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Cervical screening in BC— Change inspired by First Nations and Métis communities

For human papillomavirus–based screening to be effective and to avoid exacerbating inequities, the health care system needs to prioritize culturally appropriate, difference-based approaches.

ABSTRACT: To eliminate cervical cancer in Canada, the Canadian Partnership Against Cancer has set priorities and targets, including a goal of screening 90% of eligible individuals. British Columbia is falling below this goal, with markedly lower rates in rural and remote locations and among First Nations and Métis communities. To address the Canadian Partnership Against Cancer targets in these communities, innovative and Indigenous-led cervical screening initiatives are required. Human papillomavirus testing offers a high-performance and innovative method for cervical screening and includes the option for self-collection, which removes many barriers associated with in-clinic screening. In partnership with three First Nations and Métis organizations, we offered uniquely designed human papillomavirus–based self-collection programs, screened more

than 230 eligible individuals, and found high levels of acceptability and feasibility. As British Columbia transitions to primary human papillomavirus screening, our findings bolster the existing evidence to support the adoption of human papillomavirus–based self-collection, especially for rural, remote, First Nations, and Métis communities.

Since 1956, Pap tests (cytology) have been the cornerstone of British Columbia's Cervix Screening Program. In BC and Canada, organized cervical screening has contributed to a significant decline in morbidity and mortality associated with cervical cancer. However, participation in cervical screening in BC has plateaued at less than 70%,¹ lower than

the Canadian Partnership Against Cancer's cervical cancer elimination targets of 90% screening uptake overall and no less than 80% for any single identifiable group.²

Within BC and Canada, First Nations, Métis, and Inuit women and individuals with a cervix (WIC) experience a disproportionate burden of cervical cancer³ and attend screening less frequently than other WIC.⁴ Commonly reported barriers to attending cervical screening include rural and remote geography; lack of access to a regular health care provider; being too busy; experiencing embarrassment, pain, or discomfort during the exam; financial and child care challenges; past trauma; and a colonial health system with prevalent anti-Indigenous racism.^{5–12} (The term *Indigenous* encompasses First Nations, Métis, and Inuit.)

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The Canadian Partnership Against Cancer's call for the elimination of cervical cancer in Canada includes a focus on high-performance tests, innovative approaches, and an equity-based lens,² in alignment with the World Health Organization's global strategy for cervical cancer elimination.¹³ More than 65 years after the introduction of Pap tests in BC, there is a new primary cervical screening method that addresses the Canadian Partnership Against Cancer priorities: human papillomavirus (HPV)-based testing. Cervical screening with HPV-based testing looks for the presence of high-risk (oncogenic) HPV genotypes and can detect cervical precancer earlier and more accurately than cytology.¹⁴ HPV-based screening detects more cases of cervical intraepithelial neoplasia (CIN) grade 2 or worse (CIN2+) at initial screen than cytology,¹⁴ is just as safe,¹⁵ is more cost-effective,¹⁶ and has a higher negative predictive value.¹⁷

Furthermore, because HPV testing detects the presence of oncogenic HPV, the sample does not need to be collected from the cervix; it can be obtained either cervically (by a provider) or vaginally (either by a provider or self-collected by the screened individual). When HPV-based screening is offered via self-collection, individuals are provided with an option for cervical screening that they can do by themselves, at home, at any time, thereby addressing many of the barriers traditionally associated with clinic-based cytology, especially for First Nations, Métis, and Inuit individuals^{18,19} and those living in rural and remote locations. HPV-based self-collection is highly acceptable to patients²⁰ and has already been introduced in various jurisdictions around the world.²¹ A recent meta-analysis found that self-collection of an HPV sample almost doubles the likelihood of screening participation compared with collection by a health care provider.²²

As a province with a long-standing, organized, and centralized screening program, BC is well poised to transition to HPV-based testing as the primary method for cervical screening, with self-collection as

an option that increases equity and accessibility. Moreover, an essential component of the success of introducing HPV-based screening and HPV-based self-collection is the support and endorsement of health care providers.

