

The role of primary care Nurse Practitioners in reducing barriers to cervical cancer screening: A literature review

by Elizabeth M. King and David S. Busolo

ABSTRACT

Nearly all cases of cervical cancer (CC) are caused by persistent infection by human papillomavirus (HPV). CC remains the second most prevalent carcinoma among women and, in 2017, Canada's screening rates were off target by 19%. For example, screening rates as low as 57.6% were observed in low-income neighbourhoods in Ontario, compared to 70% in highest-income neighbourhoods. Complex, multifactorial barriers affect women's participation in cervical cancer screening (CCS). The most common barriers to screening are directly linked to disparities within determinants of health, including belonging to a minority ethnic group, low socioeconomic status, lack of education, and lack of access to healthcare. Nurse Practitioners (NPs) can reduce these barriers by providing innovative, evidence-based, culturally competent women-friendly care while building trusting relationships with patients and, thus, play a greater role in preventing the disease. The objective of this literature review is to summarize barriers to CCS and the role Canadian NPs can have in reducing them.

Keywords: cervical cancer, cancer screening, nurse practitioner, barriers

INTRODUCTION

Cervical cancer (CC) is the second most prevalent carcinoma among women (Perks et al., 2018). The Canadian Cancer Society estimated that 1,350 Canadian women would be diagnosed with CC in 2020 and that 410 deaths would occur from the disease (Canadian Cancer Society, 2019). Inadequate or lack of cervical cancer screening (CCS) has been identified as primary attributable factors to these mortality rates (Public Health Agency of Canada [PHAC], 2009).

Background

Commonly known as the easiest cancer to detect, CC morbidity and mortality can be prevented by early detection

through screening. Low CCS rates are linked to late cervical cancer diagnosis and high mortality, as well as financial burdens on the healthcare system (Pendrith et al., 2016; Warren & Thomas, 2011). If detected at stage 1A, which is commonly detected by routine CCS, survival rates are as high as 93 percent. However, if detected at stage 4B, the five-year survival rate decreases drastically to only 15 percent (Canadian Cancer Society, 2021). Between 60 to 80 percent of women diagnosed with advanced CC have not had a Pap test within the past five years (Nguyen-Truong et al., 2012).

CCS guidelines vary slightly by health jurisdiction, but screening is financially covered by Medicare services in all Canadian provinces and territories. Medicare is a term used to refer to Canada's publicly funded healthcare system in which funding from the federal government and organized by provincial and territorial governments aims to ensure Canadians have reasonable access to medically necessary hospital and healthcare provider services without paying out-of-pocket (Government of Canada, 2016). Despite available coverage, based on the most recently published Canadian statistics regarding CCS from 2017, the rate of women who underwent CCS within the last three years was only 74% (Statistics Canada, 2017). Screening target rates at the time were 93%, meaning that roughly 5,700,000 Canadian women were being screened according to guidelines. However, the number of women being screened should have been as high as 6,783,000 (PHAC, 2009; Statistics Canada, 2017). The statistics illustrate that despite improvements in accessibility and availability of screening programs, a considerable proportion of women continue to face barriers to cancer screening and strategies are needed to eliminate them.

To reduce barriers to CCS, use of nurse practitioners (NPs) is a potential solution. In Canada, NPs are registered nurses (RNs) who have completed a master's degree and have advanced education and clinical experience. This enables them to perform medical procedures and physical exams, such as Pap tests (Canadian Nurses Association [CNA], 2017). NPs are complementary to general practitioners and may work in primary care settings, hospitals, physician-led clinics, and in both urban and rural settings, to deliver excellent, cost-effective patient-centred care. NPs have a unique focus on health promotion and disease prevention and can autonomously assess and diagnose, order diagnostic testing, and manage follow-up care.

Lack of acceptance and support of the NP role by some healthcare team members and provincial healthcare regulatory bodies have served as the largest barriers to implementing NP

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roles nationwide (Donald et al., 2010). Also hindering the full acceptance of the NP role is the working relationship between NPs and family physicians. Resistance to the NP role by family physicians has been described as stemming from liability concerns, scope of practice issues, lack of role clarity, and concern about NPs practicing independently (Donald et al., 2010). These barriers have created challenges to widespread implementation of the NP role across Canada, leaving many Canadians without a primary care provider. In 2019, roughly 4.6 million Canadians were without regular access to a primary care provider while only 6,159 NPs were employed in the country (CNA, 2017; Statistics Canada, 2020).

Because of the gap in CCS and our need to understand the potential role of NPs in reducing barriers to screening, we completed a review of relevant literature. This literature review was conducted with two objectives: to compile common barriers to CCS affecting Canadian women and to identify how NPs in Canada may be able to reduce and eliminate the barriers to CCS in their unique primary care roles. Objectives were combined to create a single search strategy.

Methods

Four electronic databases were utilized: CINAHL®, PubMed®, ProQuest®, and SCOPUS®. Hand searching was also used to identify additional Canadian data and grey literature. Keywords used in the search included cervical cancer, cervical cancer screening in Canada, cancer screening, nurse practitioner, nurse practitioner in Canada, and barriers. Inclusion criteria of studies were: primary studies published in academic journals in the English language between 2010 and 2020, both qualitative and quantitative designs, and studies from any geographic location. Studies describing the characteristics and demographics of women participating in screening were considered, as well as those regarding interventions that may improve screening rates and uptake. Additionally, the inclusion criteria also specifically focused on the role of the NP in CCS practices.

