Campbell, T. D., & Profetto-McGrath, J.

Skills and attributes required by clinical nurse specialists to promote evidence-based practice.

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**Introduction and Background**

The Clinical Nurse Specialist (CNS), as a promoter of evidence-based practice (EBP), has become a prominent figure in many international health care contexts. Research has shown that many nurses prefer the relational, trusted, focused, and translated services of CNSs over research article based evidence.1 In Canada CNSs’ employment varies from province to province. Their numbers are highest in British Columbia, Ontario, and Quebec, and lower in the rest of the country. However, an accurate number is difficult to ascertain as those who self- identify as a CNS may not have CNS qualifications as set out by the Canadian Nurses Association (CNA) and they may not be working in a CNS role. There is a need for clarity to further promote this advanced practice role. This paper focuses on some of the challenges that CNSs face in their role as well as the skills and attributes that CNSs reported as necessary to carry out their work . These findings resulted from a dissertation research that examined the role of the CNS in promoting evidence-based practice (EBP) in a western Canadian province.

**Evidence-based Practice and the CNS**

The term EBP is operationally defined as the integration of clinical expertise, patient preferences, and the best available external clinical evidence from systematic research to be used in consideration of available resources.2 In 2004, the CNA3 released a position statement regarding nurses’ responsibilities in implementing EBP. The CNA asserts that individual nurses need to “position themselves to provide optimal care by acquiring competencies for evidence-based nursing practice; generate researchable questions and communicate them to researchers; and evaluate, use and promote evidence-based nursing practice.” 3(p2) The CNA recommends that nursing employers need to reduce barriers and enhance those factors that promote EBP within their organization to maintain and increase competence related to implementing EBP.

In Canada, the CNS role is informed by a masters or PhD level education and expertise in a clinical specialty.4 The role is comprised of five interrelated domains: practice, consultation, education, research, and leadership.4 A primary role of the CNS is to make research findings accessible and user-friendly so that nurses are more predisposed to base their care on the findings and recommendations from research.5 CNSs are an important source of information and nurses have preferred the experiential and clinical knowledge of these peers over research articles.1, 6-8 The CNS has become a prominent link between researchers and clinicians as a general translator of knowledge and facilitator of change.7, 9-11 In the United States, Walker and colleagues12 state that magnet status is awarded to hospitals that are able to recruit and retain highly qualified nurses, which is viewed as an antecedent to achieving excellence in nursing practice. In a study of Magnet hospitals, 87% - 92% of the hospital administrators stated that CNSs were instrumental in achieving and maintaining Magnet status in their institutions.12

**Issues with Lack of Role Definition**

There are two advanced practice nursing (APN) roles in Canada, the Nurse Practitioner (NP) and the CNS. According to DiCenso and Bryant-Lukosius13, the role of APNs in the Canadian healthcare system has “never been stronger”.(p18) However, much of the strength comes from the expansion in the NP role which has title protection in provincial legislation. The same cannot be said for the CNS role which lacks protected role titling and credentialing. As well, approximately 500 CNS positions have been lost across Canada between 2004 and 2006.13

Accurate numbers of CNSs in Canada are difficult to determine primarily due to the lack of title protection and by having some mistakenly self-identify as a CNS when they do not work in a CNS role and do not meet CNS competencies (masters or PhD level education and clinical expertise). The issues relevant to the CNS role have been impacted by the lack of specifically titled CNS graduate education programs and a lack of credentialing.14 Credentials designate that an individual has met a set of established standards, and provide recognition to support that individuals are qualified to carry out specific tasks.15 The lack of credentialing makes it difficult for some CNSs to integrate their role into their workplaces.

Nurses and the general public are more aware of the NP role and NPs are able to identify themselves as NPs because they have completed courses in a NP based program and they have written NP credentialing exams. Canada has only one educational program that offers specifically titled CNS courses 14 and lacks a credentialing process. Adding to the confusion regarding APN status, “CNSs are authorized to perform the same controlled acts as a RN. However, NPs have expanded clinical functions and have legislated authority to perform additional activities traditionally performed by physicians”.14(p193) One aspect of the CNS role, which most can agree to, is that their main practice domain is to promote and facilitate the use EBP. Facilitation refers to how a person makes things easier for others by helping to change their attitudes, habits, skills, and ways of thinking and working.16 The purpose of this mixed methods study was to have participants examine the challenges they face in their role as well as to describe the attributes and skills that CNSs need to facilitate EBP in their workplace.

