

# Health economic evaluation of an mRNA high-risk human papillomavirus (HR-HPV) assay versus a DNA HR-HPV assay for the proposed French cervical screening programme

Using the Aptima® HPV assay in cervical cancer screening in France could result in over €6.5 million in total cost savings

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## Introduction

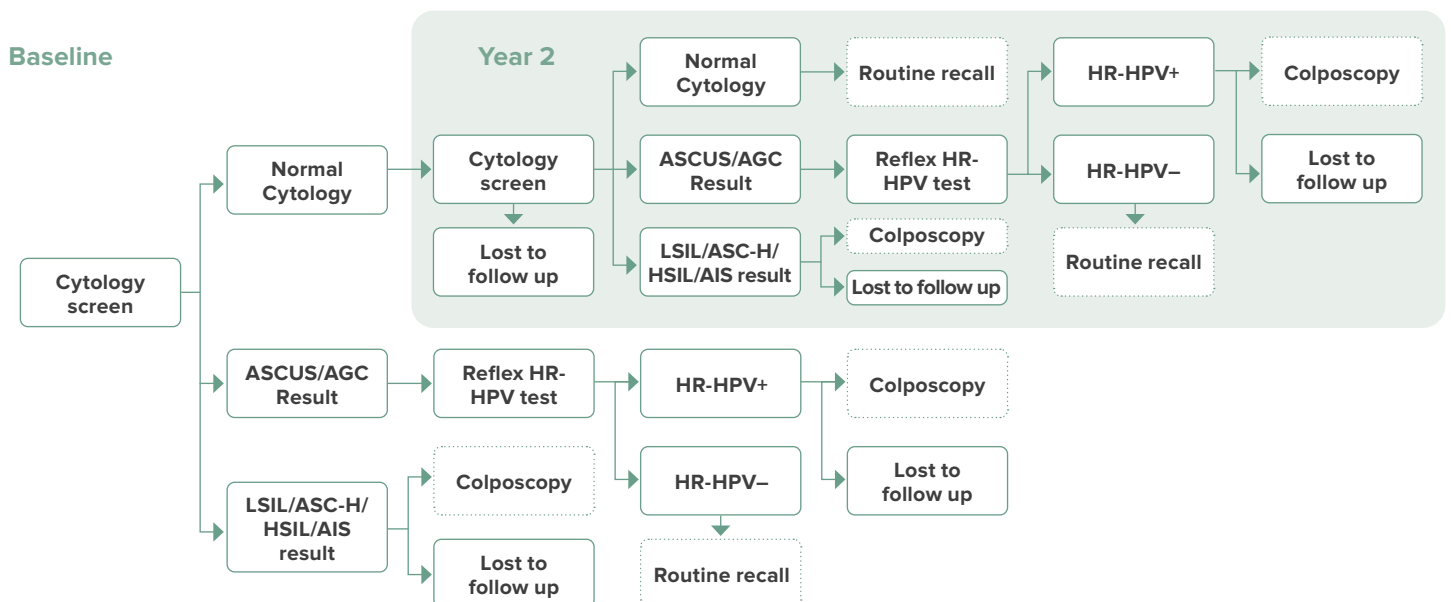
- ▶ Cervical cancer is the fourth most common cancer in women aged 15 to 44 years in France. High-risk HPV (HR-HPV) has been linked to development of precancerous lesions (CIN) and may develop into cervical cancer.<sup>1</sup>
- ▶ Higher specificity of mRNA assay compared to DNA assays may lead to reduction in false positive results. Using mRNA assay in cervical screening programme can reduce unnecessary follow-up tests in France.<sup>1</sup>
- ▶ The study aims to evaluate the impact of using the Aptima HPV assay compared to DNA-based assays for a hypothetical cohort of 2,168,806 million women aged 25 to 65 years over 2 years in France.



