of the development of a nursing research program in a hospital in the Midwest United States. They recommended that nurse CSs should act as collaborators with the leadership team and the clinical staff, rather than being directly involved in clinical care. Furthermore, they suggested that nurse CSs should be involved in research councils and fellowship programs, along with serving as co-investigators in the various research endeavors within the organization (Albert & Siedlecki, 2008).

Finally, to have a meaningful impact, an integrative knowledge translation approach helps showcase the value of the nurse CS role in the clinical setting. Bowen and Graham (2014) explain that typically, a knowledge-to-action gap is presented as an issue with knowledge transfer, whereby the intended user is not adequately up-taking the knowledge. This approach is problematic because despite the best efforts to "push" knowledge to the user, the intended audience does not necessarily change its practice or behavior. A typical example of this is demonstrated by the mixed effectiveness of public health announcements, like smoking cessation campaigns in minority and marginalized populations (Bowen & Graham, 2014; Randolph & Viswanath, 2004). An integrative approach proposes that it is not necessarily an issue of transfer, but instead of knowledge production, where the produced research does not address the clinical priorities that knowledge users face (Bowen & Graham, 2014). Therefore, as knowledge producers, CSs play a vital role in formulating questions and conducting research that is significant to everyday clinical practice. As a result, research findings become more meaningful to nursing staff, change care-practice, and improve patient health outcomes (Green & Tranmer, 2007; Kluijtmans et al., 2017).
2.3.4 Challenges and Barriers to Establishing the CS Role

A variety of challenges and barriers must be addressed to successfully implement and sustain a novel role such as the nurse CS. These may be personal, professional, or organizational; however, they all affect the establishment of this role. On a personal level, CSs must first overcome the identity shift from being a clinician to a researcher (Armstrong, McCurry, & Dluhy, 2017). They must cope with the demands from two jobs at once, being involved in both the clinical and the research communities (Harvey et al., 2016; Kluijtmans et al., 2017). CSs often struggle to balance departmental needs, such as staff satisfaction concerns, practice issues, or organizational research endeavors, with their own research interests (Green & Tranmer, 2007; Harvey et al., 2016). Moreover, there may be feelings of professional isolation due to lack of effective nursing research mentorship and leadership, or there may be a shortage of an existing cadre of nurse scientists (Green & Tranmer, 2007; Harvey et al., 2016; Logsdon et al., 2017).

Within the nursing profession, CSs may face challenges of translating research into practice. Although EBP is recognized as a standard of practice, *sacred cows*, unit traditions, and rituals are still a dominant force in the nursing profession (Albert & Siedlecki, 2008; Armstrong et al., 2017; Dreher, Clinton, & Sperhac, 2014). In their paper about developing a researcher career pathway, Smith and colleagues (2018) express that all levels of the nursing profession must demonstrate a commitment to foster and sustain a culture that values research evidence as an essential component to nursing. However, the nature of nursing science remains a contentious issue; arguments whether nursing should be considered as a science, art, or practice still persist within the profession (Mackay, 2009). As a result, there is a lack of agreement on whether the nurse CS role should be promoted in nursing (Mackay, 2009). Therefore, it is critical that CSs
generate research evidence that is not only relevant and applicable to everyday practice, but also challenges the status quo of long-held practice traditions.

Organizationally, CSs often express that they lack the time to dedicate adequate attention to their research. By focusing on institutional priorities and staff education needs, conducting nursing research often becomes of secondary importance within the organization (Brant, 2015; Sawin et al., 2010). In their study about the integration of research into the clinical setting, Harvey and colleagues (2016) found that outside urban areas, geographical isolation may be a palpable barrier to conducting research due to lack of resources, research partnerships, or research assistance. Moreover, they and others identified that there is often no time released for clinical nurses to be involved in research, giving little support to CSs for research projects and limiting the clinical nurses' exposure to research opportunities (Brant, 2015; Harvey et al., 2016; Logsdon et al., 2017). This all points to a lack of funding for nursing research support, either due to fiscal restraints, lack of appreciation for research education, lack of recognition of the value that nurse CSs bring to the institution, or even feelings of threat to leaders' authority (Green & Tranmer, 2007; Harvey et al., 2016; Hølge-Hazelton et al., 2016). Logsdon and colleagues (2017) found that of the institutions that have designated nursing researchers, only a third have an official budget for these positions. Therefore, they and others stress that leadership support is necessary to secure and protect funding (Green & Tranmer, 2007; Harvey et al., 2016; Logsdon et al., 2017). Without adequate structure, there are limited incentives for clinicians to pursue higher education. Nurses who do pursue these degrees often obtain academic appointments to meet their professional goals (Lemoine, 2008; Mackay, 2009). The consequence of this is that university-based nurse researchers are at risk of becoming irrelevant and distant to clinical nurses. Conversely, without the necessary supports in place, the nurse CSs that remain embedded
in the clinical setting face the erosion of their dedicated research time to the organizational and clinical demands (Mackay, 2009).

2.3.5 Effects of the Nurse CS on Practice

There are many tangible and intangible effects of integrating CSs into the clinical setting. These span from changing the unit culture and improving institutional practices, to changing the broader health care system and care delivery. On a unit level, CSs are responsible for addressing quality improvement activities, EBP agendas, and staff research involvement (Brant, 2015; Logsdon et al., 2017; Sawin et al., 2010). Also, they are active in rigorously monitoring and evaluating practice changes (Green & Tranmer, 2007). Nurse CSs are essential in not only stimulating staff to actively participate in research conduction, but also in upgrading the staff research skills (Green & Tranmer, 2007).

On an institutional level, CSs are active in institutional review boards and attend to the institutional research agendas. They obtain funding for research, which further increases the institution's research capacity (Logsdon et al., 2017; Sawin et al., 2010). Sawin (2010) commented that having CSs as a part of the nurse leadership team increases the staff participation in research, attendance at educational workshops, involvement in research committees, and frequency of nurse grand rounds. They also noted that nurse CSs act as an inspiration for clinical staff, as the number of nurses enrolled in doctoral programs increases when nurse CSs are present in the clinical setting (Sawin et al., 2010).

Finally, on a system level, nurse CSs are active in the dissemination of findings through publications and presentations (Brant, 2015; Sawin et al., 2010). They lead transdisciplinary research teams, making their mark and giving their unique perspective on healthcare research (Kneipp et al., 2014). With the technological advancement in healthcare, nursing participation in
national and global data science is paramount (Brennan & Bakken, 2015). Research drawing on big data and data science, referring to the large amount of data emerging from environmental sensors, clinical assessments, imaging, and laboratory studies, benefits from the nursing perspective (Brennan & Bakken, 2015). This is because nurses ask essential questions that address the phenomena faced in the clinical setting — specifically those that have ethical, legal, and social implications (Brennan & Bakken, 2015). CSs are vital to ensuring that discoveries are shaped by the nursing perspective and are in turn relevant and applicable to the nursing practice (Brennan & Bakken, 2015).

2.4 Summary

From the literature review, it is clear that the nurse CS role is needed to improve patient care, nursing practice, and system healthcare delivery. Despite these benefits, this role remains under-represented in the current public Canadian healthcare delivery structure. Therefore, it is essential to understand how and why some organizations have been successful in establishing this role into the care setting. By gaining insights from the leaders who have helped support this role’s implementation in BC, my research aim was to learn how the CS role can become a staple in the healthcare delivery model in the province.
Chapter 3: Research Methods

As noted from the literature review in Chapter 2, successful establishment of the CS role is linked to support from the local nursing leaders, the health care authority, and the nursing professional body. However, the nurse CS role as it is presently operationalized, is inadequately defined and the support systems are poorly understood. Little evidence exists that can provide insight into the implementation and sustainability of this role in BC's healthcare delivery model.

In this study, I explored and described the inroads that have been made to support the establishment of the nurse CS role in BC. Learning from the experiences of individuals involved in its establishment, I intended to inform the future development and implementation of the CS position. This study aimed to answer these specific research questions:

1) What inroads have been made to facilitate the implementation of the nurse CS role in clinical settings in BC?

2) What can be learned from the experiences of individuals involved in the implementation of the nurse CS role in BC that might inform further development of such positions within other health care settings?

3.1 Methodology

To answer these research questions, it was necessary to use a methodology that not only describes the phenomenon sufficiently, but also generates findings that are amenable to practical application. Hence, I utilized the interpretive description (ID) methodology as described by Thorne (2016), for it "explicitly attend[s] to the value of subjective and experiential knowledge as one of the fundamental sources of applied practice insight" (p. 82). In general, the goal of ID is to provide a way for researchers, particularly in the applied science fields, to be liberated from methodological constraints of other more prescriptive qualitative methodologies, while also
generating knowledge that is relevant to their respective clinical contexts. Unlike purely descriptive qualitative studies, ID aims to answer the "so what?" question that clinicians often ask when new research evidence is generated (Thorne, 2016). In contrast to some conventional methods intended to support theory building, ID enables the structuring of research questions such that the findings are as relevant as possible to the knowledge needs of the practice setting (Thorne, 2016).

ID was the most appropriate methodology for this research study because the participants’ subjective experiences were collectively analyzed to seek commonalities and transcend contextual constraints in order to inform future practice (Thorne, 2016). Because ID allows for an emergent research process, I was able to adjust my data collection process as long as I clearly articulated my decision-making process (Thorne, 2016). For example, I was able to increase the scope of my recruitment and data collection beyond the original setting — such as gaining access to participants from Denmark — for the purpose of discerning some universal commonalities and contextual differences to the CS role establishment (Thorne, 2016). Here, a reflective journal (Guba & Lincoln, 1981; Thorne, 2016) provided a clear audit trail of my methodological decision-making, perceptions, analysis, and interpretations. A reflective journal also served as a method of self-inquiry, to ensure personal biases did not affect interpretation of the findings. Furthermore, I utilized a cognitive process method as described by Morse (1994) to create a conceptual organizing structure required in ID in order to maintain a rigorous approach to the analytic process. Finally, I applied the four general principles of the evaluative criteria as described by Thorne (2016) to demonstrate the rigor and credibility of this study.

Using ID, I aimed to showcase the main elements of the CS role implementation in the clinical setting. The generated knowledge was directed toward nursing, academic, and healthcare
leaders who are looking for strategies to close the research-practice gap, increase the use of research evidence in the clinical setting, and improve patient outcomes through EBP. The goal of this research project was to provide direction for other healthcare leaders who want to establish nurse CS positions in their departments and organizations.

3.2 Methods

3.2.1 Study Setting

This study was primarily conducted in the various departments and health authorities that have implemented the CS role in western BC. These departments were in different health authorities, focusing on various patient populations and health needs (i.e. adult versus pediatric health, medical versus surgical departments). The participants of interest included the CSs themselves as well as departmental leaders, hospital and health authority executives, and academic leaders.

3.2.2 Access to Participants from Denmark

During the recruitment phase of the project, a member of the supervisory committee was introduced to several CSs from Denmark. In Denmark, the CS role has been established since the 1990’s and has had substantial growth since its initial introduction (Hølge-Hazelton et al., 2016). Creating positions for nurse PhD’s in the clinical setting has been a political agenda in Denmark, and therefore more of such positions have been implemented since the first nurse CS (Hølge-Hazelton, 2019). For these reasons, the research committee appreciated the value that the Danish perspective may bring to this current study. In particular, comparing and contrasting the experiences of the Danish and Canadian participants highlighted some universal commonalities and contextual variations of the nurse CS role establishment (Thorne, 2016). Furthermore, I anticipated a small sample size and wanted to ensure sufficient information power for the
findings to be relevant (Malterud, Siersma, & Guassora, 2016). Hence, the research team decided to expand our recruitment beyond BC and include Danish participants in this study.