An initial search yielded a total of 55 studies, 15 of which are included in this review. Studies with a broad focus on the screening of multiple types of cancers were excluded ($n = 14$). Duplicate, irrelevant, and studies of poor methodological quality were excluded ($n = 26$). A theoretical thematic analysis, similar to the process described by Braun and Clarke (2006), was used to identify prevalent themes, both latent and explicit, evident in the articles. The most common barriers to CCS were identified. Information about the roles of the Primary Care NP in responding to these barriers was synthesized and is presented below.

BARRIERS TO CERVICAL CANCER SCREENING

There are many complex barriers that affect women's participation in CCS. The most common barriers to CCS reflect disparities within determinants of health (Gesink et al., 2016). Determinants of health, as identified by the Government of Canada, are both social and economic in nature (2019). The barriers to CCS emphasized particularly within the reviewed

literature reflect disparities including low socioeconomic status, lack of education, belonging to a minority ethnic or sexual group, and lack of access to (women-friendly) healthcare (Gesink et al., 2016; Katz et al., 2017; Maar et al., 2013; Nguyen-Truong et al., 2012; Perks et al., 2018; Peters, 2010; Warren & Thomas, 2011). Other important barriers to CCS include: lack of accessibility, lack of awareness of screening guidelines, embarrassment, and fear of the testing experience and results (Birkhoff et al., 2016; Gesink et al., 2016; Maar et al., 2013; Perks et al., 2018). Drawing from the literature reviewed, these barriers to CCS and how they impact women will be presented in further detail below, in addition to discussion of the role of the NP in CCS and recommendations for the NP to assist in eliminating barriers.

Income and Social Status

Health status directly correlates to amount of income and level of social hierarchy due to the ability to afford resources (World Health Organization [WHO], 2017). A common theme in the literature is that CC affects the poorest women (Hitt et al., 2013; Maar et al., 2013; Weston et al., 2018). In 2013, rates of CCS were as low as 57.6% in low-income neighbourhoods in Ontario, compared to 70% in the highest income neighbourhoods (Cancer Care Ontario, 2014). Women who have low income rarely prioritize cancer screening due to the inability to take time off work and having competing demands for their limited resources, such as feeding their children (Gesink et al., 2016). In one Canadian study, the mean annual income of under-screened women ($n=83$) was \$10,459 (Weston et al., 2018). This study also found about half (57%) of the women were single and 73% reported not having a consistent primary care provider (Weston et al., 2018). These facts highlight the concept that women living in poverty may be the sole providers for their families and may have less access to healthcare than others due to lack of resources. Uninsured women in other countries who live in poverty consistently have lower screening rates of CC because of lack of funds to pay for CCS (Katz et al., 2017; Weston et al., 2018). Regardless of health insurance, indirect effects of poverty such as inability to pay for cost of health services, medications, treatments, and travel to appointments, leads to less likelihood of seeking preventative services.

One American study reviewed the use of an NP-led telemedicine program to reach rural, underserved patients (Hitt et al., 2013). This study utilized the role and scope of the NP and reported benefits in reducing geographical and financial barriers for women seeking CCS (Hitt et al., 2013). However, further research is required to identify how this type of program may be beneficial in rural Canadian settings.

Education and Literacy

CC is diagnosed disproportionately in those with low literacy levels (Hitt et al., 2013; Maar et al., 2013). Participants in one study agreed that education, both in a formal sense and in terms of health literacy, are important in facilitating a woman's decision to engage in cancer screening (Maar et al., 2013). The importance of patient awareness and education is highlighted in the quote of a participant from Gesink et al.'s (2016) study who stated, "I just think there's a relative lack of awareness

in screening in general though. I mean I don't think [people] decide not to get screened, they're just unaware that they should" (p. 131). Low levels of education and health literacy can be barriers to understanding criteria for CCS, ultimately leading to less screening. Women who lack understanding of why screening is important are less likely to subject themselves to doing so. A patient in Gesink et al.'s study (2016) stated: "I wasn't aware of what the screening ages were. So that's just sort of lack of education I believe" (p. 131). In Maar et al.'s (2013) study, high health literacy levels emerged as the main facilitator of CCS, indicating that improving patient understanding of screening practices is necessary to ensure uptake in CCS. Patients reported NPs as extremely effective at educating patients, leading to higher rates of patient self-empowerment (Hamilton & Rickards, 2020).

Access to Healthcare and Screening

In 2019, roughly 4.6 million Canadians reported that they did not have access to a regular healthcare provider (Statistics Canada, 2020). The number of patients without a regular care provider continues to grow. For example, it is currently estimated between 30,000 and 35,000 New Brunswickers are without access to a primary care provider (Government of New Brunswick, 2021). In 2017, this number was estimated to be 20,000 (Smith, 2018). In one study, the lack of a care provider contributed to the highest odds barrier to women not being screened (Gesink et al., 2016). Most health jurisdictions in Canada rely on opportunistic screening, where healthcare providers are responsible for inviting and encouraging patients to be screened, rather than utilizing a recall-based screening system (Maar et al., 2013). Without access to a regular healthcare provider, opportunistic screening becomes more challenging; patients often only seek urgent care when needed and do not have care from a consistent provider who is able to recommend routine screening.

