

## **NCU – Summative report for 2013**

**Report submission date: 26 March 2014**

**Principal investigator: Elsebeth Lynge**

**Project title: Mammography – From a pragmatic to an individualised screening schedule**

**NCU grant received (€): 40,000 EUR received in 2013 and 30,000 transferred from second year 2012 to be used in 2013 by the Swedish partner (permission granted by NCU 1 March 2013)**

**Project commencement and completion dates: 1.1.2013 – 31.03.2014**

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

Mammography screening is a burden for the individual woman, as screening may lead to negative side-effects as false positive tests and overdiagnosis. It is therefore important to ensure trustworthy quality assessment of a mammography screening programme in order to have the tools to reduce the negative side-effects to a minimum. We have identified and proposed a new method for better quality evaluation and also examined whether women's screening history can be used as an indicator for future breast cancer risk. This has been based primarily on the mammography screening programmes in Stockholm, Copenhagen, and Funen.

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

A commonly used indicator for sensitivity in mammography screening programmes is to compare the interval cancer rate within the screening population to the expected breast cancer incidence rate in the absence of screening. But as mammography screening is introduced in most of Europe, it is increasingly difficult to estimate this expected incidence rate in the absence of screening in a reliable way. We have compared published data from various screening programmes and introduced a new indicator for measuring sensitivity in screening programmes based purely on data available in screening programmes. This measure has been validated against the old measure by the two expert groups from Denmark and Sweden, who have discussed and agreed upon this measure as being the best way to analyse data now and in the future. An article describing this has been submitted.

Having examined whether a woman's individual screening history could be a predictor of future risk of developing breast cancer, we found, that even women who have attended mammography screening many times without having any diagnosis of breast cancer will still have a relative high risk of being diagnosed with breast cancer in the next round. Therefore future individualised screening recommendations will not recommend that women stop being screening after participating in a certain number of screenings.

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

As stated in the EU quality guidelines it is important to measure the breast cancer detection rate compared to the breast cancer incidence rate expected in the absence of screening. As is it getting increasingly difficult to estimate this measure in a reliable way, it is important for the quality control of mammography screening programmes to find an alternative measure. In our paper we introduce such an alternative measure.

Individual screening recommendations cannot be entirely based on number of previous negative screens. Individual characteristics of breast density and hormone use also have to be taken into account. The findings of women's breast cancer incidence following a various number of negative screenings are currently being described in the second paper.

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

Using experience and data from both screening programmes in both Denmark and Sweden strengthens our findings and ensure that it is findings that can be used in a larger span of countries.

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

Sune Bangsbøll Andersen, Sven Törnberg, Elsebeth Lynge, My von Euler-Chelpin, Sisse Helle Njor. Can the burden of interval cancers be measured by the interval cancer ratio? (Submitted)

Sune Bangsnøll Andersen, Sven Törnberg, Sini Kilpeläinen, Elsebeth Lynge, My von Euler-Chelpin, Sisse Helle Njor. Are women's mammography screening history a predictor of protection against breast cancer? A study of mammography screening programmes in Stockholm, Copenhagen and Funen.



Sune Bangsbøll Andersen, Sven Törnberg, Sini Kilpeläinen, Elsebeth Lynge, My von Euler-Chelpin, Sisse Helle Njor. Measuring the burden of interval cancers in long-standing screening mammography programmes.

## **6. Brief overview of expenditures for 2013**

Please see the financial report.