3.2.3 Sampling Plan

Typically, a sampling plan in a qualitative study has several distinct features. For one, participants are not selected randomly and samples tend to be relatively small to accommodate in-depth data collection. Unlike quantitative studies which have a preselected number of participants required to demonstrate statistical significance, the sample size in qualitative study selection is often emergent, depending on the depth and richness of the data set as it evolves (Polit & Beck, 2016).

For this study, I utilized two sampling techniques: purposive sampling and snowball sampling (Polit & Beck, 2016). These strategies provided the richest data to increase my understanding about the nurse CS role establishment. Purposive sampling identified the primary conditions that I included in my study "so that eventual findings [I] produce have the potential of ringing true or seeming reasonable to [the] intended audience" (Thorne, 2016, p. 99). This study included individuals who were knowledgeable about the nurse CS role, who helped establish or provided ongoing support to the nurse CS, and who are in “leadership” positions within their respective departments, hospitals, health authorities, or academic settings. This included the CSs themselves as well as other clinical leaders (i.e. NP’s, CNS’s, physicians, medical directors) or senior administrators (i.e. members of health authority executive teams such as the Chief Nursing Officers, Chief Operating Officers, Directors). Exclusion criteria included personnel who had less than six months experience working with the CS (Appendix A), as these individuals would have limited insight into the phenomenon of interest. After initial study participants have been recruited and interviewed, a snowball sampling technique was utilized to
recruit other participants who may have insight into the phenomenon and may be interested in sharing their viewpoint (Polit & Beck, 2016). This method of selection consisted of initial study participants sharing study information with other potential participants who may or may not then choose to contact the research team regarding participation (Polit & Beck, 2016).

3.2.4 Recruitment

Connecting with key informants was critical to gaining access to potential participants (Polit & Beck, 2016). The key informants identified potential study participants who could provide unique perspectives of the CS role implementation experience, allowing the research team to have a holistic view of this phenomenon. These informants and their general contact network were identified through a professional network or through university affiliations of the faculty of the University of British Columbia (UBC) School of Nursing (SON). Faculty colleagues had collaborations with health care institutions across the province; hence, they acted as links to individuals who are aware of currently practicing nurse CSs in BC. Using these networks, the research team generated the initial list of potential participants.

Any prospective participant was contacted individually by email to invite him or her to participate in a one-hour, semi-structured interview. A Letter of Invitation briefly outlined the study (Appendix B). After an individual showed interest in participating in the study and met the inclusion criteria (Appendix A), they were sent a Consent Form (Appendix C) by email. Participants were given 48 hours to review the documents and consider the information, after which I contacted them to confirm that they wanted to participate. I answered any questions the participants had prior to the interview and then obtained informed consent. Participants either retained an electronic or paper copy of the completed Consent Form for their records. Once consent was obtained, I coordinated a time and date for an in-person, telephone, or video-
conference interview that fit with the participants’ schedule. Two days prior to the scheduled interview, I contacted each participant as a reminder to confirm the time of the interview. Moreover, I reviewed the Consent Form at the start of each interview and participants were reminded that they may withdraw at any point.

3.2.5 Recruitment of the Danish Participants

The recruitment strategy for the Danish participants mirrored the Canadian counterparts. They were recruited by using purposive sampling technique and snowball sampling technique (Polit & Beck, 2016). Each potential participant was identified through utilization of professional networks of the supervisory committee. They were each contacted by email, with the Letter of Invitation, briefly explaining the study and inviting them to participate. Subsequently, an electronic copy of the Consent Form was sent to each potential participant. All documents provided to the Danish participants were in English.

3.2.6 Data Collection

Data collection consisted of individual interviews. Individual interviews allowed space and privacy to discuss potentially sensitive matters. Each participant was invited to either an in-person interview, phone interview, or video conference. Each interview was audio-recorded using a recording device. The phone interviews and video conferences allowed for inclusion of study participants who are geographically distant. While the video conference enabled auditory and visual interactions (Polit & Beck, 2016), only audio recordings were made from video conferences.

Interviews were semi-structured, with a topic guide providing a general outline of questions (Appendix D). Because ID allows space for an emergent research process (Thorne, 2016), this enabled me to adjust some study elements. As the concurrent data collection and
analysis occurred, the interview questions changed to reflect the themes that were brought up in the previous interviews. For example, in the early interviews, “funding” was a common topic that participants spontaneously raised. As a result, in later interviews I asked specifically about the nature of funding to help elaborate on that theme and its significance. General demographic information was collected to help describe the sample (Appendix E). Data from individual interviews was recorded and transcribed verbatim using a confidential third-party transcription service. Any identifying features were deleted during the transcription and verification processes.

3.2.7 Data Analysis

Typically, to gain a profound understanding of a phenomenon, concurrent data collection and analysis occur until theoretical saturation is reached. Theoretical saturation is achieved when the properties and conceptual dimensions of the phenomenon, in this case the CS role establishment, have been thoroughly documented and discussed (Thorne, 2016). However, due to the rarity of the CS role, I anticipated a smaller sample of potential recruits. As a result, I aimed to maximize the information power of the study findings, with the goal of obtaining a meaningful understanding of this phenomenon. Information power refers to the idea that the number of participants needed in a study is determined by the study aim, the sample specificity, the use of established theory, the quality of dialogue, and the analysis strategy (Malterud et al., 2016). Because my study focuses on a rare role and my sampling plan is specific, I anticipated that the participants would have high information power. Hence, I required a lower sample size to obtain meaningful study results (Malterud et al., 2016).

Unlike some descriptive studies, where data collection and analysis may occur in sequence, ID allowed me to have concurrent data collection and analysis process to help refine and test themes as they arose. Audio recorded data was transcribed and the analysis began as
early as the first interview. This enabled me to be engaged with the data to "confirm, test, explore, and expand on the conceptualizations that begin to form" (Thorne, 2016, p. 109). Initially, I started with a broad-based coding scheme to create a collection of "data bits that might be thematically related" without prematurely categorizing or naming specific themes (Thorne, 2016, p. 160). Once data was sorted and a preliminary coding scheme was identified, a constant comparative analysis enabled me to compare and contrast the different manifestations of these themes (Thorne, 2016). NVivo™ qualitative data management software assisted with the organization and coding of the data. My ongoing analysis was discussed with my committee on a regular basis to help make decisions about themes, interpretations, and findings.

3.2.8 Data from the Danish Participants in the Analysis

The data collected from the Danish participants was used to compare and contrast the findings from the Canadian perspectives. It was not used to directly inform the analysis of the Canadian data. Rather, after the analysis of the Canadian data set, the themes identified were then compared to the Danish participants. The Danish perspective contributed to a better understanding about the inherent complexities of the CS role implementation and sustainability versus its novelty in the BC healthcare setting.

3.2.9 Following the Analytic Process

Using ID, like with other qualitative research methodologies, I as the researcher became the instrument by which study findings were analyzed and reported. I interpreted the various accounts among the participants to “uncover insights that would not normally be accessible to [me] if [I was] only familiar with any single case” (Thorne, 2016, p. 176). Throughout the data collection and analysis processes, I remained engaged with the data through the continuous iterative analytic process. Reflective note-taking after each interview helped process my initial
thoughts and provided more data for the analysis. These notes assisted with regular self-inquiry to ensure that my professional background did not influence the data collection and interpretation (Thorne, 2016). Moreover, a reflective journal provided an audit trail of my methodological decision-making, thoughts, and perceptions (Guba & Lincoln, 1981). This journal allowed for cognitive awareness of my personal biases and values to prevent premature interpretations and conclusions from the data (Thorne, 2016).

Thorne (2016) described a method for cognitive processing, as articulated by Morse (1994), to ensure that I go through the rigorous conceptual work when shaping my findings. The first step was comprehending, and here I spent significant time engaged with the data. I listened to the interviews, along with re-reading the transcripts and my reflective notes, to have in-depth familiarization of the data and noting any tone and verbal cues that may have significant implications. For example, a prolonged pause was one participant’s hesitation to say any negative comments about lack of resources and support for the nurse CS, rather than an in-depth thought. Having this familiarity with the data enabled the navigation across the entire data set and facilitated a deeper data analysis (Thorne, 2016).

Next, I synthesized the various data points to identify key points and themes (Morse, 1994). Using the NVivo software, I highlighted quotes and categorized them into major clusters, extracting the common features across the various interviews. This was a cyclical process, where I re-visited each category as I added more data points, all meanwhile reorganizing, combining, and splitting them into the various categories (Morse, 1994). This process challenged my initial impressions and helped my data collection evolve as new categories emerged (Morse, 1994). For example, from the first three interviews, the topic of “physician support” came up. From this initial category, I explored this topic further in the subsequent interviews, extrapolating other
important key points like “mentorship”, “dedication and commitment,” and “support system” related to physician involvement in the establishment of the CS role.

Theorizing was the third step in the cognitive operation. According to Morse (1994), it is the “process of speculation and conjecture, or falsification and verification, of selecting, revising, and discarding” (Morse, 1994, p. 32). Here, I looked across all of the participants and began to challenge the relationships among the data set. Comparing the participants’ narratives, I asked myself questions like “what pieces am I seeing here?” and “what do these pieces tell me about the whole?” Looking at the category of “physician support” once again, I asked myself why some participants regarded physician support as paramount, whereas others commented that physicians were mere bystanders in the CS role establishment. Through this process, I was able to appreciate how some participants’ views on multidisciplinary research affected their responses. By having this continual engagement, I was able to complete a deeper analysis of the data.

The final step described by Morse (1994) was re-contextualizing, when the new knowledge is brought back to other contexts and other settings. This reflects the goal of ID, where the theoretical findings are applied to practical use in the clinical setting (Thorne, 2016). Here, the data from the Danish participants helped identify some contextual differences versus universal trends in the CS role establishment. For example, maintaining visibility was identified as a challenge by the Canadian participants. My initial analysis led me to believe this was due to the low number of nurse CS roles in BC; however, the Danish participants also claimed that maintaining visibility was an ongoing issue. Hence, using the data from Danish participants, I was able to extrapolate the importance of maintaining visibility throughout the establishment process and its importance to the nurse CS role sustainability.
3.3 Rigor and Credibility

Thorne (2016) described four general principles that enhance the credibility of any qualitative study: epistemological integrity, representative credibility, analytic logic, and interpretive authority. Firstly, epistemological integrity was depicted as the clear explanations about the research process, from the assumptions about the nature of knowledge to the knowledge itself (Thorne, 2016). By establishing the clear logic about the nature of the phenomenon as described by the participants, I extrapolated their knowledge about the CS role establishments to other similar contexts. Secondly, for my study to have representative credibility, the claims I made must be consistent with the "manner in which the phenomenon under study [was] sampled" (Thorne, 2016, p. 234). By sampling the leaders who support the CS role development, this study concluded with practical implications for other health leaders in similar healthcare contexts. Moreover, by comparing the findings from the Canadian participants with the Danish data, I was able to tease out the contextual differences and universal trends about the CS role establishment. Thirdly, analytic logic referred to the decision-making process that must be visible throughout the study and the analytic process (Thorne, 2016). For this, an audit trail clearly outlined and tracked my analytic decision-making throughout the data collection, analysis, and interpretation processes. Finally, to demonstrate interpretive authority, my data interpretation had to demonstrate trustworthiness and represent some truth about the phenomenon (Thorne, 2016). Here, reflective note-taking after each interview and during the analytic process acted as a way to be consciously aware of my personal biases. Moreover, reflective self-checking was used as a method to differentiate between my personal circumstance and the research setting (Thorne, 2016). Finally, the use of a generic coding scheme in the initial analysis phases prevented me from making premature conclusions about the data. Through this
continuous engagement with the data and through discussions with my committee about the ideas that emerged, I was able to answer the research questions.