Female Care Providers

Due to the sensitive nature of CCS, when making decisions about screening, women tend to seek women-centred services (Thompson et al., 2020). Many women are uncomfortable with the idea of CCS being performed by a male provider, which has proven to be a major barrier to seeking CCS (Maar et al., 2013; Perks et al., 2018; Thompson et al., 2020; Warren & Thomas, 2011). Of note, one in three Canadian women will experience sexual assault at some point over the course of their lives and nearly all (99%) incidents of sexual violence against women are committed by a male perpetrator (Government of Ontario, 2011; Sinha, 2013). Mills et al. (2012) found that patients preferred female clinicians because they felt more comfortable with them. In Peters' (2010) study, some participants stated that being able to access a female health practitioner for health screening was essential to participating in screening. Although these studies identified repeatedly that women appreciate having a female care provider, only one by Perks et al. (2018) studied the concept of having a predominantly female-led NP clinic serving women for CCS and found there were benefits for women.

Physical Environments

Women living in rural areas are screened for CC less frequently than women living in urban areas, perhaps due to being inadequately recruited for opportunistic screening (Hitt et al., 2013; Katz et al., 2017). Rural areas tend to be underserved medically and the inhabitants have less access to preventative healthcare services when compared to urban areas (Hitt et al., 2013; Maar et al., 2013). The NP role is common in rural parts of Canada, particularly in Manitoba, where mobile clinics staffed by NPs and RNs travel to provide care to rural dwellers (CNA, 2017). However, much of the research located for this review focused on rural environments in countries other than Canada. It would be helpful for research regarding women's screening experiences to be conducted in rural Canada where CCS rates may be less than in urban areas.

Minorities

Belonging to an ethnic or cultural minority group was identified as a barrier to CCS and a risk factor for CC in four studies reviewed (Gesink et al., 2016; Maar et al., 2013; Nguyen-Truong et al., 2012; Perks et al., 2018). Ethnic minorities studied included Aboriginal, Hispanic, and Vietnamese-Asian women, all of whom had lower rates of participation in CCS than white women (Maar et al., 2013; Nguyen-Truong et al., 2012; Warren & Thomas, 2011). Sexual minorities, defined as those having differing sexual identities, orientations, or practices than the majority of society, were also identified as being screened less often than heterosexual women (Waterman & Voss, 2015).

In addition to the numerous barriers that all other women experience, those from ethnic minority groups often face the barriers of lack of proficiency in English, low income, and low education levels (Wong & Knobf, 2012). Aboriginal women experience significant health inequalities in cancer screening and have two to 20 times the risk of being diagnosed with CC depending on the Canadian province (Maar et al., 2013). Many Aboriginal women face confounding barriers to CCS, such as lack of accessibility, inequalities in education and socioeconomic status, and distrust in healthcare due to past trauma (Maar et al., 2013). The incidence rate of CC for Vietnamese women is five times the rate of White women and adherence rates to CCS continue to fall short of national guidelines in this population (Nguyen-Truong et al., 2012; Wong & Knobf, 2012). Gesink et al. (2016) discovered that many female immigrants to Canada were unaware of what services for screening were covered by Medicare. One participant stated, ". . . as a newcomer, when you come... You don't know you get a full body check and even so issues like breast cancer, cervical cancer, it's not something that people like the government in [many] countries would talk about" (Gesink et al., 2016, p. 130). As many members of ethnic minority groups have low health literacy and a general lack of knowledge about CCS guidelines and screening programs, this is a definite barrier for them (Nguyen-Truong et al., 2012).

Only one study in this literature review included immigrants to Canada (Gesink et al., 2016) and one studied barriers to CCS for Aboriginal Canadian women (Maar et al.,

2013). Importantly, it is not unusual for certain immigrants to Canada to wait months to years for healthcare eligibility, meaning these individuals are unable to seek CCS if required (Caulford & D'Andrade, 2012). Further research is required to identify how the NP can address the specific needs of Canadian minorities, particularly those arriving in Canada.

The risk of CC among women from sexual minority groups is frequently underestimated and has not been widely studied. Lesbians are screened for CC at rates five to 18% lower than heterosexual women because of a perceived lack of risk exposure (Waterman & Voss, 2015). Providers and patients alike assume that because of the perceived or real lack of contact with men, lesbians have less potential risk for HPV infection and require fewer regular screenings (Waterman & Voss, 2015). Healthcare providers often do not encourage lesbians to engage in regular screenings and HPV vaccination rates are lower in minority groups (Polek & Hardie, 2017; Waterman & Voss, 2015). Relevant education for providers and collaborating with those in sexual minority groups is of utmost importance to promote screening uptake.

Other Barriers to Screening

Sexual Abuse, Fear and Embarrassment

Women with a history of sexual abuse or trauma report significantly more distress and pain during a pelvic examination (Birkhoff et al., 2016) than women who have not experienced such events. Importantly, females are far more likely to be victims of sexual offences than any other type of violent offence (Sinha, 2013). Birkhoff et al. (2016) found that only three percent of providers regularly asked about sexual abuse prior to a Pap test, but almost 90% of patients favoured inquiry about sexual abuse. Most women find it difficult to raise the topic of sexual abuse themselves and would prefer if healthcare professionals initiate the dialogue (Birkhoff et al., 2016).

Embarrassment can also be a barrier for women, particularly for those who are modest in nature, obese, overweight, culturally suppressed, or whose cultural views associate genitalia solely with sexual acts (Gesink et al., 2016; Nguyen-Truong et al., 2012; Perks et al., 2018). Fear and embarrassment are barriers that are highly modifiable with proper relationship building. A participant from Gesink et al.'s (2016) study reported humiliation and fear for women undergoing CCS and suggested: "... *I'm not saying, you know, you have to coddle the patient, but warm up to them a little bit*" (p. 130). Hamilton and Rickards (2020) highlighted strong communication and the ability to build relationships with patients as skills that NPs possess.