**METHODS**

A sequential explanatory participant selection mixed method design 17 was used to guide this study. This particular design involves a two phase process. Phase one allowed for quantitative data collection from participants through a telephone survey. The participant selection model was then used to identify the participants for the interview portion. The participant selection model was based on the demographic data relevant to the level of education and those with a master or PhD were included. There were no nurses with a DNP in this study and it is not a designation that is widely used in Canada at this time. In the second qualitative phase, semi-structured interviews were used to explain and expand on some of the survey findings. The two data sources were connected in the intermediate phase of the study and were compiled using the Promoting Action on Research Implementation in Health Services (PARiHS) framework 16 as a guide to organize the data. This framework has been “a useful, practical and conceptual heuristic for many researchers and practitioners in framing their research or knowledge translation endeavours”.18(p2) This framework conceptualizes evidence, context, and facilitation and describes their inter-relationship.16 The research questions were addressed in both phases of the study and integrated in the findings. Table 1 illustrates the sequence of data collection and analyses.

**Recruitment, Sample, and Setting**

For the quantitative survey phase, all registered nurses within a provincial nursing organization who identified themselves as CNSs as part of their 2010 annual registration were asked to participate. Seventy-eight nurses self-identified as a CNS. Of the 78, 42 indicated on the registration form that they could be contacted for research purposes. Of the 42 who were contacted by mail, 19 indicated a willingness to participate and four were recruited through snowballing. The total sample for the phone survey was 23.

In the qualitative interview phase of the study, a purposive sampling approach was used. The demographic data from the survey was used to identify those CNSs who met the CNA or the Canadian Association of Advanced Practice Nurses (CAAPN) criteria for the CNS role which meant these participants held a master or PhD degree in nursing (CNA criteria) or a master or PhD in a relevant discipline (CAAPN criteria). The 11, who were initially surveyed and who met educational criterion were subsequently invited to participate in the interview and all 11 accepted.

**Data Collection**

The survey used for this study was developed and used by Profetto-McGrath and colleagues.19 Development of the survey was guided by the literature as well as findings from a qualitative pilot study.20 The survey was reviewed by experts and pilot-tested with graduate students and faculty members at a university in western Canada.19 There were 113 questions grouped into seven survey components which reflected the concepts of the PARiHS framework. Sections 1 and 2 examined the sources of evidence that CNSs use in their work, sections 3, 4, and 5 reviewed the influence of workplace context and sections 6 and 7 examined those factors that facilitated CNSs in carrying out their roles. The majority of questions included a Likert Scale of 1-5 (never to very often OR strongly disagree to strongly agree). Other questions were dichotomous in nature (Yes/No), open ended, or used other formats.

The authors of the survey established internal consistency using the Cronbach Alpha’s reliability index. The overall instrument had an alpha of .81, and the alpha for the subsections of the tool dealing with evidence sources, use of evidence, facilitators, barriers, challenges of the CNSs’ role ranged from .77 to .87.19 Face and content validity were also established by the survey authors. Items for the survey were developed by Profetto-McGrath and her team and were based on the findings from a pilot study and further refined using expert review from an interdisciplinary panel. The survey was subsequently pilot-tested with graduate students and faculty and refined based on this testing.

The interviews allowed the CNSs to further explain how they functioned as facilitators as part of their role and included the following guiding questions:

1. What kinds of challenges influence your practice, particularly around implementation of EBP?
2. What knowledge and skills do you believe are needed by CNSs to facilitate/promote EBP?

**Data Analysis**

With a sequential explanatory mixed methods, there are three stages to analyze the data: 1) complete the quantitative data analysis, 2) use the quantitative results to identify significant findings, and 3) apply selected quantitative results, in this case the demographics regarding level of education, to select cases for the qualitative phase and to provide a more detailed explanation quantitative phase results.17 According to Creswell and Plano-Clark 17 this design lends itself to the presentation and interpretation of the quantitative and qualitative results in an integrated manner.

