

Title:	Human papillomavirus triage test for women with possible or definite low-grade squamous intraepithelial lesions
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Aim: To assess the safety, effectiveness and cost-effectiveness of the Hybrid Capture II (HC-II) human papillomavirus (HPV) triage test for asymptomatic women with a routine screening cervical cytology test finding of possible or definite low-grade squamous intra-epithelial lesions (LSIL) when testing is conducted either at the time of the index cytology result; or with repeat cytology 12 months after the index cytology test, compared with the standard strategy of repeating cervical cytology annually for 2 years. In addition, assessment of the HPV triage test was undertaken for subgroups of women: with an index cytology finding of definite LSIL (dLSIL) only; possible LSIL (pLSIL) only; aged ≥ 23 years; and aged ≥ 30 years.

Methods

A systematic review was undertaken of the medical literature published since the last MSAC report in 2002 - up to 6 February 2008 - to report on the evidence addressing the research questions. This evidence was used to identify 18 potential HPV triage strategies for further assessment. A comprehensive model of cervical screening, diagnosis and treatment was developed to estimate and compare the incremental effectiveness and cost-effectiveness of adopting each of these strategies in Australia.

Results and conclusions

Safety: The HC-II HPV test is a technically safe procedure.

Effectiveness: No published clinical studies comparing the impact of the HPV triage test on invasive cervical cancer incidence or mortality rates compared with the current standard strategy of repeat cytology testing of women with an index cytology finding of pLSIL or dLSIL were identified.

Comparative accuracy studies provide strong evidence that an immediate HC-II HPV triage test is a more sensitive test than a single repeat cytology test for detecting cervical intraepithelial neoplasia (CIN) 2+ lesions in women with pLSIL, and has similar specificity. There is also strong evidence that an immediate HC-II HPV triage test is no more sensitive than a single repeat cytology test for detecting CIN 2+ lesions in women with dLSIL, and has lower specificity, but colposcopy referral rates may be favourable compared with a strategy of two annual repeat cytology tests in this patient group. Restricting the HPV triage test to older age groups is associated with a higher specificity and lower colposcopy referral rate and a corresponding smaller gain in sensitivity compared with its use in all age groups.

No published clinical studies comparing the accuracy of performing the HC-II HPV test with repeat cytology at the 12-month follow-up visit with the current strategy were identified.

Economic considerations: The modelled analysis predicts that, compared with current practice, a strategy of performing the HPV triage test for women aged 30+ years produces an incremental cost-effectiveness ratio (ICER) of \$75 739 per life year saved (LYS) if conventional cytology is used with co-collection for HPV testing; or \$83 496 per LYS using manual liquid based cytology (LBC) (at an incremental price of \$2.40 compared with conventional cytology) with reflex HPV testing; or \$170 209 per LYS using automated LBC with reflex HPV testing. When compared with current practice using conventional cytology, the most cost-effective options are strategies involving immediate triage either with conventional cytology and co-collection or with reflex manual LBC testing (at an incremental price of \$2.40 compared with conventional cytology). The evaluation found that performing immediate HPV triage is substantially more cost-effective than delaying triage testing until a 12-month follow-up visit, for all types of cytology (conventional with co-collection, manual LBC and AutoLBC). The ICER estimates were most sensitive to assumptions concerning the cost of the HPV test and cytology tests including the cost of co-collection, the HPV test characteristics, the discount rate, the recommended screening interval, and the likelihood that CIN 3 lesions will progress to cancer.

The results presented are based on the current screening program in Australia without taking into account potential changes resulting from HPV vaccination.