3.4 Ethical Considerations

Like with any research, I had to address the potential ethical considerations in this study (Polit & Beck, 2016). In general, there were minimal risks to the study participants. Because of the nature of the nurse CS role and its rarity in the BC healthcare setting, maintaining anonymity and confidentiality was a challenge and highest priority. In this study, I found that using standard de-identifying methods were not adequate to ensure confidentiality, leaving the participants vulnerable. Hence, extra precautions were taken to de-identify not only the names of the individuals, but also the specific job titles, departments, specialties, and health authorities. For example, a job title such as a “Head of Division of Cardiology” was changed to a “Departmental Leader.” Other names and locations were either replaced as a pseudonym or blanks in their places.

Written informed consent was provided to each participant before each interview. This ensured the participants had a comprehensive understanding about the study’s goals and purpose (Thorne, 2016). The Consent Form (Appendix C) was provided to each potential participant prior to setting up an interview, and was reviewed at the beginning of each interview. Recorded interviews were collected, stored, and transcribed by a hired transcriptionist. Any identifying features were anonymized. Each participant was assigned a number to help organize the data and maintain confidentiality. I reviewed the transcripts to ensure no identifying data was transcribed and applied more de-identification as needed. Data storage standards as outlined by the UBC Behavioural Research Ethics Board (BREB) were followed. For example, hard copies of Consent Forms and data, such as the recording device and reflective notes, were stored in a locked cabinet.
in a secure office at UBC Vancouver Campus. Audio-recordings were only heard by me and my direct supervisor. Electronic recordings were deleted once verbatim transcription was completed and verified. All electronic data was stored on a password-protected, dedicated computer or the UBC cloud-based network drive. Working data and preliminary reporting was shared among the supervisory committee and myself through a secured network drive or the UBC emailing system. After study completion, data was transferred for storage to a cloud-based server at the UBC SON secure network drive for five years. At the end of the five years, hard copies are to be shredded and all of the electronic files erased. Although there is no current plan, a secondary analysis may occur with the transcribed data at a future time.

3.5 Summary

Because the nurse CS role is relatively new and rare in the BC healthcare setting, this study was necessary to appreciate and understand the establishment of this role. To make the results meaningful to other healthcare leaders, ID was the ideal methodology to produce study findings that may be used and applied to practice. Thorne (2016) described that ID is "a meaning-making activity directed at a particular audience … toward the purpose of rendering a new, enriched, or expanded way of making sense of some problem or issue" (p. 192).

In this study, I aimed to understand the inroads that have been created to support the CS role, and how other nurse leaders can implement this pivotal role into their department or organization. Hence, individual interviews with the leaders who helped establish this role were pivotal. The concurrent data collection and analysis allowed me to adjust my interview guide and explore themes as they emerged from the early interviews. The iterative analysis process gave me a better understanding of the data and the relationships between each theme. Using Morse’s (1994) cognitive processing technique, I was able to effectively analyze the data to gain an in-
depth understanding about the phenomenon in question. I maintained rigor in my study by demonstrating epistemological integrity, representative credibility, analytic logic, and interpretive authority (Thorne, 2016). Ultimately, my goal was to utilize the findings from my study to promote the nurse CS role establishment in other clinical settings across BC.
Chapter 4: Findings

In this chapter, the findings arising from the interview data analysis are presented. Through the participants’ accounts, I was able to gain a better understanding of the complexities in both initiating and maintaining the CS role. Using the iterative analytic process, I observed the overarching theme of advancing healthcare delivery by embedding doctorally-prepared nursing researchers into the clinical setting. This theme was woven throughout all of the participants’ narratives. From the interviews, I detected two major aspects regarding successfully establishing the CS role and making it sustainable over time. The study participants reflected on several conditions that they considered to be fundamental in the CS role implementation. They stressed the importance of establishing a shared vision for the CS position among the key stakeholders, specifically envisioning what the role could accomplish, how it might be enacted, and how its usefulness would be evaluated. The participants’ accounts also indicated that the key stakeholder’s ongoing dedication and commitment helped prioritize the set vision.

Furthermore, the participants described key factors in the implementation process that would make the CS role sustainable over time. They were noted to support the success of the current CS positions and provide a framework for future role implementation. First, the participants highlighted the value of establishing CS role expectations, where the role description and deliverables are clearly articulated. Second, they explained that the creation of clear funding channels is necessary to support the CS’s salary and research. Third, they identified that successful implementation requires for the CS role to be embedded throughout all levels of the organization, the academic setting, and the research community. Lastly, they described several methods of creating a support system for the nurse CSs.
4.1 Demographic Data

In total, I conducted 14 interviews. 11 participants were from Canada, and three from Denmark. The majority of the participants were female and had doctorate level of education. The participants also provided information about their current position, their area of work, and the number of years working in their organization. Each interview was between 34 to 77 minutes long, with an average time of 47 minutes. Table 1 below details the demographic data.

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Table 1. Participant Demographic Data.

4.2 Fundamental Conditions for Successfully Establishing the CS Role

Overall, the study participants acknowledged that implementing the CS role was not easy. They described that establishing a novel role like the nurse CS is complex, and often highly variable depending on the department or health organization. Significant amount of engagement between the various key stakeholders in the health organizations and the academic settings was necessary to prioritize its establishment. In the interviews, the participants shared the
complexities of forming a shared vision for the nurse CS position and maintaining dedication and commitment from the key stakeholders and the CSs themselves throughout the implementation process. Despite the challenges, the participants were able to clearly articulate benefits of the nurse CS presence for their patients, their department, and their organization.

4.2.1 Shared Vision

In the interviews, the participants stressed the importance of establishing a collective outlook among all of the key stakeholders within their systems, and maintaining this outlook throughout the establishment process. In particular, the participants described that the various key stakeholders had to share a common conviction that embedding a doctorally-prepared nurse researcher into the clinical setting would significantly elevate the patient care, the research impact of their department and organization, and strengthen the partnership between the academic and clinical settings. This was noted to be a novel approach in healthcare, as incorporating non-physician academics into a hospital specialty department has not been previously done in the case of most of the settings in which these participants worked. However, the participants saw this as a way of enacting the shared vision, with one stating: “we are a division of [specialty], not division of [physician specialists], meaning if you work in the [specialty] sphere and you’re academic, whether you’re a doctor or a nurse or a couple of PhDs, you belong here.”

To articulate how the nurse CS role could improve patient care and elevate the departmental and the organizational research impact, the participants noted that it is necessary to position research as a multidisciplinary activity. The participants viewed that healthcare research should be done in multidisciplinary teams to achieve optimal patient results. They stressed that strong multidisciplinary research should reflect strong multidisciplinary practice. However,
clinical research was noted to primarily be a physician activity, and some expressed frustration over the underutilization of potential research partners, with one participant stating: “I think we’ve got a lot of untapped opportunities.” From the interviews, it was clear that the nurse CS’s contribution to the research program was highly valued within the organization. Some credited that the nurse CS’s presence elevated everyone’s research and the impact of that research on patients. While acknowledging that the nurse CS’s research may be different from traditional clinical trials or bench science, the participants expressed that the key stakeholders valued the CS’s work on patient care and patient outcomes. One participant stated: “I don’t think nurse scientist has to be like bench researchers … especially if they trained in quality improvement, quality assurance, patient-reported outcomes, processes of care, hospital administration. That is, to my eye, equally as valid.” For this participant, quality improvement was noted as one part of the full research spectrum that the nurse CS can contribute to the research program. Moreover, the study participants recognized that for optimal impact on patient care and nursing practice, it is important for the CS’s work to remain reflective of their nursing background. One participant stated: “I work with nurses, I work with physicians, I work with physios, but I work with them firmly grounded in my nursing discipline, and looking at things as a nurse.”

The participants expressed that this shared vision could only be enacted if the various stakeholders are able to form a committed partnership between relatively exclusive parties — the academic setting and the healthcare organization. In this partnership, the participants explained that the academic setting provides the initial and on-going academic affiliations, and the health organization creates the space and opportunity for research conduction. One participant even commented that this partnership is just as important as the nurse CS role establishment itself, stating: “the partnership between [University] and the hospital… is really one of the fundamental
strategies for [our organization].” While establishing and sustaining this partnership was challenging and took significant amount of time, the participants conveyed that it ultimately ensures that the CS role is successful, and that future roles can be implemented more easily with an already established buy-in.

Ultimately, the participants noted that incorporating the nurse CS role should be regarded as a marker of excellence for their department and their organization. They expressed an enormous sense of pride from having a nurse CS as part of their team, and felt that incorporating these roles was a factor that made their organization special. One participant stated: “this place is special, and it will support [the nurse CS role].” They expressed that having a nurse CS should be part of being considered a teaching hospital and an academic health organization, thereby eventually becoming an expectation to have this role incorporated into the clinical setting. When organizational leaders and key stakeholders are able to share this expectation, the participants explained that the CS role establishment can become an organizational priority.

4.2.2  Dedication and Commitment

In the interviews, the participants described how ongoing dedication and commitment from the key stakeholders and the CSs themselves was necessary for the role establishment. They explained that early and ongoing support from the key stakeholders was paramount, because it is the key stakeholders who must dedicate their time and resources to ensure that the nurse CS role remains an organizational priority. The participants stressed that without early and on-going endorsement, a novel role like this may not get enough support necessary to become an established position. One participant stated: “[we] have supporting group of people in higher administration. They could [have] kyboshed that quite easily.” Furthermore, the participants noted that leaders in precarious job roles may be hesitant to continue to prioritize the nurse CS
role establishment, especially as other clinical priorities and fiscal restrains arise. Hence, strong leaders who are persistent in supporting nursing research, who have longevity in their position, and who can champion for the CS position for an extended period of time were identified as being fundamental to CS role establishment. One participant stated: “you have to have a champion with a staying power, and that is the big success story.”