The raw data from the survey were cleaned, coded and exported into SPSS 18. Descriptive statistics (mean, standard deviation, and frequency) were calculated and summarized to establish the general trends in the data. The CNSs demographic data from the survey which identified level of nursing education at the master or PhD level were used to determine who was contacted for the qualitative phase (interviews).

To analyze the qualitative data, we used interpretive description.21 It supports the concurrent collection and the analysis of data.21 The object of interpretive description is a thematic summary. A thematic summary reflects an “ordered representation of initial groupings and patterns.” 21(p164) The data from the tape-recorded interviews were transcribed by the lead researcher into Microsoft word files and checked for accuracy prior to the analysis. Each interview transcript was colour-coded based on the participant responses. Then files were made with descriptive titles based on the interview questions and the colour-coded data were placed under the descriptive titles.21 The transcripts were then examined to form broad categories of themes that were congruent with the PARiHS framework. In this study, the thematic summary resembled many of the concepts described in the PARiHS framework

**Ethical Considerations**

Ethical approval was obtained from the ethical review board committees at two universities and assent was given by a provincial nursing association. The provincial nursing association sent their members who had identified themselves as CNSs an information package which included a letter of introduction, an information letter, and an incentive to participate. Those participants who phoned the researcher to complete the survey gave implied consent by contacting the researcher. Consent forms were completed prior to each interview.

**FINDINGS**

As facilitators of EBP, CNSs are required to access, use, and disseminate evidence and to establish the readiness of the context to accept and understand the need to use evidence in the workplace.16 The participants specified the main challenges in their work in the survey and interviews and those who were interviewed also discussed what they thought were the skills and attributes required to carry out their roles.

**Demographics**

The demographics of those who participated in the study can be found in Table 2. The 11 who participated in the interviews had similar characteristics to those who were surveyed except they were hired into CNS positions and had graduate education.

**Challenges Faced by CNSs in Their Role as Facilitators**

In the survey component, the CNSs were asked to rate commonly reported challenges in their promotion of EBP (see Table 6). As well they were asked open-ended questions regarding common challenges and barriers to their practice. There were 3 broad themes that emerged from the survey that were also reflected in the interview portion: Role strain, lack of support and resources, and role ambiguity.

Role strain as demonstrated by the terms: *multiple roles as a CNS, heavy workload, time constraints for front line nurses and in your daily practice* were the common challenges to practice as indicated in the survey. The CNS role has five practice domains and trying to fulfill each of the domains left the CNSs feeling as though there were not enough hours in their work day to complete their work. Many worked overtime in attempts to complete the work they deemed necessary. CNS 4 stated,

Well, so I work 6-2:30, that is what my hours are supposed to be, that’s what I’m scheduled for, but I usually work 6:00 to 4:00 or 5:00, sometimes 6:00, so yeah that’s why I think I’m getting tired. You could definitely have two people in this role. There’s way too much going on, that I’m trying to implement, and then just you know keeping up with the other stuff that we have, and yeah it’s a lot of... Because once you achieve something, then there’s more to move on to. But you still have to be there to kind of keep the other stuff going along right? 22(p130)

A lack of support from administration and resource constraints were also challenges that study participants commonly encountered. For some participants it was dealing with supervisors who “was not on-board” 22(p96) and “working with people who are not educated to the level they are working” 22(p96) and did not support the CNS in their role. CNS 10 found the lack of resources to do her work quite frustrating:

… something goes wrong with a PICC in this facility, the radiology technician comes up, takes heparin and shoves in and out of the PICC till he dislodges whatever is at the end of it. And obviously it’s embolized. In my other facility, nurses would go through a logarithm about what you were supposed to do: a chest x-ray, check for placement …, and you would use Cath-flow, and you know, I’m not allowed to do that. Because that’s not how it’s done here.… you shouldn’t have to sneak around to do what the evidence is supporting. And you know, I’ve requested some time to sit down with the head of radiology … and you know, they’re not excited about having me intervene or change practice or whatever because, frankly Cath-flow is expensive, and whose budget is that going to come from? So, it’s bizarre, it makes me crazy. 22(p91)

CNS3 who was aggressively recruited by the health region into her position was not supported by colleagues as she had come from outside the unit and had the following experience,

