

The effectiveness and cost-effectiveness of prostate cancer screening in Estonia

Summary

Background: Estonia is a country with a high incidence of prostate cancer (PC). In 2014, 1083 men were diagnosed with, and 271 men died from, PC. The 5-year relative survival with localized cancer can be up to 100%, but in men with metastatic cancer it is only 30%. A screening program that identifies cancers with a poor prognosis could significantly reduce the PC related morbidity and mortality.

Based on the available evidence, the organized PC screening has not proven cost-effective. Compared to no screening, or opportunistic screening, the cost per QALY gained with an organized screening ranges from 76,000 to 267,000 euros.

The aim of the report was to assess the effectiveness of an organized PC screening on population health, and the cost-effectiveness compared to the standard practice of PC early diagnosis in Estonia. Based on the results, the policy recommendation for early identification of PC was developed.

Methods: To assess the effectiveness and cost-effectiveness of an organized PC screening in Estonia, we compared the organized screening to the standard practice where the PSA test is frequently used among men who visit physicians (opportunistic screening).

Results: In 2013-2015 the PSA test was performed on 39% of men over 40 years of age, and 48% of men over 50. In the presence of opportunistic screening, only less than a half of men were tested, whereas the frequency among those men exceeded that in the guidelines. As a result, no reduction in disease-specific mortality was observed, whereas the screening costs remained high.

In the presence of an organized screening, our analytic model predicted an 8% decrease of the disease-specific mortality over 21 years. However, the reduction of absolute risk of PC deaths would be small (0.05%), and up to 2000 men would need to be screened in order to avert one PC death. Over 21 years of follow-up, the organized screening will result in a total health loss of 0.011 QALY per person screened. The health care cost per one screened man would increase by 194 euros or 36%, and cost per identified cancer decrease by 250 euros (3%).

Conclusions: As we estimate there is no health benefit associated with an organized screening, but screening is estimated to increase costs, we concluded that a standard practice of opportunistic PC screening is likely to be more effective and cheaper than an organized PC screening in Estonia, and the implementation of an organized PC screening is not recommended. To reduce the harm associated with early diagnosis, the wider application of an active surveillance of incident PC cases (regular measurement of PSA along with repeated biopsies if necessary) is recommended.

Citation: Jürisson M, Alloja J, Punab M, Tamm T, Lang K, Eiche I-E, Kiivet R-A. *Organiseeritud sõeluuring eesnäärmevähi varaseks diagnoosimiseks Eestis*. Tartu: Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2017.