Nevertheless, the study participants did not underestimate the significant dedication and commitment that the CSs themselves made to pursue and remain in their positions. The CSs expressed profound passion for conducting clinical research. They articulated that being clinically embedded is an essential component to making their research clinically relevant. One participant stated: “to me, in order to produce really meaningful research … I want to be able to solve some of the clinical problems that I face in my everyday work.” Additionally, the CSs expressed that being able to engage clinical staff with research, and increase the staff’s research literacy and agency gave them extreme satisfaction in their role. One participant stated: “so, without me in here, they [the clinical staff] would never have done all those research … they need someone to kind of enable the process.” However, the participants recognized that it is a difficult decision for the CSs to remain clinically embedded versus seeking a traditional academic role. They explained that the nurse CS position is precarious, and that CSs are giving up financial advancement, professional promotion, and job security by remaining in their role. One participant stated: “who’s going to want to come and do this? Because it’s completely uncertain, what I’m doing.” Nevertheless, the participants emphasized that it is the CS’s impact on nursing practice and healthcare in general that is large motivator to stay committed to their role, as one participant stated: “I am in a position to have such strong impact on nursing practice as a whole, and I think that ultimately, that’s the fire in my belly.”
4.3 Making the Nurse CS Role Sustainable Over Time

Although it would not be possible to implement the nurse CS role without these fundamental conditions, the study participants emphasized that there are various critical factors in the implementation process make the CS role sustainable over time. From the interviews, it was clear that every CS position is unique, and that challenges faced in the implementation process varied depending on the department and the organization. Nonetheless, the participants described how various factors influenced how well the CS role was established and how sustainable that position may be. Some factors — like creation of a job description and establishing funding — were considered by the participants as milestones; once set, these remained relatively unchanged for a period of time. Others were depicted as being in a continuous flux state. Role embedment and ongoing support were described as factors that were constantly changing and needed continuous engagement — both with the clinical staff and the leadership team — as the CS positions were becoming implemented into the clinical setting. Regardless, from the participants’ narratives it was clear that all of these factors influenced how successful the CSs were in their positions and how sustainable this role might be in the future.

4.3.1 Establishing Nurse CS Role Expectations

One of the bigger challenges noted by the study participants was establishing clear expectations for the nurse CS role. The participants described that this was done with varying degrees of success. Overall, they noted that to clearly articulate what is expected from the person in the CS role, a job description is necessary. In it, a clear set of benchmarks, an evaluation framework, and reporting structure between the CS and the leadership team was deemed necessary. Otherwise, CSs encounter challenges attempting to meet unclear goals, as noted by one participant: “I pretty much dig my own path … I still don’t think I have a clear path yet.”
Although the participants pointed out that a framework for the CS’s duties and responsibilities assists in creating structure for that position, they acknowledged that every CS has specialized skills; hence, individualization in the role’s deliverables is inevitable and necessary. One participant stated: “the person who holds the role, their personal philosophy, their personality, their relational practice has a huge impact on what this may or may not look like.”

The participants described several components that contribute to the creation of a job description for the nurse CS. They expressed that when establishing any formal position, it is important to evaluate the needs of that particular department and organization. They explained that by identifying a need, it is possible to obtain buy-in from key stakeholders, as one participant pointed out: “build the position around the needs, and … by doing that, you’ve got automatic buy-in.” Moreover, the participants noted that by having clarity on what the nurse CS role is and what it can accomplish, it is then possible to articulate how the nurse CS can meet the identified needs. The participants acknowledged that this is challenging; because there are limited number of such positions in BC with large variations between each, there is often lack of understanding about what the nurse CS can actually accomplish, as one participant noted: “I think there’s still a lot of misunderstanding … there’s not enough of us out there.”

4.3.2 Creating Clear Funding Channels

One of the largest milestones that the participants identified in the implementation process was securing funding for the CS position. Some took a reductionist approach to this issue, by commenting that it was the only component to the CS role establishment. One participant stated: “money. It’s simply money.” The participants recognized that healthcare leaders and administrators are in a constant battle of trying to allocate funds between various organizational priorities. From the interviews, it was clear that funding for the CS role was
complex, with no positions having a similar funding structure. Some were granted time as part of their clinical role to conduct research. Others received donations or competed for salary awards to buy out their time to continue their research work, and some had official professorship positions created. This inconsistency and lack of funding clarity was seen as contributing to the CS’s workload, as some CS participants felt obligated to do work for their funding body, even though that work was not part of their job description or their deliverables.

The participants acknowledged that a clear and standardized funding model would be a representation of the value that the healthcare organization and the academic setting assign to the nursing CS role. They explained that funding is a symbol of the commitment and the partnership between the academic setting and the healthcare organization; hence, if both institutions are invested in the CS role funding, then the position may become sustainable. One participant stated: “the university and the health authority would have to have executive sponsorship to be able to establish such a role properly.” One participant even stated that future funding for such positions should be part of baseline funding from the provincial Ministry of Health, in the hopes that it becomes more stable and sustainable.

4.3.3 Embedding the Role into the Academic and Clinical Settings

As the participants were describing their experiences with the CS role implementation, it was clear that the role must be embedded into both the academic and clinical settings to be sustainable. Without this, the participants warned that the CS role will inevitably lose support from the key stakeholders and the clinical staff. From their accounts, role embedment was seen as an ongoing process, where the CSs actively maintain their visibility across all levels of the organization and the academic setting, and sustain their credibility as researchers.
The participants emphasized that to increase the visibility of the CS role, socializing it across the academic and clinical settings is key. This was deemed necessary partly because the rarity of nurse CS positions in BC, as one participant pointed out: “because it [is] a new role, I think the first challenge would be making sure that there was an awareness of what the role was and what the role was envisioned to do.” The participants noted that active socialization assists in securing partnerships, promoting collaborative multidisciplinary research, and increasing the CS’s research impact. They described that being purposefully integrated into larger research projects was a way for the CSs to showcase their skill-set and demonstrate their value. One participant noted: “[I am] intentional on … becoming a research collaborator in multidisciplinary teams, … embedding myself in research teams to be able to articulate this is my value add as a PhD prepared CNS.” Even at the cost of their own research, the CS participants explained that demonstrating their worth in large multidisciplinary projects sustains their current relationships, increases the visibility of their own research, expands their professional network, and creates future collaborative opportunities. By creating and maintaining such connections, the CS participants described themselves as further entrenching their role into the foundation of the organizational healthcare culture. One participant stated: “[I was] socializing my new skillset … and working towards making myself indispensable to the success of certain research projects.”

Furthermore, the study participants acknowledged that being visible is an important component to increasing the role embeddedness. Having designated physical space for the CSs to work was seen by the participants as an opportunity for the CSs to be integrated into the cultures of the academic and clinical settings. One participant stated: “I walk through clinical care daily. I hear what’s going on.” By remaining physically visible, the participants believed that nurse CSs become more attuned with the everyday life in each setting.
The participants noted that to be fully embedded, it is important for the CS role to maintain credibility in the academic and clinical communities. The participants expressed that the university affiliation and a faculty title bring credibility to the position. In particular, a university affiliation legitimized their own research work, their supervision activities, and their participation in multidisciplinary projects. One participant stated: “I think the very fact that [name] has a PhD … brings a lot of credibility.” Ultimately, the participants highlighted that it is the nurse CS’s impact on clinical practice, patient care, organizational culture, and the nursing profession that makes the biggest impact on the role’s credibility. One participant stated: “[the CS role] kind of brought nursing and the nursing community to a higher threshold of respect, credibility, and leaders as far as conducting research in order to change practice.” They expressed that the nurse CS acts as a bridge between the academic and the clinical worlds. One participant even expressed that CSs can make research a natural component of clinical care: “I’d like to see research be sort of like not even labelled. You know, like you just sort of—it’s happening.” By ensuring that their research maintains academic rigor while remaining clinically relevant, the participants articulated that this earns the CS’s credibility among both the academic and clinical communities.

4.3.4 Forming a Support System

The final critical factor derived from the participants’ narratives was the need for creation of a support system for the nurse CS. The study participants highlighted that having access to resources and mentors allows the CSs to be successful in their work. However, establishing this type of support was not consistently done well, and some participants recognized that a lack of a support system created barriers and challenges for the CSs.
The participants credited the leadership teams within the academic and clinical settings as being instrumental in providing access to resources. They identified that professional support in the form of championing for creation of research grants or writing letters of recommendations are some ways that academic and organizational leaders assist the CSs in obtaining resources. As an example, one participant noted that an organizational leader endorsed the creation of an award to fund the CSs, by stating: “[the organizational leader] was instrumental in creating a research award that I received … which I think didn’t exist before.”

Moreover, leaders can provide access to research assistants, which was identified as key in conducting research. The participants noted that research assistants — especially in the form of clinical staff — not only help in the research process, but also increase their own research literacy and capability. One participant stated: “[the CS is] elevating the bar for nurses and others to conduct research.” However, it was not overlooked that hiring research assistants, either external or releasing time for clinical staff, is typically an additional expense to the department. Hence, the participants acknowledged that allocated research time is often eroded when clinical demands or fiscal restraints become too great, as one noted: “nurses are willing, but there’s just no time. They’re just so busy. And that there is no protected time for nursing [to do research].”

To this point, the participants compared the expectations and norms in research involvement between the nursing and medicine worlds. They expressed that medical students, residents, and staff physicians are encouraged to conduct and be involved in research as part of their role; whereas in nursing, issues like clinical workload, lack of research ability, and workplace culture are barriers to research involvement. One participant stated: “[in medicine] there’s a much better connection … [research is] seen as an important part of the job, whereas for nursing, it’s not. For nursing, research is done on the side of the desk.”
Lastly, research mentorship was identified as another component of the CS’s support system. Receiving mentorship was seen as instrumental by some of the participants, especially as the CSs were starting their careers as researchers. Workplace mentors were described as key in providing direction and clarity around research and professional goals, as one participant stated: “I was very lucky to be mentored by a leader … who pushed my thinking, and … my imagination to pursue new opportunities.” Although mentorship was identified as vital, some participants acknowledged that it is challenging for nurse CSs to find mentors. They described that there is a lack of a nurse CS research community. This paucity of mentorship was seen as professionally isolating, leading to feelings of being professionally lost or directionless, with one participant stating: “I have felt very isolated at times … [with the lack of] mentorship, exactly. There wasn’t anybody.” Nevertheless, the participants acknowledged that mentorship can come from a variety of sources, noting that geographical distance and a different professional background should not inhibit the formation of a mentorship relationship. From the interviews, being incorporated into larger research projects and forming partnerships clearly helped some nurse CSs locate and identify mentors.

4.4 Additional Insights from the Danish Participants

After completing the analysis of the Canadian data, I used data from the interviews with the Danish participants to compare and contrast the themes between the data sets. Going through the analytic process again as described by Morse (1994), I aimed to identify some of the contextual variations versus universal commonalities of the nurse CS role implementation. Since the nurse CS position has been established longer in Denmark, I wanted their experiences to inform some of the potential future implications for the nurse CS role growth and sustainability in BC. From the interviews, it was apparent that nurse CS role is more established in Denmark.
The participants noted that in Denmark there were 22 PhD-trained nurse researchers, one for every major department in one academic institution. Nurse CSs also worked in both the public and the private healthcare settings. Despite these successes, the Danish participants noted that there are still some ongoing challenges with sustainability of the CS role.

4.4.1 Comparing and Contrasting the Two Data Sets

Overall, I identified similar themes from both sets of data. However, Danish participants’ narratives provided some valuable insights into the CS role establishment and sustainability. There was a similar overarching theme in the Danish interviews. The participants expressed that incorporating a nurse CS position improved patient care and healthcare delivery. With regards to the fundamental conditions for successfully establishing the CS role, the Danish participants expressed that all key stakeholders needed to have a similar outlook on the nurse CS’s potential to improve patient care practices, increase the research capacity of their organization, and strengthen the relationship between the academic and practice settings. They stressed this even further by stating that incorporating doctorally-trained nursing researchers into the clinical setting is a necessity to providing good care. One participant stated: “we’re insisting on having the best educated nurses closest to the patients, … creating meaningful environments where we can include researchers.”