## Study Design

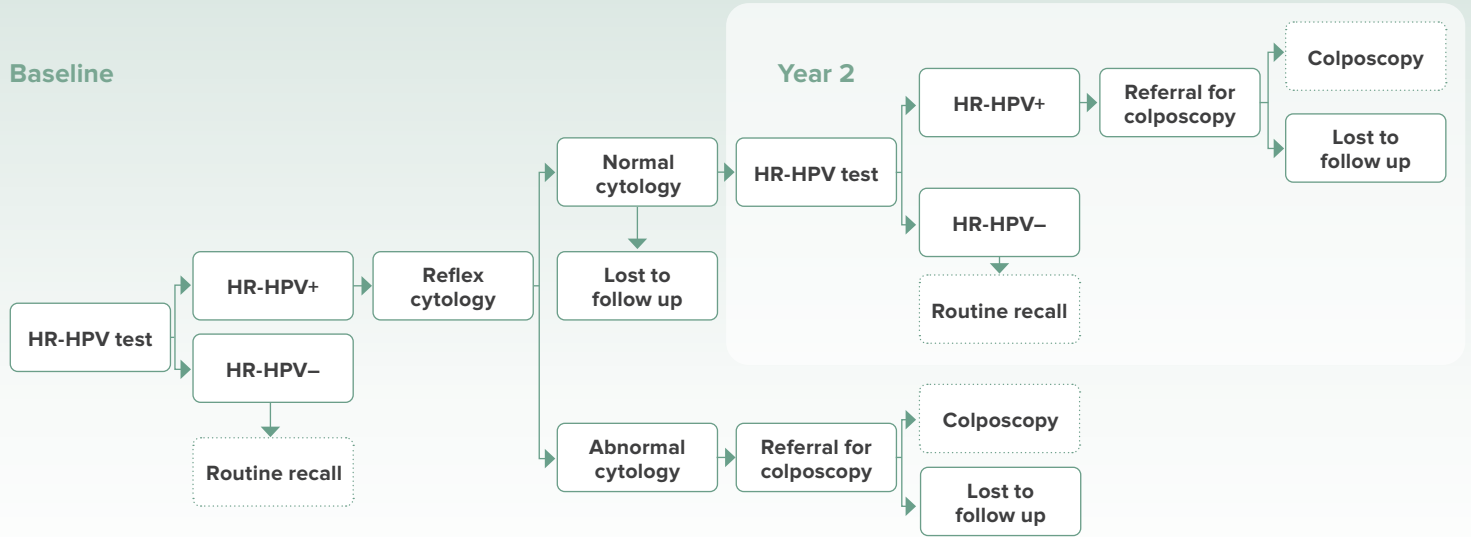
- ▶ The study used French cost and population data and the Danish Horizon study to have hypothetical cohort of women in France.<sup>1</sup>
- ▶ The study was comparing total costs, number of colposcopies, HPV tests and cytology tests when using Aptima HPV assay (AHPV) versus Cobas 4800 HPV assay (CB).
- ▶ Analysis was performed using cervical screening algorithm used in France.
- ▶ Sensitivity analyses were carried out to determine the effect that changes in individual parameters had on the outcomes.

### Cervical screening algorithm for women aged 25–29: Cytology as a primary screening method<sup>1</sup>



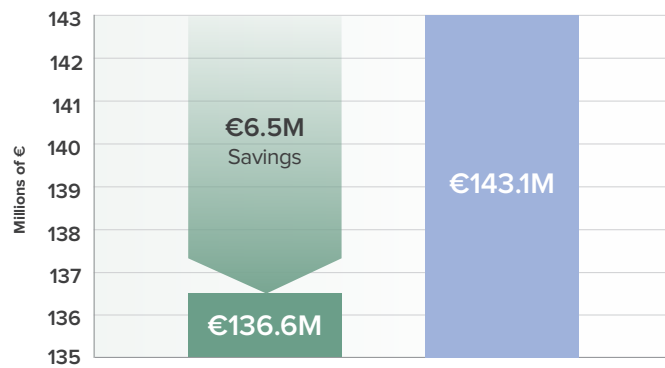
# Cervical screening algorithm in France for women aged 30–65: HPV testing as a primary screening method<sup>1</sup>

## Baseline

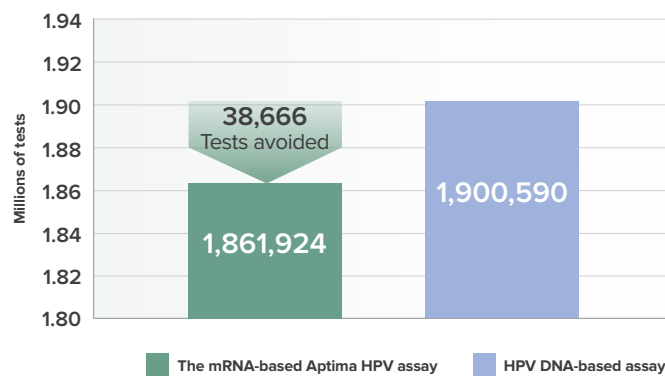


## Results

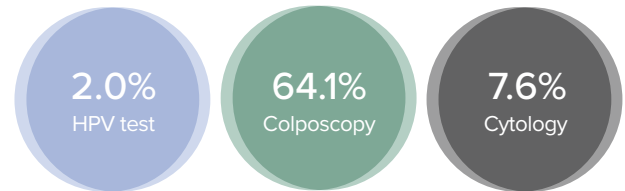
### Costs saved annually with the Aptima® HPV assay (▼ 4.6%)<sup>1</sup>



### Tests avoided annually with the Aptima HPV assay (▼ 2.0%)<sup>1</sup>



► The total cost of using mRNA testing was €137 million compared to €143 million for DNA testing.<sup>1</sup> Below, the cost % increase with DNA versus mRNA testing.



► At baseline the cost of HPV tests was the largest component of the total costs of the screening programme. Unnecessary tests and procedures could be eliminated by using an mRNA versus DNA assay.<sup>1</sup>



► HPV test sensitivity between mRNA and DNA tests is similar: true positives will not be missed and the reduction in total costs is made by eliminating unnecessary reflex tests due to higher specificity of mRNA assay.<sup>1</sup>

► Uncertainty analyses indicate robust results across a range of inputs.<sup>1</sup>

## Conclusion

► Choice of HR-HPV test can make a significant difference to resource use and costs. Using Aptima HPV assay mRNA versus DNA HPV assay could yield an estimated annual cost savings of €6.5 million and significantly fewer colposcopies, HPV and cytology tests in cervical screening programmes in France.

**Reference: 1.** Dombrowski CA, Weston GM, Descamps PP, Izopet PJ, Adams EJ, Adams E. Health economic evaluation of an mRNA high-risk human papillomavirus (HR-HPV) assay versus a DNA HR-HPV assay for the proposed French cervical screening programme. *Medicine*. 2022;101:29(e29530).