

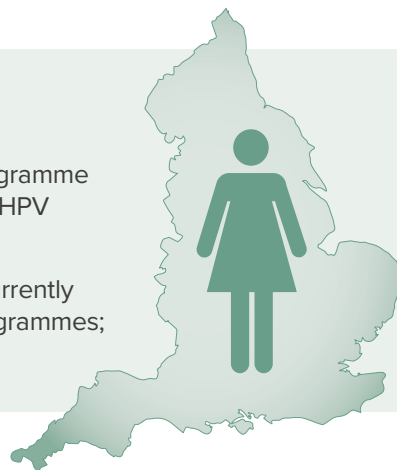
An economic evaluation of the use of the mRNA-based Aptima® HPV assay compared to a DNA HPV assay in the English Cervical Screening Programme.¹

Results from the model show that using the Aptima® HPV assay in a HPV screening algorithm in England is likely to result in a reduction in overall screening costs, unnecessary referral to colposcopy and unnecessary early recall.

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Introduction

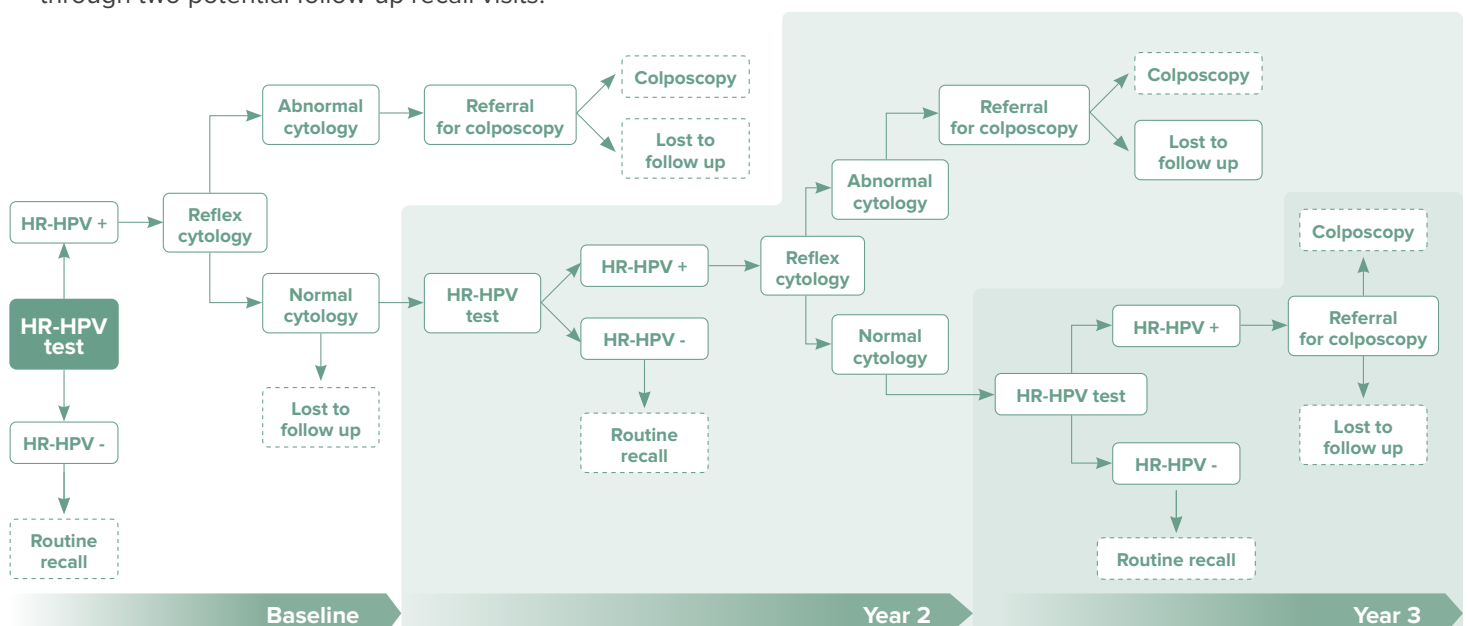
- ▶ The English Cervical Screening Programme (CSP) began the implementation of HPV primary screening in March 2019.
- ▶ Two types of HR-HPV assays are currently used in primary HPV screening programmes; DNA and mRNA tests.



- ▶ This model estimates the impact of the Aptima HPV assay versus a DNA-based assay in the primary HPV CSP.