I came in as somebody they didn’t know, and here I was, a clinical nurse specialist, and they had an idea that I thought that I was better than they were and that I didn’t, they didn’t know what I had to offer. And so rather than try to find out, they basically shut me out. I felt like I had no colleagues there except for the clinical nurse educator…. The longer I stayed there, the more they started to accept me as a person, but I still don’t think that they accepted the CNS role. I think mostly it was because they didn’t understand what I did, and they felt like I was an imposter or whatever because I hadn’t grown up there. And they didn’t, I hadn’t had a chance to show them what I knew. 22(p 106)

With regard to role ambiguity, many of the CNS stated that those nurses and doctors with whom they worked did not understand the CNS role and found themselves “articulating your role to other health care providers and having the MDs think you are a physician assistant.” 22 (p 96) CNS4 stated that the lack of understanding as to how CNSs accomplish their goals on various units, led management to posting CNS positions in their institutions without understanding the potential of CNS-led practice.

For example they had posted four CNS positions here. And one was a CNS for ENT, urology, and plastics. I’m sorry, no such CNS exists because those are three distinct specialties. So you’re not going to get a CNS that has those qualifications. So that tells me right then and there that you’re not looking for a CNS, you’re looking for somebody to assist the physicians, right? Like it’s a flow, or a patient flow, or something that you don’t want a CNSs skills for.... That’s the problem when nobody understands the roles, so then how do you post for it? 22(p114)

CNSs face many challenges in their role as facilitators of EBP. Because of the various demands, they do require knowledge and a particular skill set to for their work. Participants were asked what factors, skills, and attributes are necessary to carry out their role.

**Skills and Attributes Required to Facilitate EBP**

The survey participants were asked what key factors they require to access, use, and disseminate research.22 Participants were divided over whether or not they needed any more *formal* or *informal education* to carry out their role, but most did indicate that they would need *dedicated time* and *assistance/support from others.* The survey participants were not directly asked what education level was needed to work as a CNS but the 11 interview participants stated that in order to be a CNS, a nurse should be required to have graduate education. Most interview participants stated that it is also necessary to have expertise in a clinical specialty. All 11 who were interviewed agreed that to be effective, a CNS also requires communication/people skills.

**Educational Preparation**

Survey participants were asked what factors influenced the CNSs capacity to access, utilize, and disseminate research evidence. Figures 1, 2, and 3 illustrate a breakdown their responses. All the CNSs who were interviewed agreed that in order to be a CNS a registered nurse requires a minimum of master level education. They indicated that CNSs need more exposure to the research process than their undergraduate degree allowed. According to participants, Master level preparation also provides a global perspective of the workplace and a comprehensive background for their clinical practice. CNS4 stated, “Oh, you have to be master prepared, absolutely. I don’t think you learn enough in the basic program, to prepare you for this role. Not in the least.” 22(p145) CNS2 also agreed that developing an understanding of research as presented in graduate studies was important, “I think you have to have an eye for research and understand how to obtain research, understand research, how to disseminate it, and as well, how to put it into context that matters for the people that you’re serving”.22(p.145) The CNSs who were interviewed believed a master degree provides CNSs with a holistic view of their practice environments, an understanding of the need for systems thinking, and the background to connect issues in their context with current research evidence. According to CNS1 the master degree

gives you a very global perspective. It takes you away from just looking at the nuts and bolts of the day, and gives you a better organizational picture, so that you can appreciate why best practice isn’t implemented, why there’s resistance, and it sort of gives you a better mind set on how to deal with all of those sorts of things. 22(p146)

**Clinical Expertise or Not?**

In addition to a master’s degree, the majority of the CNSs stated in the interviews that they needed to be clinical experts in order to best serve patients and to be credible with their co-workers. CNS7 stated, “So, I do think you need to have a strong background and you have to have worked exclusively in that area for a good period of time in order to make that jump, I think”.22(p11) Some of the participants explained that in order to be a CNS, one needs several years of practice to develop a particular expertise and they stated that one year of practice followed with a master’s degree would not be sufficient. According to CNS8,

I really do think a CNS needs to be an expert in a clinical field she has chosen and you can’t do that fresh out of school. I think you do need to be in the practice setting and that also really helps in, you know, you’re going to be an agent of change…. And if you don’t understand the dynamics of that particular setting, you can make some terrible mistakes and damage your credibility. Looking back, I’m certainly glad I was, at that point, 15 years post-graduation. You don’t need that much, but 2 or 3 years as a bare minimum, and 5 doesn’t hurt. 22(p147)

CNS9 stated that often one comes across patients who do not precisely fit one’s speciality and a master’s education provides the background to find pertinent resources. “I’m not an expert in addictions, but I’m pretty sure I know what resources to look through and get a good handle and then I am very good at connecting the dots and coordinating services to best support the patient’s needs.”22(p148) CNS6 thought that the master’s degree provides sufficient background to understand differing clinical areas and expertise in one’s speciality was not always necessary.