THE ROLE OF THE PRIMARY CARE NURSE PRACTITIONER IN SCREENING FOR CERVICAL CANCER

The literature describes the introduction of the primary care NP in the context of reducing barriers to CCS as the opportunity to increase cost-effective access to healthcare services in Canada, provide continuity of care, and build trusting relationships with patients. Specifically, NPs may be able to overcome many of the barriers described by women in the reviewed literature (Table 1) including limited access to

screening services, lack of provider recommendation, and lack of comfortable healthcare settings. NPs have the ability to provide healthcare access to Canadians without a primary care provider, provide accurate and up-to-date CCS recommendations, and develop trusting relationships with advanced communication skills (Kenison et al., 2015; Weston et al., 2018).

Primary care NPs have been accepted positively by patients and enhance healthcare delivery (Hamilton & Rickards, 2020). Hamilton and Rickards (2020) reported 14% of patients seeking care from an NP were seeking yearly or routine examinations, potentially including CCS. This type of service can be provided by primary care NPs and can be beneficial for improving CCS adherence rates. In this same study, 38% of patients seeing a primary care NP were being seen for a new problem or follow-up care, which provides an opportunity to recruit females for CCS. NPs can also reduce wait times in Canada. Eighty-four percent of participants in the aforementioned study rated wait times to see an NP in New Brunswick as very acceptable or acceptable. Anecdotally, a single Canadian primary care NP can serve 1,000 patients in their practice, providing screening to these patients at yearly intervals if required.

The NP focuses on health promotion and disease prevention in the context of CCS. One study compared cancer screening rates between NPs, surgical and medical oncologists, and primary care physicians for colon, cervical, and breast cancer (Kenison et al., 2015). The study, based in the United States, surveyed 759 breast cancer survivors and found there were no differences in the rates of cancer screening among types of providers, but a significantly larger proportion of patients who last saw an NP reported they had also discussed physical activity when compared to their visits with oncologists and primary care physicians (Kenison et al., 2015). These data recognize that NPs are providing screening at consistent rates with other providers, while also encouraging health promotion practices.

Education

Given that CCS guidelines may be updated frequently or vary from one geographic location to another, it can be challenging for NPs to know when to screen women. For example, in one study, 66% of advanced practice nurses reported they would perform a Pap test on a 19-year old woman presenting with genital warts, even though Pap testing is not indicated in this scenario (Choma & McKeever, 2015). In this same study, Choma and McKeever evaluated the effects of a readily accessible Web-based educational program on HPV infection and CCS, particularly among adolescents. The use of this educational program significantly improved advanced practice nurses' knowledge about CCS and assisted them in deciding which patients require screening, indicating the value of education in helping NPs remain current in their knowledge (Choma & McKeever, 2015). Although practice guidelines for CCS differ, Cappiello and Boardman (2018) reported the advanced practice nurses in their study were incorporating guidelines at high rates and their patients were understanding of, and comfortable with guidelines. Keeping abreast of CCS guidelines is of critical importance for the primary care NP to ensure proper screening recommendations and to provide education for patients.

Improving Access to Healthcare

As the role of the NP as a primary care provider becomes more recognized in Canada, there is potential for NPs to provide CCS to more women. NPs in Canada have been successful in decreasing appointment wait times by offering same-day appointments for urgent patients (CNA, 2017).

In nearly all the literature reviewed, lack of access to healthcare and its effect on CCS were referenced to some degree. In an attempt to improve the daunting barrier to access, telemedicine is being used and is being well received by patients. The concept, studied by Hitt et al. (2013), has helped to bridge the gap in CCS for rural American patients. The telemedicine program used NPs in the field to engage in direct screening with expert obstetrics-gynecology supervision provided by interactive video (Hitt et al., 2013). Hitt et al. found that 61% of the patients in the study reported that without telemedicine they would have waited at least 12 months for screening or not sought CCS at all. The implementation of this NP-led telemedicine program was beneficial for patients and may be particularly appreciated in Canada, given the many rural areas and the healthcare access challenges that exist. With the current pandemic (COVID-19)-mediated shift towards virtual healthcare, NP-led telemedicine programs may be a promising shift towards achieving better access to healthcare services for all.

One study evaluated the outcomes of an NP-student led clinic, assessing collaboration of undergraduate nursing students, NP students, and faculty in offering a monthly well-woman student-led clinic (Weston et al., 2018). The majority of patients who visited the clinic did not have a consistent primary care provider (Weston et al., 2018). Ninety-five percent of 83 women attending the clinic reported satisfaction with it and 100% would refer the service to friends and family (Weston et al., 2018). Although based in Australia, the satisfaction findings in this study are congruent with Canadian patients who receive care from an NP, where more than 93% reported satisfaction (CNA, 2017). Additionally, in Hamilton and Rickards' (2020) study, 95.5% of 699 patients seeking primary care from an NP were satisfied with the screening tests that NPs provided.

Mailing HPV self-tests to women to complete at home is a potential strategy to engage women in CCS. The strategy was shown in one study to be well received by patients and providers alike (Katz et al., 2017). Although HPV testing at home eliminates some barriers, there are questions about the manner in which the patient is collecting and transporting the specimen, and if women would follow up on test results (Katz et al., 2017). NPs who educate and offer this method of testing to their patients assist in eliminating logistical and psychological barriers (Katz et al., 2017). Additionally, Katz et al. (2017) found that many women lacked clear understanding about the relationship between HPV and CC and required instruction. Finally, Cooper and Saraiya (2015) reported the majority of providers within their study agreed that HPV testing administered alone (without a Pap test) is an effective screening modality. This option could eliminate the fear of invasive CCS.

