

# Model-based assessment of the costs and benefits of directly mailing self-sampling HPV kits to non-participants in cervical screening in the Czech Republic

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## Objectives

- **Czech cervical cancer screening programme**
  - Quality assurance guidelines were implemented in 2008.
  - Programme with personalised invitations was set up in 2014.
  - Annual Pap smear is offered to all adult women.
  - Women aged 35, 45 and 55 (from 2024) years: HPV co-test.
- **Pilot study of directly mailing self-sampling HPV kits**
  - Study was conducted to **increase participation through directly mailed self-sampling HPV kits (HPVssk) among older women not participating in screening.**
  - This study aimed to perform an **economic model-based evaluation of the costs and benefits** of this screening intervention.

## Methods

### Study participants

- Women aged 50–65 years who did not participate in cervical screening in the last three years or more.
- No previous treatment associated with cervical lesions or cancer.
- Meet other criteria for personalised invitation.
- The study recruited 4,813 eligible women through a health insurance company (RBP, health insurance company; the scheme is described below).

### Data sources for statistical analysis

- Patient-level data from National registries of the Czech National Health Information System (Czech National Cancer Registry, National Registry of Reimbursed Health Services) and pilot study were used for data analysis.

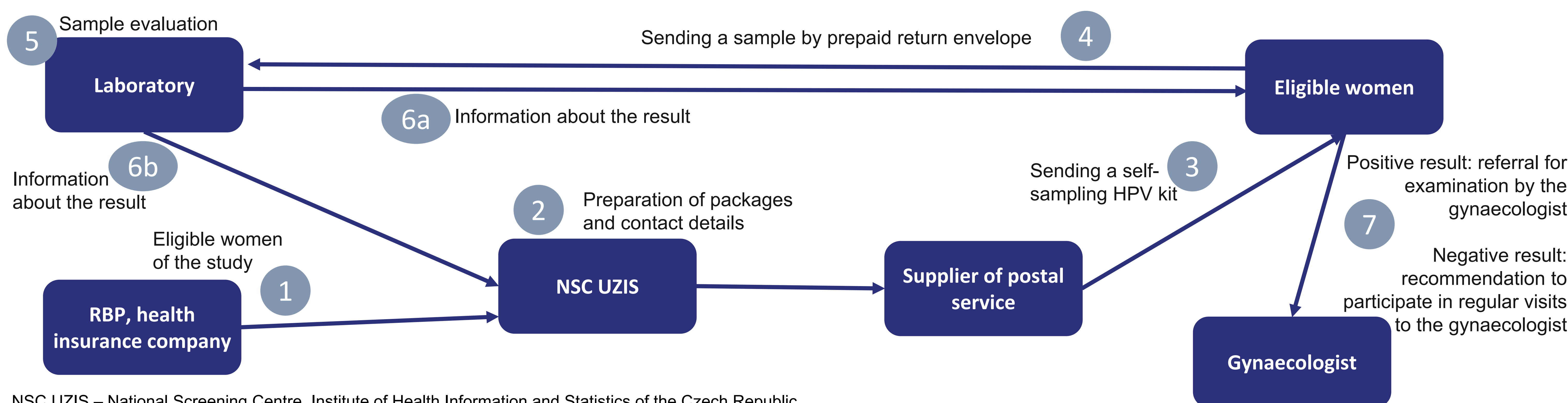
### Estimating the lifetime costs of cervical cancer treatment

- Average annual costs of treatment (according phases of the disease – initial, continuous, terminal) were estimated by comparing the cost of all health care for cases and controls (women with/without cervical cancer).
- Using the overall survival of cervical cancer patients, the lifetime cost of cancer treatment was estimated (with an annual discount factor of 1.03).

### Costs and estimated benefits of the intervention

- The total cost for mailing and evaluating the kits was calculated from the pilot study data.
- Based on the literature, HPV genotype and screening history of women, the natural history of the disease was simulated.
- Avoided (treatment costs saved) cervical cancers due to the study intervention were estimated and discussed in relation to total costs.

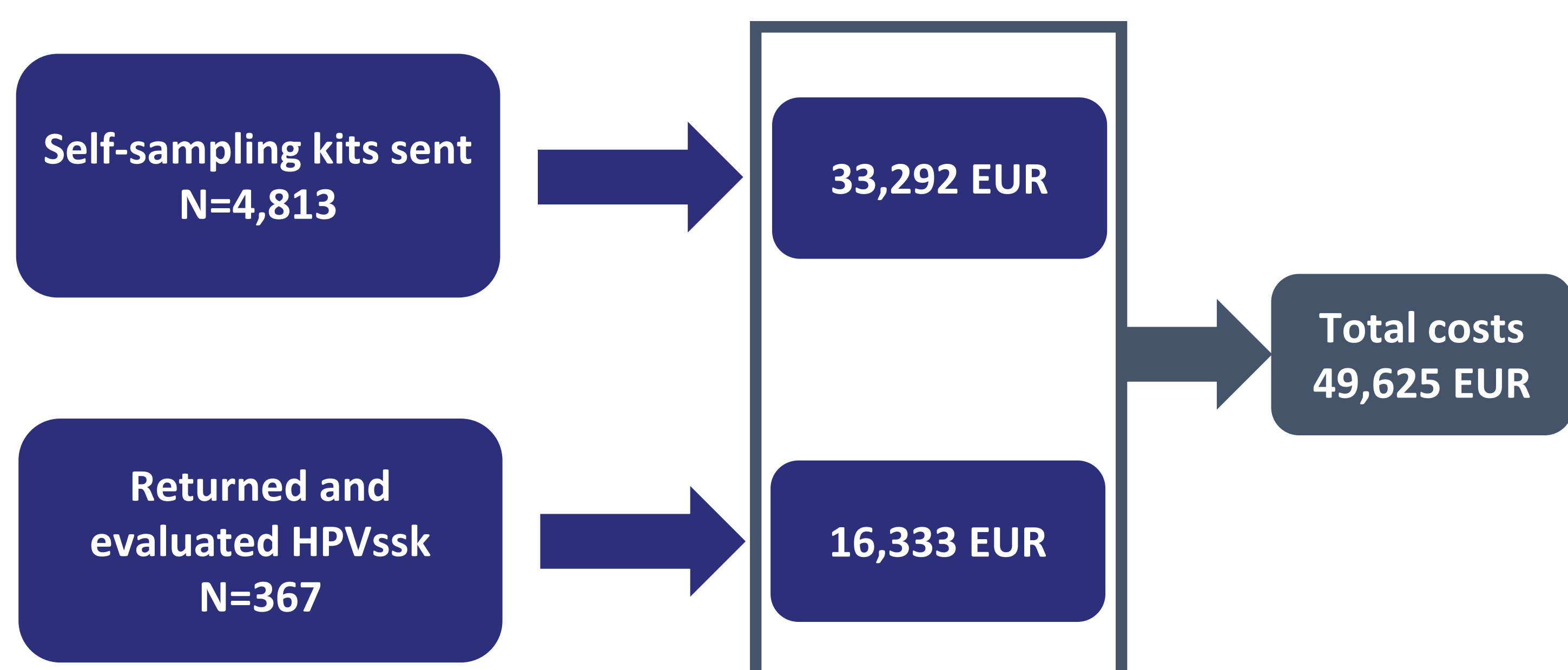
## Scheme of the direct mailing of self-sampling HPV kits



