
Survival analysis of breast cancer screening programmes

Maja Pohar-Perme*¹ and Vratana Bor¹

¹Institute of Biostatistics and Medical Informatics, Medical faculty, University of Ljubljana – Slovénie

Résumé

Cancer screening is a programme for medical screening of asymptomatic people who are at risk of developing cancer. In Slovenia, women between 50 and 70 are invited biannually to mammography screening. The programme has been running since 2008, we wish to evaluate its effectiveness. The most direct way to evaluate a screening programme is through survival analysis – we wish to know whether patients who participated in the programme have better chances of survival than those who did not take part. However, it turns out that any straightforward comparison of survival probabilities results in important biases that should not be neglected. In our work, we split the complex problem into simpler building blocks and show how survival can be compared in each of these blocks. While some of the issues can be solved non-parametrically, parametric assumptions may be needed for others. We have formulated a general theory and we adapt it to the particular issues of Slovene breast screening programme.

Mots-Clés: cancer screening programmes, lead time, length time bias, survival analysis

*Intervenant