INBRIEF | Summarizing the Evidence

HPV Self-Sampling for Primary Cervical Cancer Screening: A Review of Diagnostic Test Accuracy and Clinical Evidence

Key Messages

- It appears that self-sampled human papilloma virus (HPV) tests can achieve similar diagnostic test accuracy as clinician-sampled HPV tests when certain combinations of HPV tests and sampling devices are used.
- There are individual studies showing high or fair-to-high agreement between self- and clinician-sampled HPV test results.
- Because self-sampling is more convenient for patients, self-sampled HPV tests may increase participation rates in routine screening programs and better reach underserved or unscreened individuals.

Context

The introduction of cervical cancer screening has likely contributed to the recent decrease in the incidence of cervical cancer. Two of the screening methods commonly used in Canada are cytology and human papillomavirus (HPV) tests. Cytology screening requires clinicians to obtain samples from the cervix for further examination. HPV tests directly detect high-risk HPV strains and require samples from the cervix, which can be collected by a clinician or by the screening participant.

Technology

Self-sampled HPV tests require individuals to use brushes, swabs, or other devices to collect a sample from the cervix. The sample is then sent to a lab for processing to determine if HPV infection is present. Because the ease of conducting a test at home is likely an attractive feature for participants, self-sampled HPV tests have been used to reach individuals who are under-screened or have never been screened for cervical cancer.

Issue

There is a growing emphasis on the use of HPV tests as the primary screening test in routine screening programs for cervical cancer. HPV tests are more sensitive to cancerous and precancerous changes and can be administered less frequently than cytology. While the use of self-collected samples for HPV tests may be easier for patients, it raises the question of whether the gain in convenience is at the cost of diagnostic test accuracy when compared with clinician-sampled tests. A review of the diagnostic test accuracy of self-sampled HPV tests compared with clinician-sampled HPV tests for asymptomatic cervical cancer screening will help guide decision-making.

Methods

This report makes use of a literature search developed for a previous CADTH review in April 2018. Since that review, there have been primary studies published comparing self- and clinician-sampled HPV tests and a systematic review has been updated. This report updates the previous CADTH review on the difference in the diagnostic test accuracy of self-sampled HPV tests and the agreement between self- and clinician-sampled HPV tests. For the current report, a limited literature search was conducted and two systematic reviews, two randomized controlled trials, and ten non-randomized studies met the inclusion criteria.

Results

There is evidence to suggest that self-sampled HPV tests are as accurate as clinician-sampled HPV tests — depending on the combinations of HPV tests and sampling devices used — for detecting changes in cervical cells graded as cervical intraepithelial neoplasia 2 (CIN2) (indicating moderate changes) or higher.

CADTH

As in the previous CADTH review, this update found that self-sampled signal amplification–based HPV tests (such as Hybrid Capture [HC2], one of the most widely used HPV tests) are not as accurate as clinician-collected tests for detecting CIN2 or higher. Self-sampled polymerase chain reaction (PCR) HPV tests for the detection of CIN2 or higher were shown to not have statistically different sensitivity or specificity compared with clinician-sampled tests.

Moderate-to-excellent agreement between self- and clinician-sampled HPV tests results was reported in primary studies. Various HPV tests were assessed in different health care settings; however, it was unclear whether the differences in the agreement were associated with the types of HPV tests used.

Conclusions

Based on the available evidence, self-sampled HPV tests could provide similar accuracy to clinician-sampled tests, particularly for PCR-based HPV tests, as moderate-to-excellent agreement between self- and clinician-sampled HPV test results was observed in primary studies conducted in various health care settings.

The limitations of this review include considerable heterogeneity between studies, limited high-quality evidence on the agreement between self- and clinician-sampled HPV test results, and the applicability of the existing evidence to populations that have been vaccinated against HPV.

Further research on the diagnostic test accuracy and agreement between self- and clinician-sampled HPV tests in target populations could reduce the uncertainty in how self-sampled HPV tests should be adopted.

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