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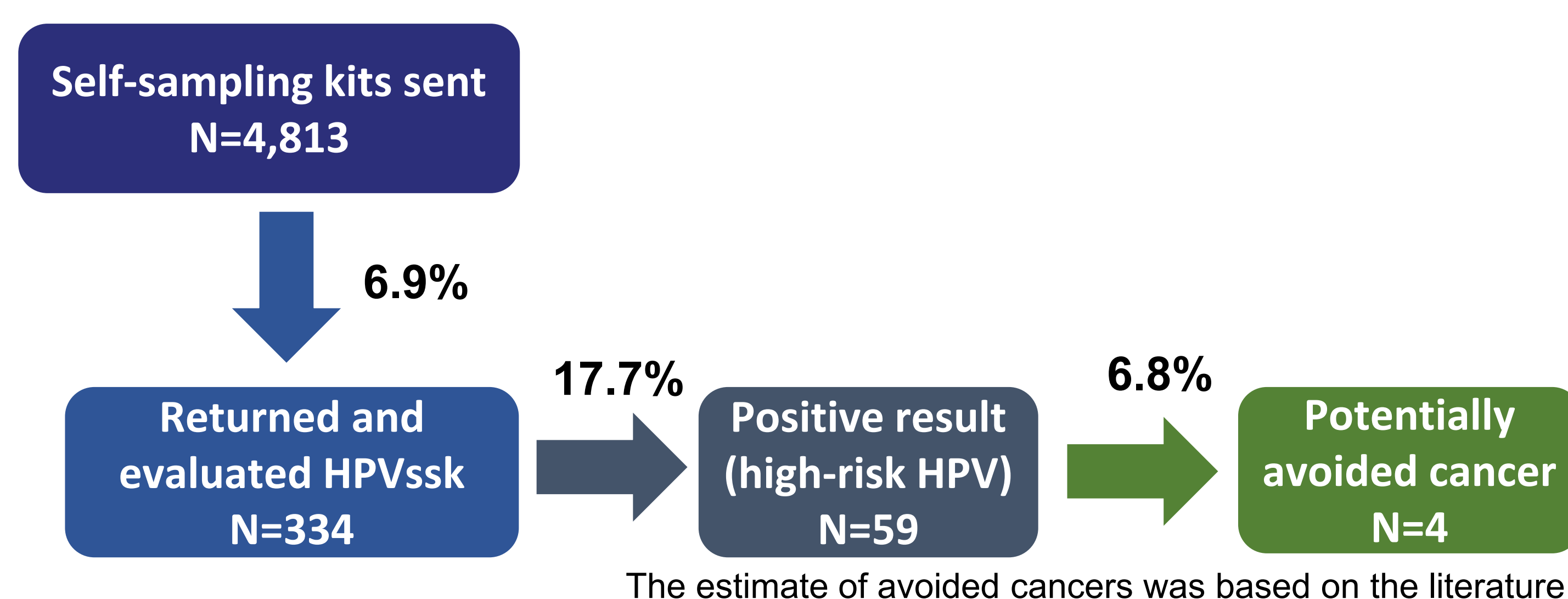
## Estimated costs of intervention and treatment of cancer

- The total cost for mailing and evaluating the kits from the pilot study data:



- The total model-estimated lifetime cost of cervical cancer treatment was 28,917 EUR.

## Estimation of benefits and evaluation in relation to costs



- The total costs of the direct mailing HPVssk within the pilot study was 49,625 EUR. Thus, from the model evaluation, 12,208 EUR was spent per one prevented cervical cancer.
- Through direct mailing HPVssk, cervical cancers and precancers were prevented, and the total estimated savings per treatment for women participating in the pilot study was approximately 115 thousands EUR. After deducting the total cost of the direct mailing HPVssk, this strategy still appears to be cost-saving.

## Conclusion

- The direct mailing of self-sampling HPV kits appears to be a potentially cost-saving method.
- Self-sampling HPV kit is, therefore, a potentially feasible method of reaching women who do not attend a cervical screening programme.

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