In this article, we highlight the benefits of HPV-based primary screening, present the positive feedback received from patients regarding HPV-based self-collection, and address some of the common concerns providers have about this testing method. We also describe the inequities that First Nations, Métis, and Inuit individuals face as a result of systemic oppression when trying to access health services and discuss our research team's experience in delivering HPV-based self-collection collaboratively with First Nations communities and organizations and Métis Nation British Columbia Chartered Communities in BC. We aim to provide information and reflections that will better equip health care providers in BC to use HPV-based testing, with the ultimate goal of increasing screening coverage and reducing cervical cancer burden, specifically among marginalized and underserved communities.

Why shift from cytology to HPV-based screening?

While cervical screening via Pap tests has substantially reduced the incidence and mortality of cervical cancer in Canada and BC,^{23,24} HPV testing introduces a better way to screen for and prevent cervical cancer.¹⁴⁻¹⁶ Screening using HPV testing offers numerous advantages over cytology, including improved detection of cervical dysplasia and the ability to safely extend the interval between negative screens, both due to an increased sensitivity and increased negative predictive value.¹⁷

The landmark BC-based Human Papillomavirus For Cervical Cancer (HPV FOCAL) randomized clinical trial demonstrated that "among women undergoing cervical cancer screening, the use of primary HPV testing compared with cytology testing resulted in a significantly lower likelihood of CIN3+ at 48 months."¹⁴ This is

because the HPV test is more sensitive than cytology; it identifies more abnormalities at baseline and thus catches potentially cancerous lesions before they have a chance to progress. The HPV FOCAL trial was one of the first to show the protective effect of HPV-based screening, along with research from Europe^{17,25,26} and Australia.²⁷ These findings have continued to be replicated in studies and real-world evaluations from around the globe.²⁸⁻³⁰

A longer interval between negative HPV screens is recommended because of the HPV test's increased sensitivity and improved negative predictive value.^{31,32} The HPV FOCAL trial found that "cytology-based screening at 2-year intervals missed over 8 times as many pre-cancers as HPV-based screening at 4-year intervals,"¹⁴ indicating a significant difference between the protective value of the two tests. Thus, not only is an extended interval for the HPV test noninferior, but the HPV test is the better option as it catches more precancers than cytology would at the current standard interval.

While HPV-based screening offers a proven superior method for cervical screening, it is still of the utmost important that WIC attend necessary follow-up. The increased sensitivity and negative predictive value of HPV-based screening is null if WIC with positive HPV results do not attend follow-up and continue through the cascade of care. Health care providers should continue to stress the importance of attendance at follow-up, even with this new, more accurate testing method.

What are the benefits of HPV-based self-collection for patients?

On its own, HPV-based screening offers a variety of benefits for cervical screening programs, and when self-collection is introduced, the benefits multiply, especially for WIC, who face significant barriers to engagement. HPV-based self-collection, as a World Health Organization-endorsed form of self-care,³³ involves the collection of a vaginal sample, usually at home, at a health care provider's office, or in another private location where the individual feels

most comfortable. After collection, the individual returns the sampling kit to a laboratory, either by mail or drop-off, and the test results are provided to the individual (often within 4 to 6 weeks) through a digital platform, by phone, or in an appointment with a health care provider. If the test comes back negative for high-risk HPV types, the individual has successfully screened for cervical cancer without having to leave home, and with the assurance that another test is not needed for at least 5 years.³²

A review of recent literature indicated that self-collection is highly acceptable and feasible and resulted in increased participation, especially among unscreened and underscreened populations.³⁴ The convenience of HPV-based self-collection for both the individuals who are screening and the health care system cannot be understated. The test is easy to perform, is not painful, and eliminates the time and travel constraints associated with attending a clinic,²⁰ which is especially important considering the vast geography of BC. In a province where an individual might have to travel for hours to reach the nearest medical office, mailed HPV-based self-collection kits can save patients a substantial amount of time.