I think there’s different ways to look at it, I think that ideally, you would be effective in that if you are a CNS in your specialty area, …, but I think you could be a CNS and so have the masters of nursing education, understand the role of clinical nurse specialist, but may not have that expertise in the clinical setting. But knowing that you could gain that expertise, and it think it would be a hard road to take.22(p148)

**Communication/People Skills**

In conjunction with graduate education and clinical expertise, interview participants stated that communication or “people” skills are also necessary for a CNS’s practice base. As CNS1 explained, “I think you’ll also have to have the ability to pass on the knowledge, like we have some people that we work with that are very well educated and very knowledgeable but have difficulty communicating that, so you’re not a very resourceful person”. 22(p148) CNS4 indicated that CNSs need communication skills in addition to a good knowledge base.

You always have to communicate. That’s you know, if you’re not a communicator as a CNS, that’s got to be your downfall....So yes, excellent communication skills. They have to know how to read people... So you have … to have good communication skills and you have to have the knowledge to back you up, in your role. 22(p149)

Facilitation refers to how a person makes things easier for others by helping to change their attitudes, habits, skills, and ways of thinking and working.16 These CNSs faced a number of challenges in carrying out their roles as facilitators of EBP. With regard to knowledge and skills needed to be an effective facilitator, many of the CNSs who were surveyed reported that they did not need any extra formal or informal education to access utilize or disseminate research. In contrast, all of the CNSs who were interviewed stated that a master degree is needed to form the basis of the CNS practice along with clinical experience and people/communication skills.

**DISCUSSION**

Participants in this study faced a number of challenges and barriers in their CNS roles. Role strain, lack of support and resources, and role ambiguity were three of primary challenges. Because no two CNS positions are identical and the balance of the five domains of CNS practice varies, it is difficult for CNSs to define exactly what their role as a CNS entails.13 Lack of role clarity can cause severe stress, increased tension, frustration, and withdrawal, as well as reduced commitment and trust in others.23 There was a lack of role clarity for the CNSs in this study and it did cause them to experience stress and tension.

The recommended standard for CNSs in Canada and internationally is a master degree from a graduate nursing program as graduate education provides the necessary background for the characteristics and core competencies of APN.4,13 Forty-three percent of the survey sample was prepared at the diploma and baccalaureate and this indicates that those identifying themselves as CNSs may not fully understand the requirements of the role. Given that the expertise to transform knowledge from research findings to those in clinical settings is not typical of a nurse’s skill set, a master level education is needed to understand and implement the competencies required for promoting and implementing EBP.24,25 With regard to promoting EBP using various sources of research, Gerrish and colleagues found “statistically high differences between those nurses with Master qualifications and above and those with a bachelor degree or below”. 26(p7) Given the current lack of a credentialing mechanism for CNSs in Canada, nurses can identify themselves as CNSs even if they lack the required graduate education and expertise in a clinical specialty.27

In the United States, between 2006 and 2008 the Advanced Practice Registered Nurse (APRN) Alliance and the National Council of State Boards of Nursingbegan a dialogue regarding the standardized education for APNs.15 The three core courses that promote competency to become an APRNs are pharmacology, pathophysiology, and physical assessment. There is also an expectation that there will be consistent education/curricula housed in graduate programs across the United States. To become an APRN, a nurse needs to write a certification exam as a measure of entry level competency and they will also require a second license to practice in an advanced practice role.15 The target date for implementation is 2015. This not to suggest that this model would work in Canadian contexts, however, the model may provide some ideas how to standardize APN education.

