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THE CLINICAL BENEFITS AND COSTS OF POTENTIAL CERVICAL CANCER SCREENING STRATEGIES IN THE CZECH REPUBLIC

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Background

- Cervical cancer is a preventable disease due to its long natural history.
- Annual **coverage** by examination (screening cytology) in the Czech Republic is around **56.5%**. However, coverage decreases in higher age groups.
- In 2021, the standard examination was extended to include an additional **HPV test for women aged 35 and 45 years**, in the Czech Republic.
- The objective of our study was to **describe benefits and costs of other potential screening strategies** in Czech conditions.

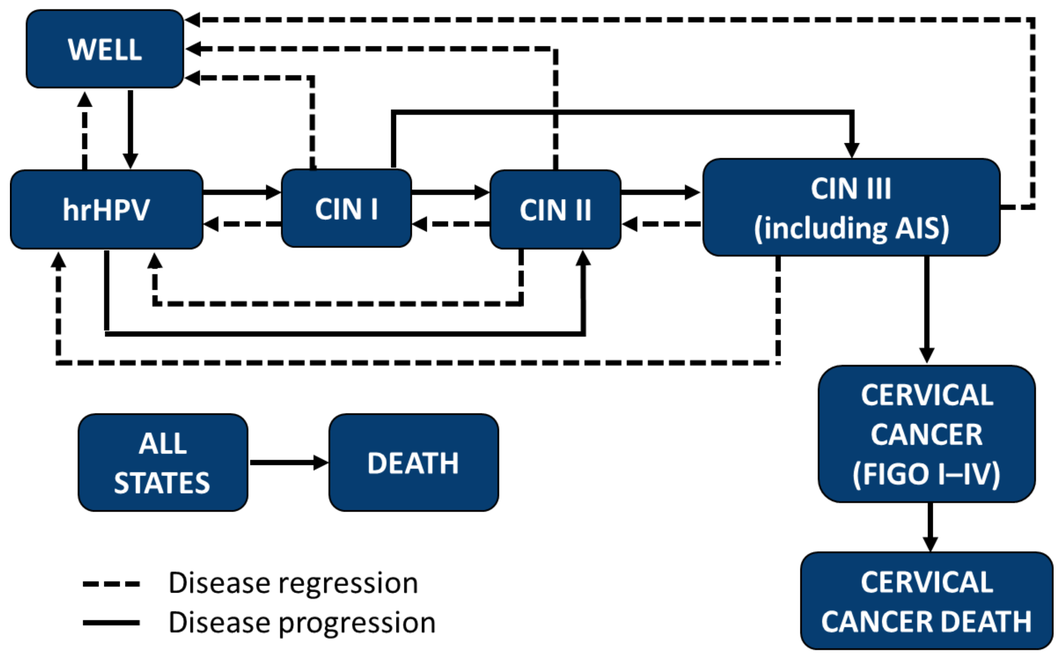
Evaluated screening strategies

Strategy 0 (reference)	annual Pap screening from 15 years of age
Strategy 1	annual Pap screening from 15 years and HPV test in 35 and 45 years in case of negative Pap
Strategy 2	annual Pap screening from 15 years and HPV test in 35, 45 and 55 years in case of negative Pap
Strategy 3	annual Pap screening up to the age of 30 years, then HPV test every 5 years

Data and Methods

- We developed a **microsimulation model** of natural history of cervical cancer. Subsequently, a screening process was included.
- The study was based on national data from the **National Registry of Reimbursed Health Services**. Transition probabilities between health states were derived from published literature and calibrated to the **Czech National Cancer Registry** data.
- We simulated a hypothetical cohort of 100,000 women from 15 years of age.
- The effectiveness was evaluated by the change of incidence and mortality, number of life-year (LY) saved and cost per one LY saved.

Natural history model of cervical cancer

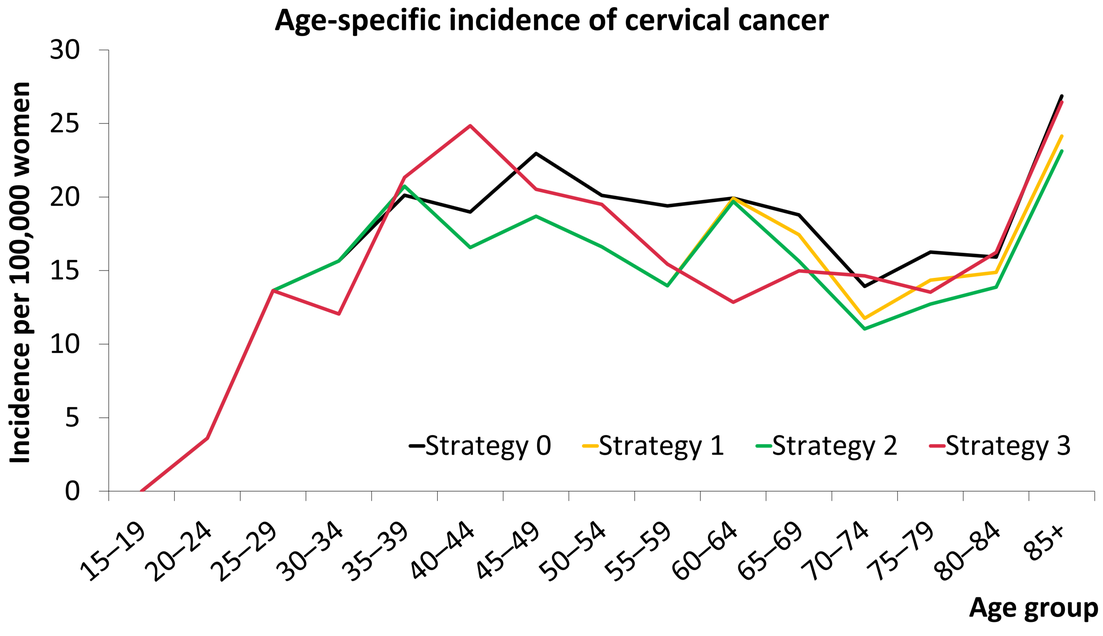


Results

The effectiveness of screening strategies 1–3 is evaluated relative to reference strategy 0.

STRATEGY	INCIDENCE CHANGE	MORTALITY CHANGE	NUMBER OF LY[1] SAVED	COST PER 1 LY[1] SAVED
Strategy 1	-9.8%	-8.4%	1,410	1,630 EUR
Strategy 2	-11.8%	-9.6%	1,498	2,500 EUR
Strategy 3	-6.8%	-6.1%	1,493	5,670 EUR

[1]LY: life-year



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Conclusion

- Based on our results, the annual Pap screening with **age-specific HPV co-testing achieved higher health benefits** than annual Pap screening.
- Annual Pap screening up to the age of 30 years, then HPV test every 5 years (strategy 3) also achieved higher health benefits than annual Pap screening, but this strategy is **less effective than age-specific co-testing** in strategy 2 (in terms of health benefits and costs).
- Overall, our results suggest that the co-testing screening strategies (strategies 1 and 2) can lead to the best compromise between health benefits and costs.
- The findings of this study can help in decision-making process of extending screening programme in the Czech Republic. **Additional HPV co-testing in 55 years could lead to reduction of incidence and mortality in higher age groups.**

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