

Real World Data for Planning a New Organised Cancer Screening Programme in the Czech Republic: Example of Prostate Cancer Screening

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Introduction and real-world data in the Czech Republic

- Adequate **data support** is an essential part of the preparation and organisation of the new screening programmes. A wide portfolio of **real-world data** is available for monitoring and planning screening programmes in the Czech Republic.
- The following data were used in the development of the organised **prostate cancer screening programme**:

National Registry of Reimbursed Health Services (NRRHS)

- Data from health insurance companies
- Available since 2010

Czech National Cancer Registry (CNCR)

- All patients with a cancer diagnosis
- Available since 1976

Data from specific pilot project (SPP)

- People without prostate cancer (two arms based on cancer history)
- Organised in 2018–2022 in 1,500 men

Methodology of model development

Model for the first year of the screening programme

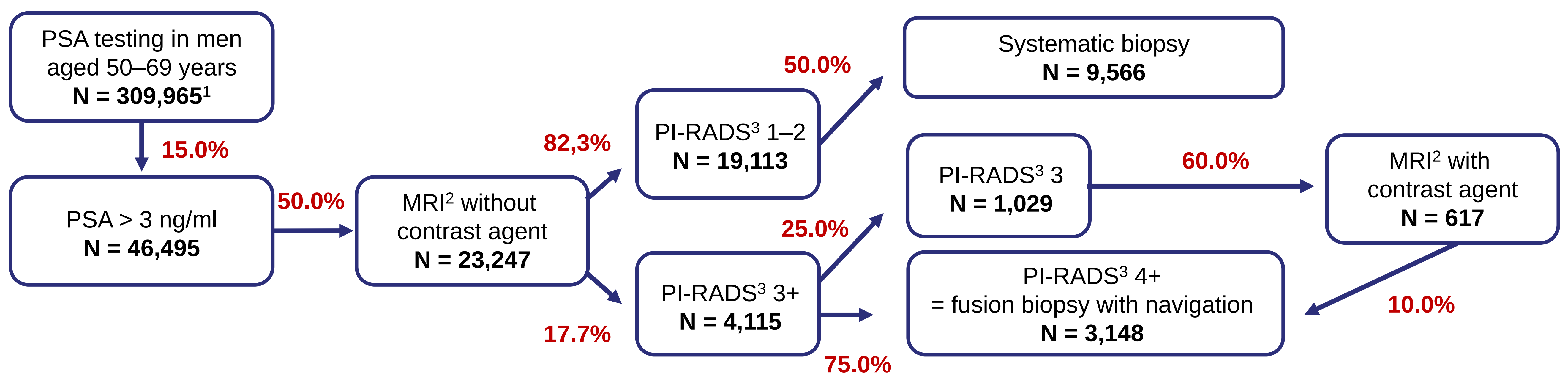
- A model of **patient flow** through the screening process was developed.
- The proportion of men with **elevated prostate-specific antigen (PSA)** was estimated from the SPP data.
- The proportion of men in the follow-up phases of screening process was estimated from NRRHS data, CNCR data and the literature.
- The costs of each phase were estimated based on the **costs of health procedures reported to the health insurance companies**.

Situation analysis of ongoing non-programme screening

- A situation analysis of **non-programme PSA testing and follow-up care**, currently taking place in the Czech Republic, was created based on NRRHS and CNCR data.
- The costs were estimated in the same way as for the first model above.

These simplified models allow a comparison of costs incurred now and after the start of the organised screening programme.

Patient flow through the screening programme (in the first year of the programme)



¹ It is assumed, given the proposed interval of 2 years, that half of the men already enrolled (who have not had previous prostate cancer) will participate, and 5% of the men not yet enrolled will participate.
² MRI = magnetic resonance imaging
³ PI-RADS = prostate imaging reporting and data system (structured schematic method for evaluation prostate MRI in patients with suspected prostate cancer)

Simplified cost evaluation

Situation analysis of the current system (2021) in the age groups 50-69 and 70+:

Costs (mil EUR)	
Men aged 50-69 years	
PSA	4.445
...	12.869
Men aged 70+ years	
PSA	2.960
...	10.786
Total	31.060

Estimated costs for the first year of the **organised programme** in the 50-69 age group:

Costs (mil EUR)	
Men aged 50-69 years	
GP	3.576
PSA	3.893
Urologist	6.271
MRI	3.834
Pathology	3.519
Total	21.092

Conclusion

- Real-world data are an important part of planning a new screening programme and the Czech Republic has several data sources that can be used to prepare an organised prostate cancer screening programme.
- Based on these data, there is **currently very intensive PSA testing** in the group of older men, contrary to the recommendations. The cost to the health system for PSA testing and related care can be estimated at approximately **17.3 million EUR for men aged 50-69 years and almost 13.7 million EUR for older men**.
- Under the baseline scenario, the modelled cost of the **proposed programme** algorithm is **21.1 million EUR** (annual cost in the **50-69 target age group**). The estimate of variability based on simple sensitivity analyses is 19.4-24.8 million EUR.
- Reinvestment of the non-programme testing costs to organised programme **could improve the effectiveness and efficiency** of the health services.

Prostate cancer screening will be launched in 2024 in the Czech Republic

- Pilot prostate cancer screening programme **will be launched in 2024 in the Czech Republic**.
 - Target population: men aged 50-69 years
- Professional medical associations (six areas of medical expertise) in cooperation with the National Screening Centre, the Ministry of Health of the Czech Republic and health insurance companies have developed a **screening programme methodology**.
- Committee for Preparation of the Prostate Cancer Early Detection Programme** has been established to bring all stakeholders together.
- Monitoring and evaluation framework is currently in the preparation phase.