Women-Friendly Health Screening

In almost all the studies reviewed, participants emphasized the concept of CCS being performed by a female provider. In one study, a participant reported that having a female provider was more important than her designation, whether it was a doctor or a nurse (Mills et al., 2012). With 93% of NPs in Canada in 2017 being female (Canadian Institute for Health Information [CIHI], 2019) in contrast to 43% of family medicine physicians in 2013 being female, there is a potential gap that NPs have the ability to fill (CIHI, 2019). Although it is not realistic to assume that female providers should simply perform all women's health screening, it is fair to say that the contrast in the demographic of NPs could serve as a potential benefit to women who are seeking women-friendly screening.

Communication & Trusting Relationships

NPs are known for their ability to develop and maintain professional relationships with patients. One study found that 97% of participants reported satisfaction with feeling listened to by the NP, suggesting that NPs take the time to listen, to communicate, and build successful working relationships with their patients (Hamilton & Rickards, 2020). Hamilton and Rickards (2020) also found in their study that the NPs were educated to take a detailed history from their clients. Given that so many women in the literature placed a high importance on feeling heard during healthcare interactions, this capacity of the NP is invaluable in the setting of CCS.

DISCUSSION

The results of this literature review emphasize that women continue to be under-screened for CC. Ultimately, low uptake in CCS leads to later CC diagnosis, increased morbidity and mortality, and increased burden on the healthcare system—all of which are preventable (PHAC, 2009; Pendrith et al., 2016; Warren & Thomas, 2011). Although NPs can use their unique roles to reduce CCS barriers, more research is needed to test the effectiveness of these roles in doing so.

There are numerous concepts not discussed within the reviewed literature. Importantly, the broad concept of Canadian NPs assisting to increase uptake in CCS was not identified in the articles reviewed. Further research is required focusing on the role and scope of the NP in addressing barriers to CCS in Canada, given that much of the published research is based on NPs in other countries. Further clinical research is required to determine how effective NPs are at promoting health and CCS in women. It is challenging to understand the current patient populations NPs are seeing and to generalize findings to all settings and NPs across Canada. Further research is required to identify the effectiveness of the screening practice of NPs and whether there is room for improvement when compared to other healthcare providers.

Currently, in many Canadian provinces and territories, the role of the NP is still developing and not widely known among the Canadian public. Hamilton and Rickards' (2020) study identified that patients who received care from NPs were generally very satisfied with the care received and the amount of focus that was placed on health promotion. However, further

studies exploring patient satisfaction and screening rates when utilizing primary care NPs are required. Additionally, further studies may be needed regarding why the NP role is continuously challenged in Canada as the basis to create policy change that allows NPs to be accepted by other medical professionals, practice independently at a federal level, and generate public awareness about the unique role of the NP.

The many NPs in Canada who are female are able to provide women-friendly screening to other Canadian women seeking a female provider. In the literature reviewed, this concept was only studied in Australia by Perks et al. (2018). A Canadian study on the impact of female-led health screening would be beneficial in generating knowledge on Canadian women's preference for female healthcare providers and better access to CCS. Further research is also needed to determine how male providers feel about CCS and what can be done to make the process of CCS comfortable for both the female patient and male provider.

Strengths of this review include the reliance of published research and the availability of these studies. In contrast, limitations include lack of consultation with a librarian during the review process due to time constraints; the writer (a graduate student) completed the review following research courses on literature searching and synthesis. The search explicitly focused on CCS, which may limit the generalizability of findings to other types of cancer and care settings. Additionally, in an attempt to remain current with CCS practices, literature older than 10 years was excluded, which could limit the studies identified that may have been of value to this paper. In keeping with the goals of this literature review, articles were not given in-depth critical appraisal, which may mean the studies reviewed varied in methodological quality.

RECOMMENDATIONS FOR THE PRIMARY CARE NURSE PRACTITIONER: IMPLICATIONS FOR PRACTICE

While many recommendations to improve access to CCS for under-screened women may be applicable to all primary care practitioners, the role of the primary care NP is unique in that NPs were consistently reported as providing quality screening and education to patients while improving access to cost-effective and women-friendly healthcare with high levels of reported patient-satisfaction (Choma & McKeever, 2015; Hamilton & Rickards, 2020; Katz et al., 2017; Weston et al., 2018). The NP role focuses on combining the complex science of medicine and the delicate art of nursing to stir empowerment in patients, create better population health outcomes, and focus on health promotion and disease prevention (Hamilton & Rickards, 2020). Although CCS can be performed by almost any primary care provider, patients who received care from NPs consistently reported higher health satisfaction and increased access to healthcare services. NPs are also able to screen at equal rates when compared to other providers (Hamilton & Rickards, 2020; Katz et al., 2017; Kenison et al., 2015; Weston et al., 2018). Primary care NPs have the opportunity to shape a relatively novel role within the Canadian healthcare system to increase CCS rates.

Improving Access to Healthcare

Within this literature review, studies included the evaluation of a student-led health clinic providing CCS to underserved women, the concept of telecolposcopic clinics serving rural women, and HPV take-home tests. These interventions all improved access to healthcare for patients at a low cost, while providing valuable experience to the next generation of healthcare providers, utilizing resources in rural communities, and providing patients with support and comfort (Hitt et al., 2013; Katz et al., 2017; Weston et al., 2018). NPs, whenever possible, could engage in these practices for patients or contribute to research of these topics within a Canadian context. Each intervention should be studied and evaluated in the Canadian context.