Furthermore, they elaborated that embedding nursing researchers for the purpose of improving patient care is a political mandate in Denmark, and not only an organizational vision. One participant stated: “it’s the high up in the political agenda that…we need to bring, you know, much more person-centred, patient-centred [care] … nurses are experts in that.” Danish participants reflected the Canadian perspective that ongoing dedication and commitment from all levels of the organization is fundamental to implementing the nurse CS role. While the Canadian
participants highlighted the importance of the organizational leaders’ staying power, the Danish participants expressed that it is the politicians who must continue to support and endorse this role, especially when they must balance the demands of the public. One participant stated: “[it] is hard for politicians when they … get pressure from medias and patients.”

Reflecting on the critical factors that help make the nurse CS role sustainable over time, similar themes were woven through the Danish participants’ narratives. Like the Canadian participants, the Danish participants valued having a clear articulation of the CS’s duties and expectations. While acknowledging that patient population and clinical context partly inform the CS’s work, the Danish participants stressed that there must be a standardized template for all of the CS positions regardless of their clinical area. Otherwise, they warned that CSs may face significant challenges in their role, resulting in unsustainability of that position. One participant stated: “the less clear the department is regarding their expectations, the more challenges. … [some CSs] left for other jobs, and usually it’s because of … lack of role clarity.” The Danish participants noted that to help with role clarity, engagement with departmental administrators and unit managers is critical. They explained that although the organizational leaders supported the CS role establishment, it is the unit managers who influence the day-to-day activities of that particular department. One participant elaborated: “we have this focus on the ward managers because they’re gatekeepers in the everyday practice.” They viewed that managerial engagement is just as vital in the CS role sustainability.

Having a sustainable funding source was also a common topic discussed by the Danish participants. Unlike the Canadian participants who identified a variety of funding strategies, the Danish participants described a more standardized funding model. According to the participants, the funding for the CS position comes partly from the department and partly from the
organization, with the stipulation that any external award gets reintegrated back into the department. One participant summarized this: “usually they say we guarantee the salary … but every external funding, you know, goes into the department.” Because of the successes of the nurse CS role in Denmark, the participants explained that there is a bigger push to create more nurse CS positions. However, with political priorities pushing to modernize the Danish healthcare facilities, the participants explained that this puts further financial strain on the healthcare organizations, as they try and allocate funding to meet all healthcare demands. As a result, the participants explained that the individual CSs are pressured more than ever to obtain external funding to support their salary and their work. One participant explained: “the pressure is really on for those who want to do research, so if you’re good at funding, I think you would be okay, but that’s also—is always an issue.”

The Danish participants did not express challenges with embedding the nurse CS role. They noted that leaders are willing to endorse the CS role quite easily. This was partly attributed to the successes of the well-established nurse CS positions, as one participant stated: “[CS role establishment] it’s going so well, and I think it was due to an awareness among the leaders in this organization that they knew that [we’re] …. falling behind, and we really need to get on board.” However, the Danish participants expressed that the CSs must continue to remain engaged with the clinical staff and other healthcare professionals. The participants expressed that without ensuring that their work is visible and continuously showcasing their value to the clinical settings, it is easy for others to lose the understanding and appreciation for the CS role. One participant stated: “it’s important to make yourself valuable for your colleagues … to show that you make a difference in the clinical part.”
Lastly, the Danish participants did not have the same experience with multidisciplinary partnerships. Whereas the Canadian participants saw multidisciplinary research as vital to the integration of the nurse CS into the research community, the Danish participants expressed that nurse CSs do not rely on researchers from other professions, as one participant explained: “[physicians] they have not stood in the way.” They acknowledged that conducting multidisciplinary research is a challenge for the Danish nurse CSs, one that they want to address, as one participant commented: “we have some challenges in terms of interdisciplinarity, but that’s the next issue that we are addressing.”

4.5 Summary

The data from the Canadian and Danish participants about the CS role establishment revealed the overarching theme of advancing healthcare delivery by embedding doctorally-prepared nurse researchers into the clinical setting. For this to occur, the participants identified several fundamental conditions for the successful establishment of the CS role. They described that a shared vision must be clearly realized and articulated among all key stakeholders. Also, the ongoing dedication and commitment from the key stakeholders and the CSs themselves were noted to be necessary to champion for the role establishment.

The participants described various critical factors that make the CS role sustainable over time. First, they stressed the importance of setting clear role expectations, which can be achieved by creating a well-articulated job description. Otherwise, the participants expressed that job ambiguity will continually challenge the CSs as they are pulled in various directions to meet changing expectations. Second, establishing a clear funding channel was depicted as not only as a reflection of organizational goals, but also a solidification of the partnership between the academic and clinical settings. Third, the participants recognized that the CS role embedment
occurred by maintaining CS’s visibility in both the academic and clinical settings, as well as establishing the CS’s credibility through their work. Lastly, forming a support system was identified as a way to ensure the CSs are successful in their role. The Danish participants contributed to the study’s better understanding about the importance of the support and engagement with all levels of the organization and government, the value of having a standardized framework for the role, the ongoing challenges of funding, and the importance of collaborating across many healthcare professions.

The implications of these findings, along with the insights provided by the Danish participants, are discussed in Chapter 5. I consider how we can use the participants’ knowledge and experience to inform other healthcare leaders about integrating doctorally-prepared nurse researchers into their care setting.
Chapter 5: Discussion

The participants in this study identified several conditions that they believed were fundamental for the successful establishment of the nurse CS role. Moreover, from their narratives I was able to identify the various critical factors that seem to make the nurse CS role sustainable over time. By comparing and contrasting the Canadian participants’ experiences with those of the Danish participants, further insight was made into some potential implication for future growth and sustainability of this role in BC.

In this chapter, I compare the findings with existing literature. Then, I detail some of the implications for nurse leaders based on some insights from the study. Finally, discuss the themes from the participants’ experiences and compare them with an established framework for implementing an advanced practice nurse (APN) role.

As anticipated, the participants in my study noted establishing a shared vision, demonstrating ongoing commitment, and embedding the CS role were all strategies to help successfully establish the CS role and ensure it is sustainable over time. These factors have been previously well-documented. An interesting topic identified by the participants was the need to establish role clarity and standardization for the nurse CS position. Although this is not a surprising finding, what the participants’ accounts uncovered is the complexity of trying to achieve this. In particular, the variation in job titles, duties, and responsibilities all contribute to role confusion and misunderstanding. From the participants’ narratives, more questions arose about the function of the nursing professional community in the establishment of role clarity and standardization. Insights from the Danish standardized model for the nurse CS role may be useful to consider as the CS role grows across BC. Another topic uncovered in this study was that establishing a nurse CS position may have a wider contribution to a healthcare organization.
than simply increasing research activity. The participants’ experiences pointed to the larger effect of building research capacity within the organization and increasing research expertise of the nursing staff. Finally, although funding challenges for such roles are well documented, the experiences of the study participants highlight the unique funding challenges faced by these nurses — particularly in relation to workplace mentorship and a clinical research community. In this context, multidisciplinary research teams may play a significant role in establishing mentorship and embedding the nurse CS into the research community.

Although the nurse CS is not a practicing nurse role, some clear parallels were noted between the CS role establishment and the participatory, evidence-based, patient-focused process for advanced practice nurses (PEPPA) framework for APN role establishment. The insights from the PEPPA framework may provide some further guidance for the establishment and sustainability of the nurse CS role in BC.

5.1 Establishing the Nurse CS Role: Adding to the Body of Knowledge

The findings of this study revealed several key aspects of the nurse CS role establishment process — many of which are similar to ideas reported in prior literature. Considering the findings presented in Chapter 4 in the context of the wider body of literature, it is possible to expand upon our current understanding about this phenomenon. The first theme that was prominently present throughout the participants’ narratives was the establishment of a shared vision among key stakeholders — this was noted by the study participants as a fundamental condition for the CS role establishment. In the literature, others note that leaders are the ones who set the vision and the corresponding mission statements as well as influence the culture of their organization (Brant, 2015). Hence, by articulating the value of conducting research within an institution, leaders are able to appreciate how a nurse CS can foster a culture
of EBP (Brant, 2015; Ploeg et al., 2007). Moreover, as was the case in my study, others have suggested that establishing a partnership between the academic and clinical settings can influence the number and quality of research studies, EBP projects, and the overall research program (Sawin et al., 2010). Hence, working partnerships between the academic institutions and healthcare organizations increase the success of the nurse CS role and in turn, the organizational research program (Sawin et al., 2010).

Second, participants stressed the importance of early and ongoing leadership engagement as being key to ensuring that the nurse CS position receives the necessary support to become established. As the participants were describing their experience of the implementation of the CS role, their narratives indicated that ongoing dedication and support for the CS role was necessary because establishing this position may take significant time. This observation is similar to other literature. Sawin (2010) and Logsdon (2017) both explain that ongoing commitment from leaders is necessary because their support may be eventually translated into tangible supports through allocation of funds and establishments of nursing research programs.

A third theme in the findings that was consistent with other literature was that of role embedment. The participants in my study noted how valuable and beneficial it is to ensure that the CS role is actively present in both the academic and clinical settings. They particularly noted that having designated physical space provided the CSs with opportunities to connect with the personnel in each setting in order to establish and grow their relationships. Several other researchers support this observation, remarking that physical presence allows the CS to engage with the clinical staff and firmly ground research in relevant clinical issues (Brant, 2015; Green & Tranmer, 2007; Vessey et al., 2017). Thus, dedicated physical space seems to play a key role in helping the CS position become sustainable.
5.2 Insights into the CS Role Establishment: Implications for Leaders

Beyond the themes previously identified in the literature, the participants in this study offered several key insights which may be helpful to inform leaders and others about the nurse CS role and its implementation in the BC context. First, the findings suggest that establishing role clarity is a complicated issue, one that goes beyond a well-outlined job description. Although role clarity has been recognized by others as a key component to any successful position (Logsdon et al., 2017; Mamoon, 2013; Sawin et al., 2010), the findings in this study can help further the discussion on how role clarity — particularly across organizations — may be improved through role standardization and minimization of title proliferation. Second, although it is widely recognized within the clinical disciplines that evidence for practice arises from a variety of sources (Sackett et al., 1996), the current study suggests that nursing research may not be as widely accepted by organizational leaders as a legitimate form of evidence compared to medical research. Third, the findings of this study support the well-established opinion that funding for the CS position or any other advanced nursing role is a complex issue (Green & Tranmer, 2007; Harvey et al., 2016; Hølge-Hazelton et al., 2016). It was often cited by the participants as the most significant barrier to CS role establishment. However, by considering other forms of support within their organization — such as workplace mentorship and multidisciplinary work — leaders may discover strategies for successful funding for this role.

5.2.1 Promoting Standardization and Clarity for the Nurse CS Role

As noted in the literature review, the nurse CS role typically involves a variety of duties and responsibilities, from conducting original research to participating in research councils and leading EBP or quality improvement initiatives (Brant, 2015). Although this variety helps with meeting the unique goals of each department and organization, the participants in my study
reported that role clarity is a struggle for the nurse CSs in BC. Based on these findings, it appears that the nurse CS role is not well understood by nursing staff, other healthcare professionals, or the greater healthcare system. This lack of understanding — particularly in regard to the lack of standardization in role title and role responsibilities — created challenges for the CSs in their positions.