Ten of the 11 interview participants in this study stated that CNSs that in addition to a master degree preparation, they needed several years of experience in their speciality area to develop clinical expertise. CNS8 did not believe that one year of clinical experience followed with a master degree would be sufficient to become a CNS. In the province of Alberta, Canada a nurse using the title “specialist” is required to have a graduate degree in an applicable area of practice and three years of experience in a specialty.28 Oberle and Allen 29 also agree that the graduate degree prepared nurse in the APN role, must be an expert practitioner whose role is based on well-developed practical knowledge and pattern recognition skills.

CNS4 discussed Benner’s 30 novice to expert theory to illustrate why she thought a CNS needed a number of years of practice to gain clinical expertise and to call oneself a specialist. Patricia Benner’s theory describes experiential learning as an essential adjunct to a sound educational base in nursing in order to grow from novice to expert practice.30 In her examination of clinical knowledge, Benner applied the Dreyfus Model of Skill Acquisition to nursing practice and delineated several characteristics of practicing nurses with various levels of experience to examine the type of learning and thinking that evolves as a nurse develops his/her practice in order to become an expert. 30 Benner identified levels of nurses as: novice; advanced beginner; competent; proficient; and expert. The novice exhibits rule-governed behaviour that is limited and inflexible and they must be given guidelines to outline performance expectations. The advanced beginner continues to rely on rules, needs support in setting priorities, and requires support if care of patients’ needs change. According to Benner the competent nurse is lacks the speed and flexibility of the proficient nurse but he/she has the ability to cope with many of the challenging conditions in the clinical area. To be considered proficient, a nurse perceives situations as wholes rather than as discrete parts.30 The expert nurse relies on a considerable background of experience, has an intuitive grasp of each situation, and is able to focus on the accurate reason(s) for problems without wasteful consideration of a large range of alternative diagnoses and solutions.30 Benner also points out that some nurses, do not reach the expert level as they are unable to meet expert practice criteria.

The CNSs who were interviewed considered the need for the integration of tacit, experiential, and relational knowledge as part of social interactions with their co-workers. They described the relational knowledge as communication/people skills which they needed to transfer evidence in their clinical settings. CNS4 stated that if a person could not communicate their knowledge and expertise they would not be viewed as credible resource by those they worked with. Much of knowledge generation is coming to be recognized as a social phenomenon that is produced in personal relationships.31,32

Throughout the data collection phase it became evident that the CNSs who had assumed the role within the organizations where they were employed were more accepted by their co-workers in their roles than those who were hired external to the organizations. Those who had longer term relationships with the practical nurses, physicians, RNs, unit clerks, educators, and others in their workplace were able to promote EBP more efficiently than those who did not. This largely speaks to the influence of the relational aspect of learning and the ability of the CNS to demonstrate their own skills and attributes and their ability to accommodate to its culture.

**Limitations**

There are three limitations identified for this study. First, the survey sample was a group of self-identified CNSs, some of whom did not meet CNS criteria as identified by CNA or CAAPN and were not ‘formally’ employed in CNS roles. Secondly, a provincial database was used to obtain the sample; therefore, if CNSs did not indicate on their registration form that they were CNSs, they may not have been included in the study but may have been recruited through snowballing. The third limitation is the size of the sample for the quantitative phase of the study; a larger sample of CNSs who meet CNA criteria would provide greater confidence in the outcomes.

**CONCLUSION**

In Canada there is a need to strengthen the CNS’s role by standardizing the regulatory requirements at the national level; these requirements need to include graduate education and expertise in a practice area. This standardization would enhance understanding of the role and minimize role ambiguity which is an important factor influencing role implementation.33 Consistent application of regulatory requirements would ensure that those who hold CNS positions are appropriately qualified to meet the demands of the role. In addition to consistent regulatory requirements, CNSs need to be supported at individual and organizational levels in order to fulfill their roles as facilitators of EBP in their workplaces.

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**Figure Legend**

**Table 1:** Sequential Explanatory Participant Selection Mixed Methods Design

**Table 2:** Survey Demographics

**Table 3:** Factors Influencing CNSs Capacity to Access Research

**Table 4:** Factors Influencing CNSs Capacity to Utilize Research

**Table 5:** Factors Influencing CNSs Capacity to Disseminate Research

**Table 6:** Most to Commonly Reported Challenges of the CNS Role