Additionally, removing the necessity of a pelvic exam from the initial step in the cascade of care for average-risk individuals undergoing cervical screening increases the likelihood of participation by individuals who experience discomfort, pain, or embarrassment during a Pap test. For those who are hesitant or uncomfortable having a pelvic exam performed by a male health care provider, HPV-based self-collection also eases those concerns.³⁵

There is a dearth of robust, comprehensive data on cervical cancer rates among Indigenous WIC in Canada; however, the existing data indicate that First Nations women are more likely to be diagnosed with cervical cancer than non-First Nations women;^{3,9,36} thus, innovative, culturally appropriate screening strategies are critical. Among First Nations, Métis, and Inuit WIC, HPV-based self-collection provides an opportunity to engage in cervical

screening outside a conventional, Westernized medical system that is inherently racist and unaccommodating of Indigenous ways of delivering and receiving health care.^{12,37,38} In Australia and New Zealand, studies have found that Indigenous women are open to the idea of HPV-based self-collection as a means of overcoming fear, shame, and negative screening experiences.^{39,40} By putting screening in the hands of Indigenous WIC and communities, there is space for culturally sensitive, safe, and appropriate reproductive health care that might help address the innate barriers of a colonial health care system.

Overall, HPV-based self-collection offers a solution to many challenges and barriers associated with traditional cytology screening and thus facilitates a more equitable approach.

Who has benefited from HPV-based self-collection?

For more than 5 years, our research team has worked alongside First Nations communities and organizations and Métis Nation British Columbia Chartered Communities in BC to deliver HPV-based self-collection projects in an effort to enhance equitable access to screening. Taking guidance from community Elders, leaders, and knowledge keepers, we committed to ensuring our pilot research processes were culturally safe and culturally relevant and improved accessibility without causing harm. In partnership with Métis Nation British Columbia, Carrier Sekani Family Services, and the First Nations Health Authority, more than 230 WIC completed HPV-based self-collection testing across northern BC, and more than 90% attended necessary follow-up care when it was recommended.

While cytology-based screening has successfully reduced cervical cancer incidence and mortality, it does not allow for variability in approaches to offering screening and has thus created barriers and challenges for many WIC. To improve equitable access to screening and inform future directions for screening programs, our projects were rooted in a differences-based approach.

For each of our partnerships, we focused on finding an approach that fit the needs of the communities precisely and uniquely, given their diversity of cultures, geographies, health infrastructure, and community preferences. Despite the precision approach used for each pilot project, there were similarities throughout: all projects included extensive community engagement and staff training during planning, implementation, and evaluation, and adhered to ownership, control, access, and possession principles and ownership, control, access, and stewardship principles at all stages.

The first of our pilot research projects was conducted in partnership with Carrier Sekani Family Services at nine health centres in north-central BC. The process started with open discussion and engagement sessions with Chiefs, councils, community health teams, and community members, with the goal of integrating HPV-based self-collection into an established First Nations-led primary care system. Leaders from the Carrier Sekani communities led the development of the projects and had significant input and decision power throughout planning and implementation. During health care centre visits, screening kits were offered to eligible WIC and, after collection, were mailed to the provincial laboratory by health care staff. In total, 103 samples were collected from WIC aged 25 to 65 years; 17 (16.5%) were positive for high-risk HPV, and attendance at follow-up was 94%. Among all participants, an average of 5.9 years had passed since their last cervical screen, which reinforces self-screening as an option that can be transformative for the health of WIC in these communities. This initiative has now transitioned from a research project to a sustained and routine health care practice within Carrier Sekani Family Services' primary care services.

Following the successful implementation of the Carrier Sekani Family Services project, we launched our pilot research project with Métis Nation British Columbia, which was anchored in a digital health approach. Given the distribution of Métis

Nation British Columbia citizens and self-identifying Métis persons across northern BC, recruitment occurred through a combination of social media, mailed initiations, newsletters, and community engagement sessions. Culturally relevant, gender-inclusive materials were created, emphasizing the importance of screening as an empowered way for Métis people to take control of their own health. We started in three communities—Prince Rupert, Smithers, and Terrace—and had expanded to seven more—Hudson’s Hope, Kelly Lake, Chetwynd, Tumbler Ridge, Dawson Creek, Fort Nelson, and Fort St. John—by the end of the project. Participants could register on the CervixCheck website, and if determined eligible for participation by a study team member, a self-collection kit was mailed to their home. After testing, participants received their results online. If a participant was HPV-negative, they did not require an in-person clinic visit, which is especially beneficial for those living in rural or remote communities. In total, 63 participants collected a sample. The positivity rate was 5.5%, and all HPV-positive participants attended recommended follow-up. An average of 7.0 years had passed since participants were last screened.