In the current study, it was apparent that the title used to designate the CS role contributed to role misunderstanding. Although there are currently only four such positions established in BC, not every position is titled as “Clinician Scientist”. In the planning phases of this study, I utilized the term “Nurse Research Scientist” because that was the term used when I was introduced to the role. However, after completing several interviews, I came to understand that the title “Clinician Scientist” is more widely used and recognized by other health professionals. As the majority of study participants referred to this role as a “Clinician Scientist”, we as a research team decided to continue to use this title when describing this role. One possible explanation for this preference is the use of a similar title and role in medicine. Since the physician CS is a more established role in the interdisciplinary healthcare community (Lemoine, 2008; Rosenblum, Kluijtmans, & ten Cate, 2016), shifting to the use of this title may have helped create clarity for some of the nurse CSs in my study.

This lack of title consistency is not a new phenomenon in nursing (Leary, Maclaine, Trevatt, Radford, & Punshon, 2017). Typically, variations in job titles reflect differences in job responsibilities and duties between the individual practitioners (Leary et al., 2017). However, Leary and colleagues (2017) warned that when one role has a kaleidoscope of job titles and responsibilities, it often results in further misunderstanding by other healthcare practitioners and the public, inhibiting the widespread establishment of that role. The nurse CS role seems to be an
example of an advanced nursing role that has fallen victim to title proliferation. As mentioned in Chapter 2, some of the titles used in the literature to describe this role include advanced nurse practitioner, nurse scientist, nurse research scientist, and nurse researcher (Hølge-Hazelton et al., 2016; Mackay, 2009; Vessey et al., 2017). One mechanism to diminish this multiplication of job titles is by having title protection and a regulated set of standards (Bryant-Lukosius et al., 2010; Duffield, Gardner, Chang, & Catling-Paull, 2009; Rosenblum et al., 2016). Having title protection for advanced nursing roles ensures that there is some form of a credentialing mechanism and establishment of explicit core competencies (Bryant-Lukosius et al., 2010). For APN roles such as the NP and CNS, this helps increase awareness of role expectations, provide role clarity, and guide curriculum development (Roussel, 2016). In Canada, only the NP role is regulated and has title protection across the country (Canadian Nurses Association, 2019). The CNS role has a standardized set of competencies (Canadian Nurses Association, 2019); however, lack of title protection means that nurses without the necessary education may use the CNS title, posing issues with role standardization and growth (Bryant-Lukosius et al., 2010; Leary et al., 2017). As the nurse CS role grows, it may become a necessity for nurse leaders in the academic and clinical settings to ask how to maintain role clarity and diminish title proliferation across settings for the benefit of the wider system. This is especially important because currently the CNA has not established a set of competencies for the nurse CS. Hence, it is unlikely that a regulated set of standards or title protection is feasible at this time.

The other challenge associated with role clarity that arose from the participants’ narratives was the diversity of duties and responsibilities within each position. Having a clear idea about the nature of a position and its duties is generally understood as fundamental to implementing any new role (Mamoon, 2013). From the participants’ narratives, it would seem
that setting clear role expectations across these positions would be key to making the CS role sustainable; otherwise, it would be difficult to meet ever-changing goals and organizational demands. Some CSs in my study struggled to protect their research time because of pressing clinical demands, which has been noted in the literature as a potential unintended effect when a nurse researcher remains clinically-embedded rather than taking a primary position in an academic institution (Mackay, 2009). Still, despite their commitment to creating standardized role expectations, the participants in this study recognized the importance of having enough individualization within the scope of the CS role to ensure the needs of that particular department are met. Otherwise, the nurse CS role is at risk of being marginalized without the adequate integration into the core nursing activities within the institution.

As was apparent from the study findings, the nurse CS position — as it is currently enacted in BC — is not associated with any form of a standardized role description. Although practitioners in novel roles can become accustomed to job crafting (Kluijtmans et al., 2017; Lewallen & Kohlenberg, 2011), the participants in this study warned that unless some standardization is enacted with respect to a general outline for such a position, role confusion will continue to be an issue. Currently, some of the role confusion may be due to the relative scarcity of nurse CSs. Hence, this role may not yet be widely recognized across the nursing community or the healthcare organization. However, even in more established roles such as the CNS and the NP, confusion among the nursing clinical staff and other healthcare team members persists around role duties and responsibilities, giving little to further the reputation of the nursing profession (Duffield et al., 2009; Leary et al., 2017). This suggests that by increasing the number of nurse CSs in BC, it is unlikely that role confusion will be reduced. Rather, other strategies may be needed to help with effective communication about role clarity.
The CNA (2019) suggests that to help grow and standardize APN roles, it is “prudent to seek defined legislation and/or regulation that affirms to the public that the advanced practice nurse has the verified competencies to carry the title” (p. 23). Although the CNA is directly addressing advanced practicing roles and not researcher positions, some considerations about core competencies from a national association may be needed. This means that healthcare leaders may benefit from engagement with the various nursing associations, colleges, or perhaps even unions to help clarify the nurse CS role and title. However, during my interviews, most participants did not mention the involvement of any of these nursing professional bodies in any part of the interview unless specifically asked. Even then, most participants were not clear if and how any of them should be involved in the CS role establishment. There was no shared understanding among the participants about how to proceed forward with standardizing the CS role across health organizations. With such few positions existing today, and with limited data from Canada about the nurse CS role, it is unlikely that the nursing professional community — provincial or national — is able to provide significant amount of guidance for nurse leaders when establishing this role. It is here that international sources may be useful for nurse leaders.

According to the Danish participants, half of the nurse CS’s duties and responsibilities are dedicated to research and the other half to clinical responsibilities. Based on this model, the CS role is relatively standard, yet still allows space for individualization of each position. Because the departmental leadership helps define what that CS’s clinical responsibilities may be, each CS role may become highly individualized. This type of structure for the nurse CS role seems to support the Danish nurse CSs in making measurable differences in the research and research capacity in their respective settings and meet their respective clinical demands. Hence,
this might be a model for Canada to consider in the future, keeping in mind that there are differences in the Danish and Canadian healthcare systems.

5.2.2  **Appreciating Nurse CS’s Contribution to Building Research Capacity**

In the hierarchy of evidence, what traditionally was considered the highest level of evidence was meta-analyses and randomized clinical trials (Polit & Beck, 2016). However, with the rising complexity of healthcare issues, clinical trials may not be sufficient to yield the kinds of multifaceted insights that are necessary to address the complex challenges and needs of today’s healthcare system (Braithwaite, Churuca, Long, Ellis, & Herkes, 2018). This is partly attributed to the fact that research evidence from clinical trials are typically linearly translated into clinical therapies (Braithwaite et al., 2018). Hence, to address the reality of healthcare complexity, knowledge about application and translation into practice is needed (Gagliardi, Berta, Kothari, Boyko, & Urquhart, 2015). It is in this space that nurse CSs are well-positioned to conduct research that looks at the overall patient care trajectory and healthcare practices because nursing often focuses on patient overall illness trajectory and well-being, rather than evaluating a single therapy (Mazzotta, 2016).

In this study, the participants confirmed that the type of research that nurse CSs conduct may not be the traditional clinical trials typically expected in other disciplines. Nevertheless, based on their accounts, it was clear that leaders who supported the nurse CS role establishment valued the CS’s research and its effect on patient outcomes, healthcare practices, and nurses’ research competencies. Some of the study participants commented it may be challenging for some — particularly physician researchers — to accept nursing research as of equal importance to shaping care practices. However, since nurses provide the majority of direct patient care (Canadian Nurses Association, 2018b), other participants stressed that because of nurses’ clinical
position, their clinical queries and research activities should have as much merit as those of other disciplines. Others note that organizational leaders who support the implementation of the nurse CS recognize that the knowledge gained from conducting nursing research positively changes patient care practices and patient outcomes (Berthelsen Bøttcher & Hølge-Hazelton, 2016; Brant, 2015; Jeffs et al., 2013). Based on these findings, it seems that if organizations want to improve their research program, they may benefit from critically reflecting on the type of research that is currently conducted and then articulate how nursing research can be incorporated.

The participants in this study and others noted that incorporating experienced nurse academics into the clinical setting is instrumental for forming a research culture of that department and organization (Berthelsen Bøttcher & Hølge-Hazelton, 2016; Vessey et al., 2017). The study participants noted that a major component of the nurse CS’s work is to conduct clinically informed research, where the implications can be directly applied back to their clinical context. From the interviews, it was clear that leaders view nurse CSs as stewards to increasing the research competencies and research engagement of the clinical staff. They expressed how important it was for the CSs to help the staff feel empowered to shape clinical practice. As noted in previous chapters, front-line nurses often hold the view that research is either irrelevant to their practice or feel unconfident in their abilities to influence the care setting (Black et al., 2015). Hence, based on the study findings, it seems that embedding nurse CSs not only increases knowledge production, but also may help improve the overall research capacity of the clinical staff. Others have expanded on this idea, noting that expecting every clinical nurse to independently develop enough skills or have enough time to appropriately access, appraise, and integrate evidence into practice is unrealistic and does not optimize resource use (Chan, Gardner, Webster, & Geary, 2010; White & Taylor, 2002). Instead, embedding research specialists into
the clinical setting may be a more feasible method of building overall research capacity (Chan et al., 2010). Hence, it may be useful to consider the nurse CS’s overall effect on the department and organization. This may be especially important when trying to get buy-in from stakeholders for the CS role establishment, or when considering long-term investment strategies for the existing positions.

5.2.3 Establishing Funding: Creating Resources within the Existing System

Funding was often discussed in the study as one of the common challenges for the implementation of the nurse CS position. Fiscal restraint is not a new issue in healthcare, Canada or worldwide (Green & Tranmer, 2007; Harvey et al., 2016; Hølge-Hazelton et al., 2016; Logsdon et al., 2017). Hence, addressing funding appears to be an issue that nurse leaders will continually face when attempting to establish or sustain any advanced nursing role. In BC, funding for a non-standardized role such as the nurse CS is not consistent or secure, creating uncertainty for the future of the position. The Danish participants depicted a more standardized approach to funding. As noted by the participants and in the literature, 50% of the Danish nurse CS’s salary comes from the organization and the other 50% from the department where the CS works (Hølge-Hazelton, 2019). Still, the Danish participants described that cutbacks and downsizing are continually threatening funding despite the well-established nursing research program.

This is not solely a nursing issue; comparing nurse CSs with their physician counterparts, it is reported physician CSs also face issues with funding (Lockyer et al., 2016). A Canadian report by Lockyer and colleagues (2016) outlined that commonly, physician CSs buy out their time by obtaining research grants. Physician CSs do not commonly have a guaranteed salary, rather they receive salary awards to help protect their research time. Like in nursing, this funding
is not guaranteed. Salary awards are competitive and the national funding for healthcare research has decreased over the past two decades (Lockyer et al., 2016). Nonetheless, there are several factors that are different between the physician and nurse CSs. For one, workplace mentorship is seen as key when physicians are entering the CS role. Workplace mentors help with career decisions, job seeking, research and clinical role complexities, and funding support (Chan et al., 2010; Rosenblum, 2012). However, with the paucity of nurse CSs currently in BC, the participants in my study noted it was not easy to find nurse research mentors — particularly ones that are clinically-based — with some CSs feeling professionally directionless and isolated. Others have also commented on the lack of clinically-present nursing research mentors (Brant, 2015; Green & Tranmer, 2007; Logsdon et al., 2017). Part of PhD training includes the natural socialization of the researcher for grant proposal writing (Chan et al., 2010). Here, nurse CSs may be better prepared because not every physician CS has PhD training, but rather a Doctor of Medicine (MD) and possibly a Master’s degree (Lockyer et al., 2016). Still, without effective workplace mentorship, securing research funding may be challenging.

