

## **NCU – Summative report for 2014**

**Report submission date: 29-Mar-2015**

**Principal investigator: prof. Teuvo Tammela, M.D, Ph.D.**

**Project title: PROSTATE CANCER SCREENING IN FINLAND AND SWEDEN – WHY IS THE EFFICACY SO DIFFERENT?**

**NCU grant received (€): 30 000**

**Project commencement and completion dates: 01-Jan-2014 – 31-Dec-2014**

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### **1. Briefly describe the project in a language understandable to non-scientists (max. 100 words)**

The European Randomized Study of Screening for Prostate Cancer Screening (ERSPC) showed differences in the effectiveness of the screening between Finland and Sweden in favour of the latter one. By combining and comparing results from the Finnish and Swedish screening studies, we sought answers to how the natural history of prostate cancer (PCa), differences in screening algorithms as well as in other factors influence the outcome of these studies in terms of mortality reduction as well as how to optimize diagnostic tools to identify clinically significant PC.

### **2. Summarize the major findings of the project (max. 400 words)**

The initial belief that the differences between study centres could be due to differences in screening protocols is only partly supported by our findings. Only marginal PCa mortality improvements could have been obtained in Finland by implementing the Swedish screening protocol. Based on the simulation, the Finnish control arm is most strikingly outlying observation—the PCa mortality in that arm is better than could have been expected. Added up with the implementation of a slightly less effective screening protocol, this phenomenon makes up for the smaller relative improvement in Finland.

**3. Describe how the project has increased our knowledge of the prevention, cause and/or cure for cancer (max. 150 words)**

The Swedish algorithm, where men were screened every second year, was more effective than the Finnish one, screening men every 4 year, in terms of mortality reduction. The PCa mortality in the Finnish control arm was better than could have been expected. A possible explanation for the better-than-expected PCa mortality in the Finnish control arm is contamination. This explains mostly the differences found between the Swedish and Finnish screening studies. However, the project also suggested the importance of differences in the biology of PC in Sweden and Finland, which will be a topic of further studies.

**4. Outline how Nordic cooperation has added value to this project (max. 100 words)**

By combining and comparing results from the Finnish and Swedish screening studies, we were able to find answers to how the natural history of PC and differences in screening algorithms influenced the outcome of these studies in terms of mortality reduction.

**5. Publications resulting from the NCU research grant**

1. Manuscript “Jaakko Nevalainen, **Jonas Hugosson**, **Teuvo Tammela**, Monique Roobol, Sigrid Carlsson, Kirsi Talala, Fritz H Schröder, Anssi Auvinen: What explains the differences between centres in the European screening trial? A simulation study” will be submitted in the near future.
2. Partly supported by the NCU grant:
  1. Kilpeläinen TP, **Tammela TL**, Malila N, Hakama M, Santti H, Määttänen L, Stenman UH, Kujala P, Auvinen A. The Finnish prostate cancer screening trial: Analyses on the screening failures. *Int J Cancer*. 2014 Oct 30. doi: 10.1002/ijc.29300. [Epub ahead of print]
  2. Saarimäki L, **Tammela TL**, Määttänen L, Taari K, Kujala PM, Raitanen J, Auvinen A. Family history in the Finnish prostate cancer screening trial. *Int J Cancer*. 136(9):2172-7, 2014.