Women-Friendly Health Screening

Given the concept of women-friendly health screening was discussed so frequently in the literature, providers should attempt to provide women-friendly health screening. While it may not always be possible for CCS to be performed by a female provider, an important take-away message is that providing women with reassurance, trusting relationships, and education hopefully can help foster comfort with any provider, regardless of gender.

Addressing Barriers in Specific Populations

A multifaceted approach is commonly required for effective cancer screening in ethnic minorities (Wong & Knobf, 2012). Targeting minorities by developing awareness campaigns in their preferred language, culturally appropriate screening clinics, patient registry and reminder system, and low-cost screening services were all shown to increase the Pap test rates in minority groups (Maar et al., 2013; Wong & Knobf, 2012). NPs could encourage CCS while providing culturally appropriate teaching to all patients, as research suggests that healthcare provider attributes and abilities to establish trusting relationships greatly impacts ethnic minorities' willingness to undergo Pap testing (Maar et al., 2013; Nguyen-Truong et al., 2012; Wong & Knobf, 2012). Sustainable screening interventions for ethnic minorities should involve collaboration between the NP and the patient using whichever cultural methods are most appropriate for that patient.

Those from sexual minority groups require appropriate education regarding requirements for CCS (Waterman & Voss, 2015). Current healthcare messages of safer sex and sexually transmitted infections are typically targeted at the heterosexual male and female. The lack of inclusive language may cause sexual minorities to assume that when healthcare providers refer to "all women," they may only be referring to heterosexual women (Waterman & Voss, 2015). The NP should place emphasis on using appropriate and inclusive language, all while making their practice more open to sexual minorities. To ensure that the NP practice is welcoming to sexual minorities, they should: display posters and other educational material that include couples of mixed and same genders, ask for clarification related to sexual orientation or gender identity, if appropriate and beneficial, and avoid making assumptions about promiscuous practices based on sexual identity (Polek &

Hardie, 2017). The NP should take a detailed history to screen all eligible women for CC and encourage the use of HPV vaccination—regardless of sexual orientation.

Education and Relationship Building

NPs can play an important role in integrating the newest CCS guidelines into practice and relaying this information to patients to keep them informed (Schwaiger et al., 2012). Keeping patients educated and informed about current guidelines promotes uptake of CCS (Schwaiger et al., 2012). NPs, whenever possible, should allow open communication with patients. Additionally, empowering patients to become more active participants within their health promotion practices is often undervalued in practice. Open and honest communication creates accountability between provider and patient, fostering a sense of trust and comfort.

CONCLUSION

Many complex barriers were identified within the literature reviewed illustrating why women may not seek CCS. NPs should remain diligent in promoting CCS in underserved and marginalized populations, including those living in poverty and those who lack education, minorities, those who

have experienced abuse, fearful or embarrassed women. The primary care NP in Canada is able to provide care to those who have limited access to a healthcare provider, particularly those who may request a female provider. There is evidence to support that the role of the NP is well-received by patients (Hamilton & Rickards, 2020). Multiple concepts were identified in the research that are specific to the role of the NP to eliminate barriers to CCS for a variety of patient populations, some of which included culturally appropriate care, women-friendly Pap clinics, student-led NP clinics, NP-led telemedicine, HPV self-testing, building trusting relationships, as well as receiving further education about CCS and sharing that knowledge with patients. Further research is needed to explore how NPs in Canada's healthcare system can be the best encouragers of CCS to all women, even while barriers exist.

A global call for action in 2018 by the World Health Organization encouraged action toward the elimination of CC by the year 2030. The disease is one of the most preventable and treatable forms of cancer, as long as it is prevented with HPV vaccination, detected early through screening, and managed effectively (Popadiuk, 2019). NPs can answer this call to action to assist in removing barriers to cervical cancer screening and eliminating cervical cancer worldwide.

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APPENDIX

Table 1

Summary of studies reviewed

Study/Country	Methods	Participants	Phenomenon(s) of interest	Findings & Themes
Polek, Hardie, 2017. United States.	Survey.	5,695 women – 113 lesbian, 135 bisexual, 5,446 heterosexual women ages 18–26.	To characterize rates of HPV vaccination in women based on their sexual orientation to further characterize at-risk groups to support nurse practitioner vaccination efforts.	Significant differences were found in vaccine uptake based on sexual orientation. Bisexual women were most likely to be vaccinated, and differed significantly from heterosexual and lesbians, which did not differ significantly from each other. The results suggest improvements in sexual minority rates but ongoing low rates of vaccination in adult women.
Perks, Algosio, Peters, 2018. Australia.	Mixed-methods. Semi-structured interviews, qualitative descriptive. Thematic analysis.	147 women, aged 18 and older.	To determine characteristics of women accessing health from Liverpool Women's health centre and explore their experiences of the service.	<p>Providing accessible and comforting healthcare services can increase participation of vulnerable women in routine cervical cancer screening. Providing accessible screening can reduce morbidity and mortality from cervical cancer.</p> <p>Two main themes and one sub-theme of the study: 1. Reasons for choosing a woman's health clinic, with a sub-theme of gender preference, and 2. Attending to physical and emotional needs. Women described cervical cancer screening as an invasive procedure and felt more comfortable with a female provider who developed a trusting relationship and conveyed a sense of genuine interest about the woman's overall health and wellbeing. The participants also stated that the nurse practitioners at the clinic paid special attention to developing trusting relationships with women and attended to the physical and emotional needs of the patient to increase level of comfort.</p>
Maar, Burchell, Little, Ogilvie, Severini, Yang, Zehbe, 2013. Canada.	Participatory action research approach. Semi-structured interviews, in-depth interviews. Thematic analysis.	18 nurses, nurses practitioners, community health representatives, social workers, physicians – all who provide care to women in 11 First Nations partner communities in rural Northwest Ontario. 17 female, 1 male.	To examine structural barriers that prevent First Nations women's participation in cervical cancer screening.	<p>Major themes that emerged included shortage of appropriate healthcare providers, lack of a recall system, transportation barriers, education and socioeconomic inequalities, low health literacy, and generational effects on First Nations women</p> <p>The theme regarding shortage of appropriate healthcare providers was further developed into lack of female-trained, consistent providers who provide reassurance and trusting relationships with women undergoing cervical cancer screening.</p> <p>Structural barriers to cervical cancer screening were identified for underserved, rural women, such as lack of recall system and transportation barriers.</p> <p>Education and socioeconomic inequalities emerged as one of the largest themes, as many participants agreed that education is one of the main factors in facilitating a woman's decision to engage in cancer screening. Participants felt that many Aboriginal women were disadvantaged in formal school education and generalized health literacy.</p> <p>Generational effects and cultural effects, such as language barriers and trauma from residential schools and previous health encounters may deter women from seeking screening.</p>