Second, physician CSs that are actively integrated into the larger research community, which is often comprised of other physicians, gain experience that helps them become more competitive as they seek funding (Rosenblum et al., 2016). Having research affiliations can help CSs establish a professional identity, obtain research guidance, and gain access to role models (Chan et al., 2010). A similar type of monodisciplinary model is currently not feasible for nurse CSs. Nevertheless, it may be possible to embed the nurse CSs into the larger research community through active participation in multidisciplinary research. In my study, the participants noted that being part of multidisciplinary research projects enabled the nurse CSs to showcase their skills, become an indispensable member of the department, and have their work reach a wider audience,
all while maintaining their nursing lens. Like in my study, others note that multidisciplinary research not only allows researchers showcase their expertise, but also leverage others’ skills (Mailloux, Grimaila, Hodson, & Baumgartner, 2017). Moreover, multidisciplinary collaboration may improve the research quality itself because the research topic is accentuated by multiple perspectives (Mailloux et al., 2017). Team-based research is noted as an important trend in healthcare, particularly as clinical problems are becoming more complex, requiring a multidisciplinary approach to care (Lockyer et al., 2016; McCarthy, 2010; Vessey et al., 2017).

As noted in my study, the participants viewed that research should be reflective of multidisciplinary practice. This may have inherent benefits for patients. For example, poor interprofessional collaboration is noted to be a common barrier to protocol implementation (Kaasalainen et al., 2015; Lockyer et al., 2016). Furthermore, interprofessional collaboration decreases fragmentation of services and the unnecessary duplication of services (Canadian Nurses Association, 2019; Farrell, Payne, & Heye, 2015). In terms of obtaining funding, Lockyer and colleagues (2016) noted that funding agencies prefer giving awards to multidisciplinary teams, because a multidisciplinary research approach helps facilitate research translation into practice.

Overall, having access to workplace mentorship and being integrated into a research community seems to be critical when trying to obtain funding for the CS’s salary and research. As in the literature, the findings from this study suggest these components not only influence the success of the research itself but also helps secure the nurse CS position. Hence, as part of the implementation strategy, it may be important for leaders to consider how the nurse CS role may be integrated into the larger research community and identify potential workplace mentors, who may not be nurses, but rather experienced clinically-embedded researchers.
5.3 Insights from the PEPPA Framework

Reviewing the findings from my study and the establishment of other APN roles, several parallels can be made with the PEPPA framework. It is an amalgamation of two previous frameworks is used to guide the development, implementation, and evaluation of APN roles like the CNS and the NP into the clinical setting (Bryant-Lukosius & DiCenso, 2004; Canadian Nurses Association, 2019). The PEPPA framework has been cited by the CNA as a method of healthcare redesign as it moves beyond supply and demand to address larger issues which affect patient care (Bryant-Lukosius & DiCenso, 2004; Canadian Nurses Association, 2019). Although the PEPPA framework does not specifically target nurse CS position, some of the principles and concepts are similar to the nurse CS implementation process described in this study. The PEPPA framework is explained in Figure 1 below.
There are clear similarities between some of the overarching steps in the CS role implementation from this study and the PEPPA framework. For one, setting clear goals seems to be a major step in the establishment of any advance nursing role. However, before this can be achieved, nurse leaders and key stakeholders must evaluate the priority issues in their particular department or organization. Both the participants of my study and Bryant-Lucosius and DiCenso
(2004) comment that key stakeholders must share a common vision on priorities for their practice setting in order to firm up commitment from stakeholders. Moreover, the participants in this study noted how achieving role clarity is partly accomplished by having a clear understanding of the nature of the CS role and what it can realistically accomplish. The PEPPA framework informs nurse leaders that it is important for key stakeholders to be properly educated about the APN role to gain buy-in for the establishment of this role (Bryant-Lukosius & DiCenso, 2004). With this in mind, it may be important for nurse leaders to continue to socialize the nurse CS role within and outside their organization to increase awareness and understanding about the role and its duties. Another similarity is outlined in step seven of the PEPPA framework, calling for supports and resources and the provision of these supports throughout the APN role implementation plan. The participants in this study identified the importance of having resources, particularly in the form of endorsement, research assistance, and mentorship. The PEPPA framework not only supports that these are necessary, but also elaborates this further by acknowledging it may be challenging for the APN’s to navigate and negotiate their role themselves. Hence, healthcare leaders can help endorse the role, support partnerships, and embed the role to increase the APN’s profile in the clinical setting (Bryant-Lukosius & DiCenso, 2004).

One key point on which the PEPPA framework can inform other leaders is the recognition that full APN role implementation takes time — three to five years for a novice CNS (Bryant-Lukosius & DiCenso, 2004). Although the nurse CS is a different role, it is important for healthcare leaders to be aware that a nurse CS, even with PhD-training and research expertise, may still be a novice in that particular role. Hence, it may take time to fully realize the benefits of such a position in that particular clinical setting. Therefore, it is important to consider long-term planning and sustainability of these positions during the implementation phase. The PEPPA
framework also stressed that a regular re-visit of the evaluation framework and role expectations should be done (Bryant-Lukosius & DiCenso, 2004). Another key point is that — similarly to my study findings — the PEPPA framework confirms the importance of a clear reporting structure. In particular, Bryant-Lukosius and DiCenso (2004) explain that “dual reporting to a nursing and medical director may be important for maximizing support and resolving role conflict” (p. 536). Although it may be more difficult to establish, a multiple reporting structure may help address the potentially competing expectations for the nurse CS (Bryant-Lukosius & DiCenso, 2004). Hence, when establishing the nurse CS role within their organization, leaders may want to explore a variety of reporting structures to ensure that support for this role is optimized.

5.4 Study Summary

The goal of this study was to identify the inroads that have been made to successfully establish the nurse CS role in some clinical settings in BC. These insights can help inform future growth and sustainability of this role. Using ID methodology, I interviewed a total of 14 participants from BC and Denmark. The participants shared their experiences about the successes and challenges of establishing this advanced nursing role. The participants from Denmark provided a deeper insight about some of the contextual differences and inherent complexities of the nurse CS role implementation. From the interviews, I observed the overarching theme of advancing healthcare delivery by embedding doctorally-prepared nursing researchers into the clinical setting. The participants described two fundamental conditions that must be present for the CS role to be established: shared vision and dedication and commitment. The participants noted it is necessary for the organizational and academic key stakeholders to share the common conviction that embedding a nurse researcher into the clinical setting would
elevate patient care and organizational research impact as well as strengthen the partnership between the clinical and academic settings. Moreover, they noted that for the nurse CS role to be established, it was imperative to have ongoing dedication from the leadership team, key stakeholders, and the CSs themselves. To make the nurse CS role sustainable, four themes arose from the participants’ accounts: establishing CS role expectations, creating clear funding channels, embedding the role into the academic and clinical settings, and forming a support system.

Based on these findings, there were some similarities between the participants’ experiences and other literature. In particular, the need to establish a shared vision, the importance of ongoing dedication and commitment, and the value of creating physical space was noted by my study findings and has been well-documented in the literature. Some novel insights noted in this study point to the complex nature of trying to establish role standardization and role clarity. Moreover, the study findings highlight how the nurse CS role increases the organizational research capacity, yet the participants accounts suggest there are continual struggles to recognizing nursing research as a vital component to healthcare research. The findings suggest that other resources within the healthcare system may help with establishing funding for the CS role — in particular finding workplace mentorship and being integrated into the research community were seen as ways to support the nurse CSs. Finally, the parallels between this study’s findings and insights from the PEPPA framework may have some relevance to the nurse CS role establishment, as the PEPPA framework is designed to support the establishment of APN roles.
5.5 Limitations

There are several limitations to this study. For one, personal knowledge of the CSs themselves may have affected the participants’ responses. Most of the participants had a professional relationship with the CSs in their institution, which may have caused the individuals to reflect on the person in the CS role versus the role itself. Also, many of the participants were part of the implementation process and potentially have an ongoing investment in the role’s success. Therefore, they may have felt obligated answer in particular ways. To address this, I reminded the participants their responses were confidential and their open and honest participation was a way to improve future CS role implementation. Moreover, it is because of their active involvement in the CS role establishment that their insights were valuable in gaining appreciation of the challenges when establishing the nurse CS role.

Another limitation is the generalizability of the study findings. Based on my original intent of this study, the results are limited to the BC and western Canada healthcare settings. Therefore, it may be difficult to extrapolate the findings and implications to other healthcare environments. However, having access to Danish participants provided insight into some of the contextual nuances, such as the importance of multidisciplinary research, and the inherent steps of a nursing CS role implementation, like the establishment of sustainable funding. Given the parallels between my study findings and challenges that have been commonly reported for both the nurse CSs and other APN roles in the Canadian context, my findings may add weight to the body of knowledge available to support the expansion of advanced nursing roles.

5.6 Conclusion

This study served to explore the inroads created to establish the nurse CS role in the BC healthcare setting. From the interviews, embedding doctorally-prepared nursing researchers into
the clinical setting was seen as a way to improve overall healthcare delivery. The implications of this study suggest that role clarity and standardization are a challenge for the nurse CS role. Lack of a consistent role title and a variety of job duties and responsibilities partly contribute to role misunderstanding by other healthcare leaders and providers. One method identified in this study that may help with role clarity is to articulate the needs for that particular department and organization, which can direct the creation of that CS’s expectations and deliverables. However, at this point there is no clear answer how to improve standardization for the nurse CS role, in terms of title and role description, particularly across healthcare organizations. Hence, more research is needed to better inform that process — particularly the potential role that nursing professional bodies may play in the future growth of the CS role.

The findings from this study point to the valuing of the nurse CS’s overall effect on the research capacity of the clinical staff, department, and organization. Still, it is unclear exactly how this research capacity is built, especially with the large variance between each nurse CS position in BC. Hence, further evaluation of how nurse CSs affect clinical research capacity and practice changes is needed.

Finally, the study findings point to the importance of multidisciplinary research in the CS role establishment. Multidisciplinary research was noted as a way for the nurse CSs to be integrated into the research community, access mentorship, and build research expertise. This is particularly important when trying to obtain funding for their research and even their salaries. Subsequently, it may be valuable for nurse leaders to consider how a multidisciplinary research program may support the CS role establishment. Although the Canadian participants in this study noted that multidisciplinary work helped their nurse CSs become integrated into the clinical setting and into the research community, the Danish participants did not rely on multidisciplinary
research to create a research community. Hence, more research is necessary to explore the extent multidisciplinary research plays in the success of the nurse CS role establishment and its sustainability.

