Cost-effectiveness of primary human papillomavirus (HPV) triage approaches among vaccinated women in Norway: a model-based analysis

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Background

- 2023: Norwegian screening program no longer recommends primary cytology-based screening, but **uniformly recommends 5-yearly human papillomavirus (HPV) testing for women aged 25–69 years**
- Screening guidelines might need to be stratified to remain cost-effective for HPV-vaccinated women,* Norway is considering **revising primary HPV triage approaches**
  - ➢ e.g., age-specific extended HPV genotyping algorithms

*Pedersen, et al. *European Journal of Cancer* 2018.

Objective

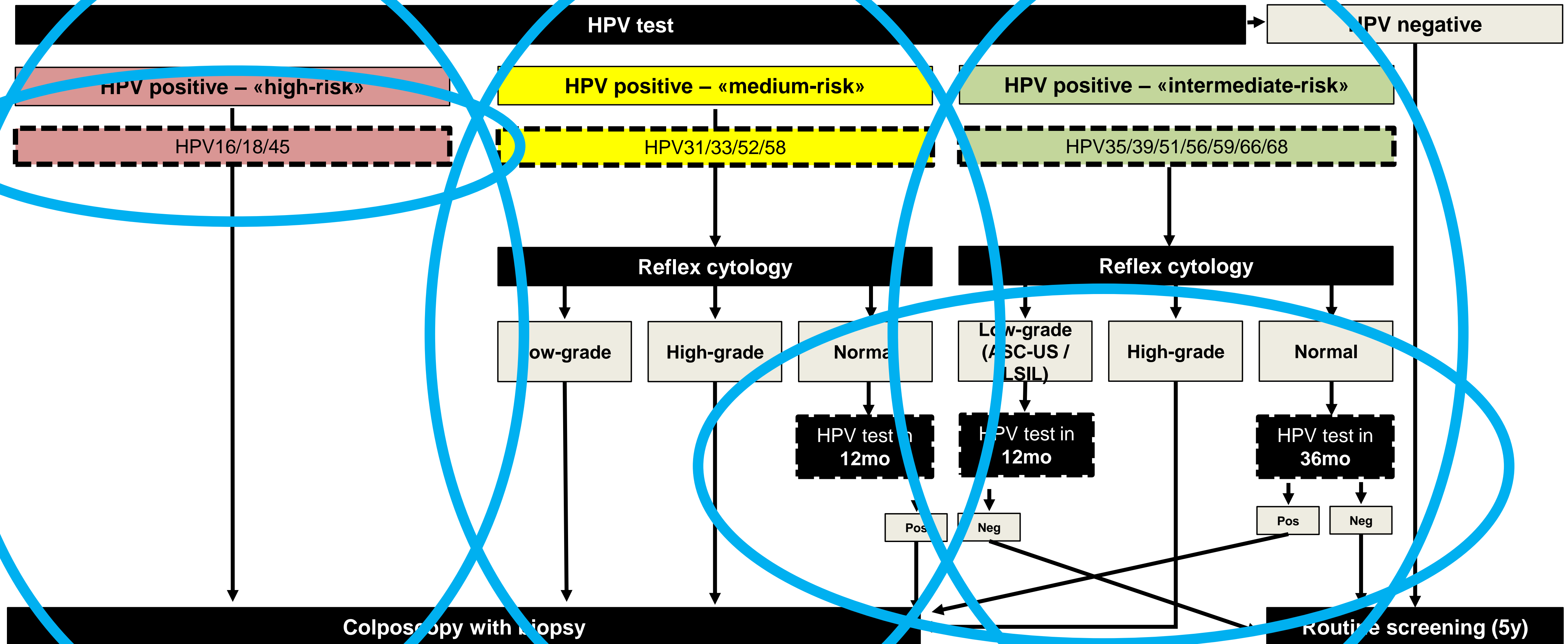
To evaluate the health impact and cost-effectiveness of **alternative primary HPV triage approaches** for HPV-vaccinated women initiating screening in 2023