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<p>Nguyen-Truong, Lee-Lin, Leo, Gedaly-Duff, Nail, Wang, Tran, 2012. United States.</p>	<p>Descriptive, community-based survey using purposeful sampling.</p>	<p>211 Vietnamese-American women, at least 21 years of age.</p>	<p>To examine factors potentially influencing Pap testing practices among Vietnamese-American women.</p>	<p>Pap testing continues to fall short in this study population. Only 30% of women in this study knew of cervical cancer screening programs in their community, and only 11% knew where to go to get a low-cost or free Pap test in their area.</p> <p>A recommendation from a friend or healthcare provider was a large predictor of Pap test adherence. English speaking, highly-educated Vietnamese women living in the United States for longer periods of time were more likely to have a Pap test. Additionally, Vietnamese-American women who had access to a regular primary care provider were also more likely to have a Pap test. Women who reported greater perceived common barriers, or a multitude of barriers in combination, were less likely to have ever received a Pap test.</p>
<p>Mills, Chamberlain-Salaun, Christie, Kingston, Gorman, Harvey, 2012. Australia.</p>	<p>Qualitative, exploratory study using purposive sampling and concurrent data collection and analysis of individual interviews.</p>	<p>18 registered nurses working in general practice enrolled in Pap Smear Provider Module.</p>	<p>To examine the process of changing the traditional division of labour related to cervical cancer screening and well women's health care services in the general practice setting and to develop an approach for practice nurses to incorporate cervical screening into their work.</p>	<p>Participants perceived four key enablers to implementing a model of nursing care that included the provision of cervical cancer screening and well women's health services: 1. General practitioners being willing to relinquish the role of cervical screener, 2. Practice nurses being willing to expand their role to include cervical screening and well women's health services, 2. Clients preferring a female practice nurse to meet their cervical screening and well women's health needs, 3. The presence of a culture that fosters interprofessional teamwork.</p> <p>Participants in this study identified that male general practitioners may have felt uncomfortable providing cervical cancer screening; however, there may be some hesitancy of general practitioners to allow advanced practice nurses to incorporate screening into their practice.</p> <p>An enabler to nurses performing cervical cancer screening is the number of clients who prefer a female clinician. Clients also feel more comfortable with a nurse and are more likely to talk about women's health needs.</p>
<p>Katz, Zimmermann, Moore, Paskett, Reiter, 2017. United States.</p>	<p>Separate focus groups among both healthcare providers and women. Field notes, in-depth interviews.</p>	<p>28 healthcare providers with a mean age of 43. 15 women with a mean age of 45 years.</p>	<p>To gain insight into the perceived acceptability of mailed HPV tests.</p>	<p>Main themes that emerged from the focus groups include 1. Most providers thought that the women understood very little about the association of HPV and cervical cancer and the importance of completing cervical cancer screening within guidelines, 2. Most women voiced lack of understanding about HPV.</p> <p>Barriers to cervical cancer screening emerged as key themes and included embarrassment, emotional stress, physical discomfort, pain, and lack of time and money to complete the test.</p> <p>While women expressed preference for HPV testing at home when compared to a healthcare office or setting, healthcare providers expressed potential flaws of testing including the potential for error; however, many providers viewed the testing as a way to encourage women to return to the healthcare system.</p>