This study was able to provide valuable insights into the integration of the nurse CS role into BC’s clinical settings. This study helped increase our understanding and identified other potential research opportunities to help further explore this phenomenon. By wanting to improve their overall healthcare delivery, nurse leaders were able to establish the nurse CS role in some clinical settings in BC. With the knowledge gained from this study, it is my hope that we see further growth of clinically-based nurse CS positions in BC.
References


Nurse scientists overcoming challenges to lead transdisciplinary research teams. *Nursing Outlook*, 62(5), 352–361. doi:10.1016/j.outlook.2014.05.002


Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview


Appendices

Appendix A

Participant inclusion criteria:

- Personnel in a leadership position that has regular interactions with the NRS
- Personnel that has been involved in the establishment of the NRS role
- Considered to be in a nursing or administrative leadership role
- Worked in this current role or with this organization for at least six months

Participant exclusion criteria:

- Non-English speaking
- Worked in their current role for less than six months
Appendix B

Letter of Invitation

Dear Potential Participant,

A team of researchers from the University of British Columbia (Dr. Fuchsia Howard, Anna Lee, Dr. Sally Thorne, and Dr. Paula Mahon) are conducting a study “Integration of the Nurse Research Scientist into the Clinical Setting.” The purpose of this study is to add to our understanding of the experiences of leaders who are involved in the establishment and sustainability of the Nurse Research Scientist role into the clinical setting. Our goal is to identify the inroads that have been created to support the implementation of the Nurse Research Scientist role in the clinical setting in British Columbia. This knowledge may help inform further development of such positions within other health care settings.

We are inviting you to consider participating in this research study that involves one to two interviews lasting approximately 45 to 60 minutes. The interview will be conducted by Anna Lee, a School of Nursing Graduate Student, in a private location, in person or via telephone at a mutually agreeable time. If you are interested in participating in this research study, please contact Anna Lee at anna.glaze.lee@alumni.ubc.ca.

If you know any other individual who may be interested in participating in this study, the research team kindly asks to forward them this invitation or Anna Lee’s contact information. There is no obligation for you to pass along this information.

Sincerely,

A. Fuchsia Howard, PhD, RN
Assistant Professor
School of Nursing
The University of British Columbia | Vancouver Campus
T201-2211 Wesbrook Mall
Vancouver, British Columbia, Canada V6T 2B5
Phone: 604 822 4372 Fax: 604 822 7466
www.nursing.ubc.ca
Information and Consent Form

Integration of the Nurse Research Scientist Role into the Clinical Setting

I. STUDY TEAM - Who is conducting the study?

Principal Investigator:

Dr. A. Fuchsia Howard, University of British Columbia, School of Nursing, [Contact Information]

Co-Investigators:

Anna Lee, University of British Columbia, School of Nursing, [Contact Information]

Dr. Sally Thorne, University of British Columbia, School of Nursing, [Contact Information]

Dr. Paula Mahon, University of British Columbia, School of Nursing, [Contact Information]

II. SPONSOR- Who is funding this study?
None

III. INVITATION AND STUDY PURPOSE- Why are we doing this study?

Anna Lee is conducting this study with Dr. Fuchsia Howard, Dr. Sally Thorne, and Dr. Mahon for the required completion of her degree in a Master of Science in Nursing. The purpose of this study is to add to our understanding of the experience of nurse leaders who are involved in the establishment and the sustainability of the Nurse Research Scientist (NRS) role within the clinical settings in British Columbia. Our goal is to identify and understand the inroads that have been created for the establishment of the NRS role into the clinical setting. The experiences of the individuals involved in the implementation of the NRS role may further inform the development of such positions in other healthcare settings in British Columbia. You are being invited to take part in this research study because of your involvement and experience with the establishment and sustainability of the NRS role.

IV. STUDY PROCEDURE- How is the study done?

If you agree to take part in this research study, you will be involved in one interview lasting approximately 45 to 60 minutes. You may also choose to be contacted at a later date for a follow
up interview, which will occur approximately two to three months from the original interview. You will be asked questions by Anna Lee in regard to your experience with the implementation and establishment of the NRS role. During the interview you will be asked about your role in the establishment process, what challenges and barriers the team faced, and what supports were needed for successful establishment. You will also be asked about your views on the future of this role within your clinical setting. The interview will be conducted in person in a private location within your work site, or via telephone at a convenient time for you. The interview will be audio recorded only, transcribed by a third party, and interpreted by the interviewer (Anna Lee) at a later date. Responses to the interview questions are confidential. Your interview responses will not be shared outside of the research team and will not impact your employment.

V. STUDY RESULTS
The results of this study will be reported in a graduate thesis completed by Anna Lee. The study findings may be published in an academic journal and presented at conferences. No individual comments will be shared with management or supervisors, and all findings will be grouped and synthesized for reporting purposes. There will be no unit or personal identifiers on reported material. General terms (i.e., nurse in an educational role, or person in a managerial position) will be used to signify specific role titles than language that would directly identify specific job roles (i.e., clinical nurse educator or chief medical officer). Because of the rarity of the NRS role, no specific hospital sites will be named. Terms such as “a hospital in British Columbia” will be used to designate sites. No personal identifiers will be present in the study findings, written reports or academic presentations of this research.

Please let us know if you would like to receive a copy of the final report by leaving your email address at the end of this form.

VI. POTENTIAL RISKS OF THE STUDY- Is there any way being in this study could be bad for you?
There are no identified risks associated with being involved in this research study. You can withdraw from participating in this research study at any time.

VII. POTENTIAL BENEFITS OF THE STUDY- What are the benefits of participating?
There are no benefits to your participation in this research study. However, sharing your experience with the establishment of the NRS role into your clinical setting may contribute to future development of this role in other clinical areas.

VIII. CONFIDENTIALITY- How will your privacy be maintained?
To maintain confidentiality, any information that may identify you will be removed from all documents and an identification number will be assigned. Hard copies of the research data and the master list matching the identification numbers will be securely stored in a locket filing cabinet at the UBC School of Nursing office of Dr. Fuchsia Howard. The electronic version of the master list will be password protected, encrypted, and stored on the UBC network drive. All electronic documents will be de-identified and password protected. All electronic files will be stored on the UBC network drive. Files will only be accessed by members of the research team (Dr. Howard, Anna Lee, Dr. Thorne, Dr. Mahon).
The interview recordings will only be heard by the transcriptionist within the University of British Columbia, interviewer (Anna Lee), and potentially by other members of the research team. For the duration of the project, the digital audio recording device containing the interviews will be stored in a locked filing cabinet that will only be accessible to the interviewer (Anna Lee) and the principal investigator (Dr. Howard). Electronic recordings will be deleted once verbatim transcription is completed. All personal identifiers will be removed from any written documents, recorded data, and computer data. Although there are no current plans for secondary analysis of this data, the transcribed, de-identified data may be used for secondary analysis in the future. By consenting to this interview, you are consenting for possible use of this data for secondary analysis at a future date. All documents will be destroyed after 5 years by permanently deleting electronic files and shredding all paper documents.

IX. CONTACT FOR INFORMATION ABOUT THE STUDY- Who can you contact if you have questions about the study?
If you have any questions about the study, please contact Anna Lee at 604-782-6508 or anna.glaze.lee@alumni.ubc.ca

X. CONTACT FOR COMPLAINTS- Who do I contact if I have any questions or concerns about my rights as a participant?
If you have any concerns or complaints about your rights as a research participant and/or your experience while participating in this study, contact the Research Participant Complaint Line in the University of British Columbia Office of Research Ethics by email at RSIL@ors.ubc.ca or by phone at 604-822-8598 (toll free: 1-877-822-859). Please reference the study number H18-03193 when calling so the Complaint Line staff can better assist you.

XI. PARTICIPANT CONSENT AND SIGNATURE
Taking part in this study is entirely up to you. You have the right to refuse to participate in this research study. If you decide to take part, you may choose to pull out of the study at any time without giving reason and without any negative impact.

- Your signature below indicates your consent to participate in this research study
- Your signature below also indicates that you have received a signed and dated copy of this consent form for your records

<table>
<thead>
<tr>
<th>Participant Signature</th>
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_______________________________
Printed Name of Participant

_______________________________
Email Address if you would like to receive a copy of the final report
XII. PARTICIPANT CONSENT AND SIGNATURE FOR FOLLOW-UP INTERVIEW

Taking any additional part in this study is entirely up to you. You have the right to refuse to participate in any follow-up interviews. Even if you indicate that you would like to be contacted again for one follow-up interview, you may choose to pull out of the study at any time without giving reason and without any negative impact. Your name or contact information will be kept private and will not be shared with any third party.

- Your signature below indicates your consent to being contacted for a follow-up interview.
- The contact number which you provide below is the most appropriate method for reaching you for a future interview.

Participant Signature __________________________________________________________________________ Date ________________

Printed Name of Participant ___________________________________________________________________

Tel. __________________________________________________________________________ Email ________________
Appendix D

Interview guide for: Integration of the NRS role into the clinical setting

1) Tell me about your knowledge of the NRS role and how you have been involved in its establishment?

2) What made you become involved in supporting this role establishment?

3) Who were the key players that supported this role?
   a) Have these key players changed?
   b) In what ways did these individuals support this role?
      i) Please describe an example of this support.

4) What goals did you envision this role achieving before it was implemented? (probe – in what ways did you think that the NRS would be able to achieve this? Who identified this role?)
   a) Who identified these goals?
   b) Has this changed now that this role is a reality? If so, in what ways?

5) What personal qualities does the NRS possess to make them successful in this role?

6) Can you tell me about your day to day work as an NRS
   a) (For non NRS participants) Can you tell me about your day to day interaction with the NRS?

7) What were some challenges that you faced when you wanted to establish this role?
   a) Were there any particular barriers that you had to overcome? (probe, any specific people, roles, labour groups)
   b) In what ways were these challenges addressed?
      i) Please describe an example of how a challenge was addressed.
ii) Describe your involvement in addressing the challenges.

8) If you were to re-implement this role, what advice would you give your past self?

9) What do you think is necessary for the NRS role to be sustainable long-term in your department? (Probe how might this be addressed?)

10) Is there anything else about your experience with the NRS role establishment that you would like to tell me?
## Appendix E

### Demographic Data Collection

**DATE:** _______________  
**DD/MM/YY**

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<td>1. Age: _____</td>
<td>2. Sex: _____</td>
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<td>3. Job Title: ______________________</td>
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<td>4. Place of work: ____________________</td>
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<td>5. Number of years in that role: ______</td>
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<td>7. Percentage of work dedicated to:</td>
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<td>c. _____ Administrative</td>
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<td>d. _____ Education</td>
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<td>e. _____ Service (committee membership, working groups, etc.)</td>
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<td>f. _____ Other: ___________</td>
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<td>9. Place of work: ____________________</td>
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<td>10. Number of Years in that role: ______</td>
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<td>11. Full-Time/Part-Time: ______</td>
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<td>12. Percentage of work dedicated to:</td>
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<td>a. _____ Research</td>
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<td>13. Number of years with the current organization/health authority: _____________</td>
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<td>14. Level of Education:</td>
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<td>____ (1) High-School Diploma</td>
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<td>____ (2) Undergraduate Diploma</td>
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5. A brief description of your current job and your duties:
__________________________________________________________________________
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__________________________________________________________________________

16. A brief description of your previous job and duties (if applicable):
__________________________________________________________________________
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__________________________________________________________________________