Analytic overview

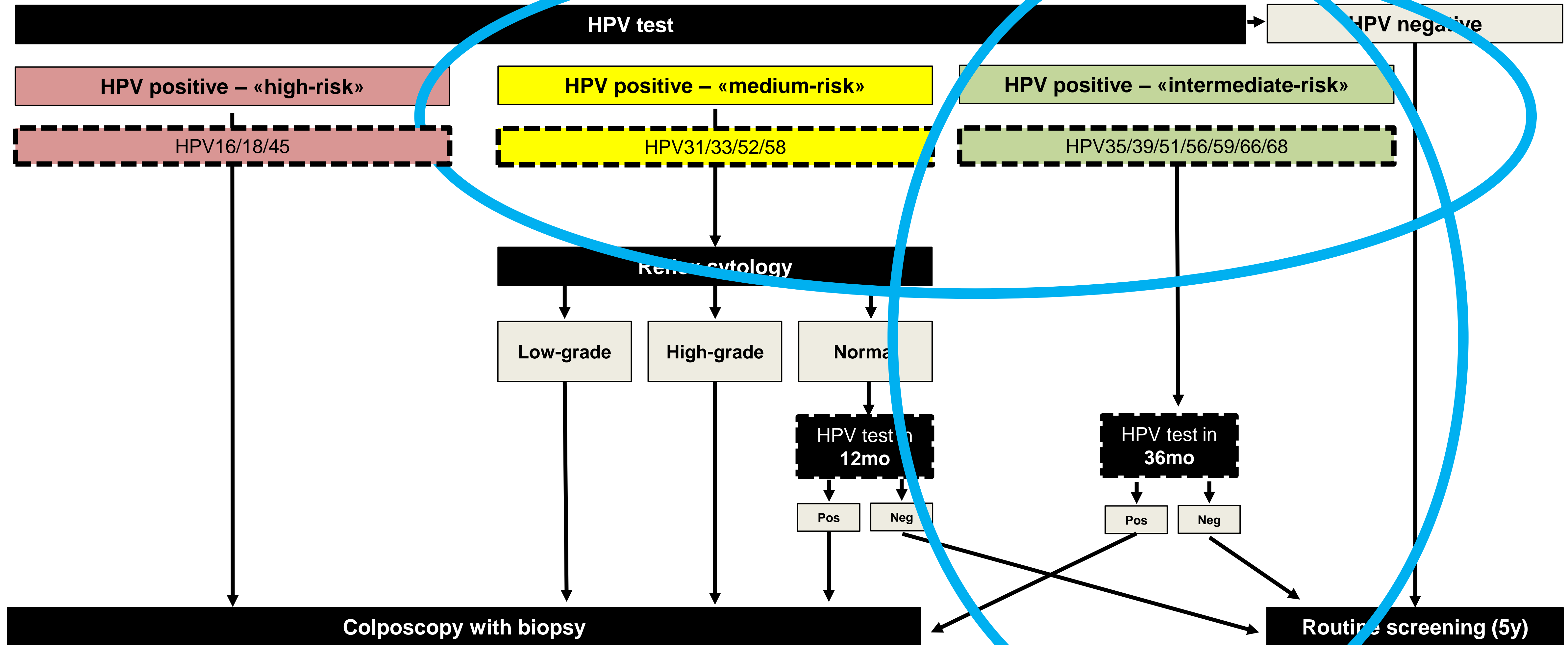
- We used a multi-modeling approach that captured HPV transmission and cervical carcinogenesis adapted* to reflect sexual behavior and the pre-2009 (i.e., the initial year of routine vaccination introduction) epidemiological burden of HPV and cervical cancer in Norway
- We evaluated 35 alternative triage scenarios for 5-yearly primary HPV testing of women born in 1998 (i.e., age 25 in 2023) that varied:
  - HPV+ referral: **direct colposcopy; active surveillance**
  - HPV genotypes considered: **high-risk**; **medium-risk**; **intermediate-risk**
  - Wait time for re-testing: **high-risk**; **medium-risk**; **intermediate-risk**
  - **Age to switch** from less to more intensive HPV triage strategies

*Portnoy, et al. *Preventive Medicine* 2021.

