The pandemic and cervical cancer screening

Is it finally time to adopt HPV self-swabbing tests in Canada?

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Cervical cancer is the third most common reproductive cancer among Canadian women and people with a cervix.[1] In 2021, approximately 1450 people were diagnosed with cervical cancer and 380 died of the disease.[2] Almost all cervical cancers are caused by high-risk subtypes of the human papillomavirus (HPV) and can be prevented through a combination of HPV vaccination and screening programs that rely on early detection and treatment of preinvasive disease.[3]

Although each province in Canada has its own screening strategy for cervical cancer, each strategy currently relies on cytology (either the traditional Papanicolaou test or liquid-based cytology). HPV testing is more expensive than cytology, but it is also more sensitive (89.9% vs 72.9%) in detecting preinvasive disease.[4] Patients with a negative result via HPV testing have a lower likelihood of diagnosis of higher-grade cervical intraepithelial neoplasia within 48 months.[5] While HPV testing is largely reserved for higher-risk patients, some provinces are working toward using HPV testing for primary screening. Currently, Canada has a heterogeneous mixture of screening guidelines, with some provinces starting screening at 21 years of age and some at 25 years of age for women or people with a cervix who have had their sexual debut, with subsequent screening every 2 to 3 years.[6-8] Since 2013, the Canadian Task Force on Preventive Health Care has recommended not routinely screening sexually active people younger than 25 owing to limited evidence of benefit in reducing mortality.[9] Nine years later, only Alberta, British Columbia, Ontario, and Prince Edward Island have implemented these newer recommendations.[10-13] This pace of guideline reform is indicative of Canada's slow progress in updating cervical cancer screening compared with other countries.

In the first 6 months of the coronavirus disease 2019 (COVID-19) pandemic in Ontario, the average number of cervical cancer screening tests per month fell by 63.8% and there were 51% fewer high-grade cytologic abnormalities identified.[14] The COVID-19 pandemic's disruption to in-person primary care has highlighted a considerable gap in infrastructure related to continuity of screening measures; self-collection might offer a solution during such periods of disruption. Even before the COVID-19 pandemic, it was evident that some populations faced greater barriers to routine screening. For example, there are lower screening rates among people from lower-income backgrounds, people with mobility-related disabilities, urban immigrants, and rural patients. In Canada, Indigenous people also have lower rates of cervical cancer screening and, depending on the province, a 2 to 20 times higher risk of being diagnosed with cervical cancer.[15] In Manitoba, Indigenous people are diagnosed with invasive cervical cancer at a rate 3.6 times higher than the general population.[16] The compounding of systemic and social barriers results in the lower screening rates in these communities and presentation of cancer at more advanced stages. Currently, we have the technology to allow people to complete a self-swabbing test for HPV without the need for either a speculum examination or a visit to a health care provider. Incorporating HPV self-swabbing as an option in provincial cervical cancer screening programs could reduce barriers to screening and address some of the current population inequities in screening and cancer incidence, as well as offer a solution during substantial disruptions in preventive care.

Addressing gaps through a self-swabbing alternative

Self-swabbing tests for HPV could be distributed within or outside health care settings. The test kit could be provided and completed in a health care office; alternatively, it could be delivered through the mail, performed by the patient at home, and mailed back to the laboratory. Kits can include multilingual instructions on how to obtain a sample. These types of self-swabbing kits have been shown to increase cervical screening participation in pilot programs in Mexico, Argentina, Australia, and various European countries.[17] A trial HIV self-testing program in Ottawa, Ont, in 2020 demonstrated that mailed self-tests are useful in helping to maintain screening access during disruptions in ongoing care, such as during a pandemic.[18] Many provinces like Ontario and British Columbia already have the infrastructure to mail cancer screening materials to eligible patients; as an illustration, one need look no further than the fecal immunochemical tests mailed to millions across the country.[19,20]

The option of self-swabbing would also benefit those already facing barriers to accessing primary care services, such as those from lower-income backgrounds, immigrants in urban settings, Indigenous people who might live far from a provider, and parents unable to arrange transportation or child care to come to clinic.[1] Additionally, 6.7% of people living in Ontario do not have a primary care provider, which is a critical factor in routine cancer screening.[21] Through the collaboration of other health

care professionals, the distribution of HPV self-swab kits at pharmacies and community centres in urban or lower-income districts might help address these barriers. Self-swabbing would also need to be supported by a service within the cancer screening program devoted to following up abnormal screening results for patients who lack a primary health care provider, to arrange the appropriate subsequent care and to help them find a provider.