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Birkhoff, Krouwel, Nicolai, Bert-Jan de Boer, Beck, Putter, Pelger, Elzevier, 2016. The Netherlands.	Cross-sectional survey. 31-question questionnaire.	357 Dutch general practitioners aged 26-72, 57% female.	To evaluate attitudes of general practitioners about sexual abuse victims, and if specific attention is paid to sexual abuse in advance of performing a cervical smear.	Only three participants “often” asked about sexual abuse to their patients, while 36 participants “regularly” asked. The most agreed upon reason that kept providers from asking about sexual abuse was that there was no motive to ask. In terms of nurse practitioner practice, 34.5% of nurse practitioners “never” asked about sexual abuse while only three percent asked always. The frequency of sexual abuse is underestimated in cervical cancer screening. Most women find it difficult to raise the topic of sexual abuse themselves and would prefer if healthcare professionals initiate the dialogue.
Weston, Page, Jones-Schubart, Akinlotan, 2018. Australia.	Collaborative clinic project evaluated by qualitative survey.	17 nurse practitioner students, unspecified ages. 83 female patients aged 23-66.	To increase access to cancer screening for underserved women while providing collaborative clinical experiences for nurse practitioner students.	Expanding opportunities through student nurse practitioner-led clinics was well received by patients, cost-effective, and improved access to cervical cancer screening.
Kenison, Silverman, Sustin, Thompson, 2015. United States.	Surveys.	759 breast cancer survivors aged 32 to 95.	To determine if frequency of cancer screening and discussion of healthy lifestyles differed across provider types (nurse practitioner, primary care physicians, surgical and medical oncologists).	No statistically significant differences were found in primary and secondary cancer screening rates among breast cancer survivors between providers. There were significant differences found in relation to discussions of healthy lifestyles, with a higher proportion of patients recalling discussion of physical activity and diet with nurse practitioners.
Hitt, Low, Bird, Ott, 2013. United States.	Telecolposcopy program with pre- and post-project surveys.	1,298 colposcopic exams on female patients aged 14-58.	To provide needed care to an at-risk population and to test the validity of providing care by pairing local examiners with distant expert oversight by telemedicine.	Among the sets of 1,118 biopsies taken, 333 showed precancerous lesions or cancer and were referred for treatment. Results of the survey revealed that 61% of the patients reported that without this program they would have waited at least 12 months or not sought care at all, while 74% percent of patients reported that they would have waited for at least 6 months or not sought care at all. Complications with the telecolposcopic method were rare during the study period.
Choma, McKeever, 2015. United States.	Educational intervention with post-program survey.	78 participants completed the contact hour program with 48 participants competing the post-program survey (93.7% female).	To determine the effectiveness of a web-based continuing education program on advanced practice nurses’ knowledge of current cervical cancer screening guidelines and their application in practice.	Healthcare providers reported great variance in knowledge of cervical cancer and screening guidelines, as well as HPV infection and risk of cervical malignancy. Knowledge gaps exist among advanced practice nurses about cervical cancer screening in adolescents; however, when provided with an educational intervention, knowledge levels increased and self-reported clinical practice behaviours changed in accordance with new cervical cancer screening guidelines.

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Peters, 2010. Australia.	Qualitative. Interviews, storytelling. Thematic analysis.	9 healthcare consumers aged 31-65. 6 healthcare professionals, unspecified ages.	To explore stories and perceptions of consumers and healthcare workers with a low uptake of women's health screening.	Three main themes emerged, including seeking woman-friendly woman-centred services, seeking continuity of care, and seeking safe environments. For many women, simply being able to access a female health practitioner for health screening was essential for having their health attended. Additionally, lack of reminders from providers about screening and ultimately, lack of continuity of care was a major deterrent for screening. Lack of a consistent primary care provider leaves women jumping from clinic to clinic to seek screening and ultimately causes gaps in care and/or inadequate screening.
Thompson, Glavin, Daley, Tatar, Zimet, Rosberger, 2020. United States.	Online survey.	812 women, aged 30 to 65 years.	To assess information, motivation, and behavioural skills associated with willing to receive an HPV test instead of a Pap test among women.	HPV knowledge was significantly associated with a willingness for HPV testing. Motivating factors for testing included: positive attitudes, social norms, perceived benefits, worry about cervical cancer, and worry about abnormal HPV tests. Women were more significantly more willing to get the HPV test if a provider recommended it and currently up to-date on cervical cancer screening guidelines.
Cappiello, Boardman, 2018. United States.	Longitudinal survey.	358 advanced practice nurses in three New England states in 2008, 2012, and 2015.	To explore to what extent advanced practice nurses adopted cervical cancer screening guidelines.	Advanced practice nurses are incorporating guidelines at a high rate. Advanced practice nurses also felt that their patients increasingly are educated and comfortable with guidelines.
Gesink, Filsinger, Mihic, Norwood, Racey, Perez, Antal, Ritvo, Vernich, 2016. Canada.	Multi-phase mixed methods study. Group discussions, online survey, focus groups with healthcare providers. Thematic analysis.	2783 participants included from online survey, 82 percent female, aged 18 years or older. Focus group discussions with healthcare providers then with community members from each underserved population.	To identify and quantify barriers and facilitators for breast, cervical, and colorectal cancer screening for under and never screened residents of Ontario between 2011 and 2013.	In Ontario, cancer screening rates are below targets despite being offered free of charge to all residents eligible for screening. Themes were divided into barriers and facilitators to screening for under- and never-screened patients. Barrier themes included 1. The doctor, 2. The test being too painful, too embarrassing, too scary, too invasive, 3. Fear, 4. History of abuse, 5. Social determinants of health, such as poverty, living in crisis, social norms, low literacy, lack of knowledge/awareness, 6. Lack of health insurance. Facilitators to screening included 1. The doctor, 2. The test, 3. Increasing knowledge and awareness, 4. Symptoms appearing, 5. Family or friends told them to go get screened. The healthcare provider emerged as both a facilitator and a barrier. The doctor could be seen as a barrier if the provider refused to screen patients or was inattentive to specific needs of the patient. The healthcare provider also served as a facilitator of screening if the opposite were true, such as the provider encouraged screening in patients and provided sufficient detail about why screening is required. Patients also appreciated reminders from their healthcare provider about when screening is due. The screening itself proved to be a barrier and a facilitator as well, due to the sensitive and potentially painful nature of the testing. While many patients had preconceived notions about the test being too scary or painful and this served as a barrier, many patients who had undergone testing felt that the test was less painful than anticipated and this served as a facilitator to screening.