Most intensive triage algorithm

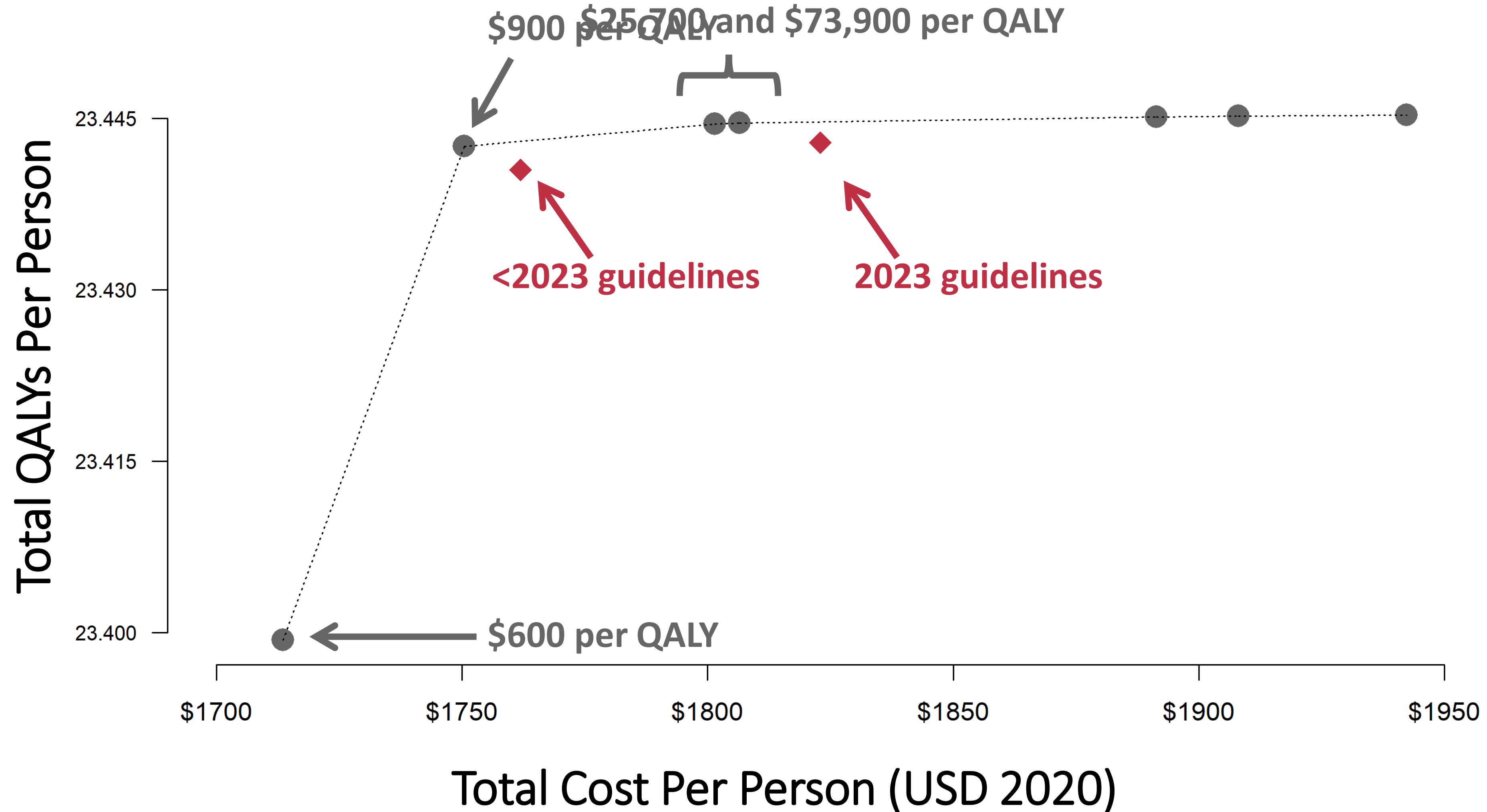


Less intensive algorithm

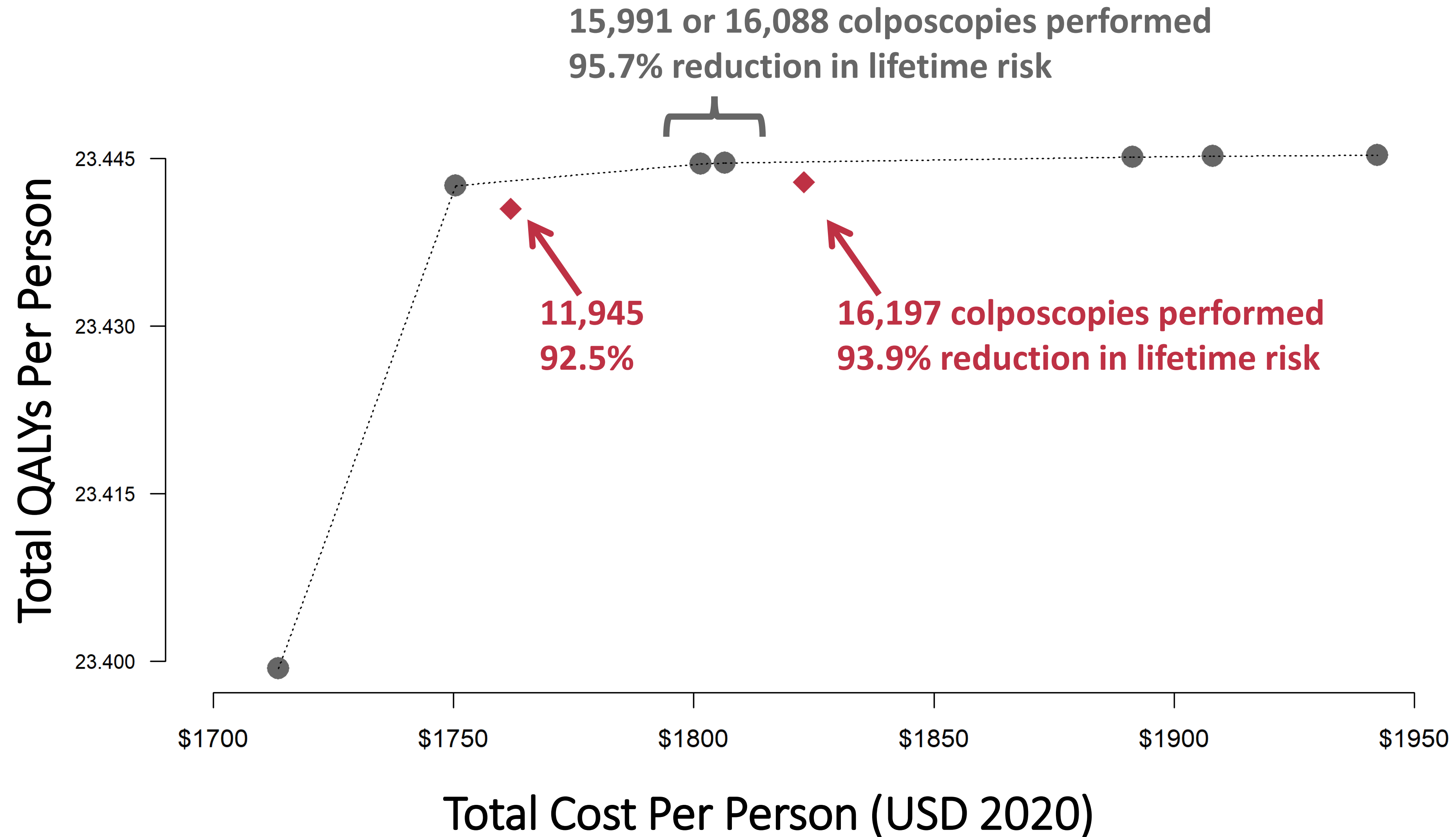


Results

Cost-effectiveness results



Cost-effectiveness results



Limitations

- Regional and other differences in underlying risks of HPV infection and cervical disease in Norway were not considered
- Analyzed a single cohort of 25-year-old women eligible for cervical cancer screening in 2023

Conclusions

- As vaccinated cohorts enter screening age in Norway, we have the opportunity to make primary HPV **triage programs more efficient**
- **Using age to guide triage** seems to be an efficient approach
  - e.g., ensures balancing resources use among the cohorts of vaccinated women who face a low risk of cervical cancer compared with unvaccinated women
- Transitioning away from primary cytology-based screening and examining the **choice of genotypes and follow-up time for re-testing** to include for each level of triage could improve both program effectiveness and efficiency

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