Self-swabbing examinations might also provide a more affirming and patient-centred screening option. Patients with modesty concerns around receiving a Pap test or with religious or cultural sensitivities might opt to self-swab. Transgender patients are less likely to receive recommended cervical cancer screening, with some transgender patients who were assigned female at birth reporting Pap tests as a distressing experience that they consequently avoid.[22] A study by Reisner et al found that self-collected vaginal swabs were considerably more acceptable for transmasculine patients, which further supports the notion of self-swabbing as a more patient-centred means of cancer screening.[23] In addition to the convenience of administering the test at home, self-swabbing might also serve as a more trauma-informed alternative for those who avoid Pap tests because they trigger traumatic experiences.[24] It might also provide more reassuring screening experiences for people with mobility issues or disabilities who have experienced unpleasant encounters during previous appointments.[25]

Addressing screening gaps can lead to higher participation in screening, earlier detection of cancer, prevention of late-stage cancer, and, most important, reduction of morbidity and mortality through timely intervention. In addition to using it in the secondary prevention of cervical cancer, self-swabbing can also be coupled with testing for sexually transmitted infections if indicated.[26] To facilitate self-collection, HPV testing must be incorporated as a method of primary testing in provincial cervical cancer screening programs, coupled with the appropriate development of infrastructure within provincial health care systems. Currently, only higher-risk patients have access to HPV testing. Guidelines related to HPV testing would need to be updated to provide the option of HPV self-swabbing to the entire screening population.

A key concern in any self-administered test is its accuracy. Both clinicians and patients have indicated concerns about the accuracy of self-administered HPV tests.[27] While HPV testing is more sensitive than Pap test cytology (89.9% vs 72.9%), that sensitivity is predicated on correct administration, which requires patients to follow instructions.[4,17] A meta-analysis by Arbyn et al found concurrence and similar accuracy between physician-obtained and patient-obtained samples for HPV testing.[28] With the provision of clear instructions, concerns about the risk of false negatives from inappropriately obtained samples might be mitigated.

Another concern that has delayed the adoption of HPV testing for cervical screening is the expense. Cost-effectiveness continues to be an important consideration when implementing screening guideline changes. However, the literature indicates that HPV testing can be more cost-effective than our current screening system. A retrospective study in the United States of 99 549 patients compared 3 groups: those receiving Pap cytology screening and then an HPV test if indicated, those receiving both cytology screening and HPV testing, and those receiving primary HPV testing. The study demonstrated that using HPV testing as first-line screening was most cost-effective, in part because it was more specific and led to fewer unnecessary colposcopies.[29] These results have been replicated in other countries; a systematic review of HPV self-sampling programs in various countries reported that 14 out of 16 studies found HPV self-testing to be cost-effective.[30]

While mailing self-swabbing kits might address inequities facing some groups, this approach neglects to address the needs of another demographic—those who are precariously housed or unhoused. For those who are preoccupied with the pressing need to find shelter and security, cervical cancer screening might, understandably, not be their highest priority. Deliberate strategies must be developed to ensure such groups are screened and that those with positive screening results receive appropriate follow-up, even if they lack a primary care provider.

Finally, there is great concern that health care services moving from the clinic into the home will mean the loss of the routine Pap test appointment as an anchoring vehicle for delivering other primary care services.[31] Appointments for Pap tests can serve as an opportunity to address other elements of health, provide vaccinations, and screen for safety concerns. Furthermore, the occasion allows patients to interact with their primary health care provider and reinforce a trusting patient-provider relationship. Moving cervical cancer screening from clinical offices into patients' homes is a genuine threat to other primary health care services embedded within Pap test appointments. It is for that reason that self-swabbing should not replace provider-administered Pap tests but should be offered as an *option* to patients.

The future is personalized

There is a general trend toward self-testing for cervical cancer and other sexual health services. Both Australia and the Netherlands have incorporated self-swabbing HPV tests into their national screening programs.[30] Canada has approved HPV self-testing kits and British Columbia recently launched a pilot project using them.[32]

Incorporating HPV self-swabbing into cervical screening programs can address inequitable barriers and increase screening participation. Incorporating it as an option for patients can improve care and increase earlier detection.

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Competing interests
Dr Amanda Selk is President of the Society for Canadian Colposcopists. This is not a paid position. The authors have no other conflicts to declare.

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This article has been peer reviewed.
Can Fam Physician 2022;68:90-2. DOI: 10.46747/cfp.680290
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