Our third HPV-based self-collection project was implemented in partnership with the First Nations Health Authority. It delivered cervical screening to three remote First Nations communities in northern BC: Fort Nelson First Nation, West Moberly First Nations, and Saulneau First Nations. Extensive community engagement and preparation occurred before we began offering cervical screening, including a long deliberation process led by the First Nations Health Authority to determine which communities were most interested and able to host the new initiative. Self-collection was offered as a parallel strategy alongside existing community health engagement initiatives. Screening kits were available in health care centres and were accessed through the support of trained staff, as well as during community health and wellness days. Over 18 months, 38 WIC were screened, and an

average of 5.1 years had passed since their last screening. In total, 2.6% of participants tested positive for HPV, and attendance at follow-up was 100%.

As part of our research with the Carrier Sekani Family Services communities and Métis Nation British Columbia participants, we conducted acceptability surveys to determine whether offering HPV self-collection was having the intended beneficial effect. Overall, 70% of Carrier Sekani Family Services respondents and 84% of Métis Nation British Columbia respondents reported HPV self-collection for cervical screening as acceptable. Participants describe the process as “easier, faster, and less embarrassing” and “[easier], less painful, and more private.” We plan to continue exploring acceptability and feasibility of this testing among First Nations and Métis Nation British Columbia Chartered Communities.

Our projects in partnership with Carrier Sekani Family Services, Métis Nation British Columbia, and the First Nations Health Authority have produced key learnings that have helped guide discussions and implementation of the provincial transition to primary HPV-based screening, especially as it relates to WIC, in rural and remote and Indigenous communities, and their attendance at necessary follow-up. We are deeply grateful for our First Nations and Métis partners and are indebted to their wisdom. Adopting culturally informed approaches and culturally safe care will lead to improved health services for all.

How will this change the future of screening in BC?

BC’s Cervix Screening Program is an ideal setting for the integration of HPV-based testing for cervical screening. HPV-based testing and self-collection are safe, effective, and equitable alternatives to cytology. As the province continues navigating the transition to HPV-based primary screening, the lessons learned from our research with First Nations communities and Métis Nation British Columbia Chartered Communities and partners will be invaluable.

All WIC should be offered the option to do self-collected screening, but it is especially appropriate for unscreened and under-screened WIC and First Nations and Métis communities. Moreover, continuing to offer WIC the choice of cervical screening method—self-collection or provider collected—is equally important so as not to introduce new inequities or barriers with this transition.

During the transition, it will be critical to ensure that the changes are suitable and appropriate for the populations that have endured historical harm from a colonial medical system and who continue to experience harm and oppression. We believe that for primary HPV-based screening to be effective and to avoid exacerbating inequities, the health care system in BC needs to prioritize culturally appropriate, difference-based approaches, as evidenced by our research.

The future of cervical screening in BC includes offering screening choices to all WIC, in particular those who have not regularly attended provider-collected screening in the past. With HPV-based self-collection, patients can take screening into their own hands and make health care decisions with autonomy and agency, at their own pace, in a safe environment. We hope that all WIC, including those in rural, remote, and Indigenous communities, will feel empowered to participate in cervical screening, regardless of geographic barriers or a lack of in-community health care providers. Ideally, all WIC will have more control over how, where, and with whom they screen, and will have the option of reducing the number of uncomfortable or distressing pelvic exams. When health care and health service accessibility are improved for equity-deserving groups, it improves the health of all.

As health care providers, you will be on the front lines of this exciting transition. You are uniquely situated to be the best advocates for your patients’ health and well-being and will be at the forefront of this monumental practice change. You have the opportunity to fully educate yourselves

on how this will affect and ultimately benefit your patients, especially WIC in rural and remote communities, in Indigenous communities, and more broadly across the entire province. ■

Competing interests

None declared.

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