Model Design

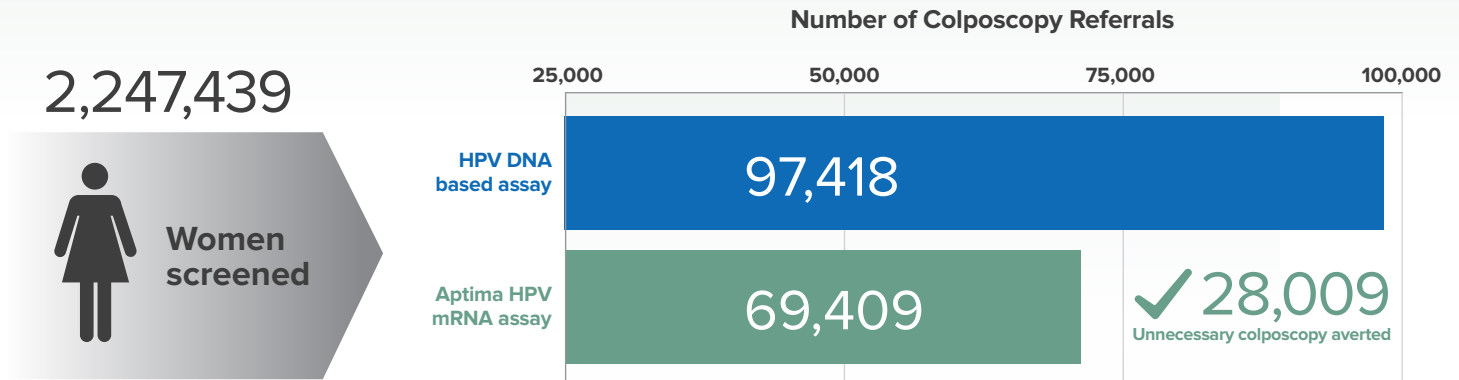
- ▶ A cost consequence analysis model that simulates the English HPV primary screening algorithm.
- ▶ Cohort of 2.25 million women aged between 25 – 64 to represent the number of women tested in the NHS CSP in 2017-18.
- ▶ The model followed a cohort of women through screening over three years from baseline screen through two potential follow-up recall visits.
- ▶ All women were assumed to have either all mRNA or all DNA tests over the three-year model.
- ▶ mRNA assays are assumed to be the Aptima HPV assay, and in the base case the DNA assay is the Roche cobas 4800 HPV assay however, the model was run with several other DNA assays.



Structure of the decision tree model used to simulate primary HR-HPV cervical screening in England.¹

Results

- ▶ At baseline for a population of 2.25 million women, an estimated 28,009 (95% CI 27,499 - 28,527) unnecessary colposcopies would be averted if the Aptima® HPV assay is used instead of a DNA-based assay.¹



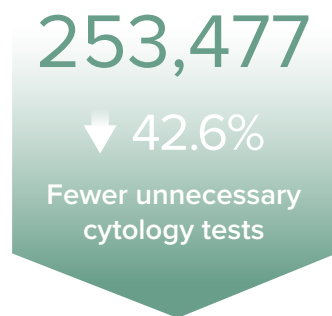
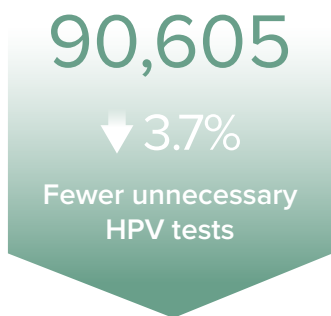
28.8% Reduction in colposcopy referral rate

- ▶ Screening with the Aptima HPV assay would reduce colposcopy referral rate by 28.8% compared with the Roche cobas 4800 assay.¹

- ▶ At baseline for a population of 2.25 million women, an estimated £15.4 million (95% CI £6.5 - £24.1 million) could be saved.¹



- ▶ The improved specificity of the mRNA-based Aptima HPV assay would result in fewer HPV and cytology tests.¹



- ▶ These reductions in resource use should not be associated with any subsequent reduction in identifying true positive women, as the sensitivity of the assays has consistently been shown to be similar.¹
- ▶ There are no instances in which a strategy using DNA HR-HPV testing results in fewer colposcopies, HR-HPV tests or LBC tests.¹
- ▶ By choosing the most specific test, the NHS can reduce the unnecessary stress and anxiety in women associated with unnecessary tests for false positives, with no trade-off in detecting disease given that mRNA assays are as sensitive as DNA assays.¹

Conclusions

Overall, results from the model suggest that in a HPV primary setting the Aptima HPV assay is less expensive than DNA-HR-HPV testing. The significantly improved specificity of the Aptima HPV assay reduces both the cost and patient anxiety associated with unnecessary colposcopies, cytology testing and early patient recall.

References: 1. Weston G, et al. Use of the Aptima mRNA high-risk human papillomavirus (HR-HPV) assay compared to a DNA HR-HPV assay in the English cervical screening programme: a decision tree model based economic evaluation. *BMJ Open*. 2020 Mar 8;10(3)