Towards Personalised Breast Cancer Follow-Up

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BACKGROUND

Why do we perform mammography follow-up?

- Survival after locoregional recurrence (LRR) or second primary (SP) breast cancer is good (Witteveen et al. 2015)
- Early detection results in better prognosis

Although risk factors are known, follow-up is not yet based on individual risk profiles

RECURRENCE RISK

Netherlands Cancer Registry:

- 37,230 women with early breast cancer in 2003-2006
- 950 (2.6%) with LRR as first event within 5y after treatment

Risk factors were determined using logistic regression

FOLLOW-UP SCHEDULES

Most women have a low risk of LRR

But how to determine the individual follow-up schedule they need?

Discrete Event Simulation: for finding threshold

Plan follow-up visits when threshold is reached, e.g.:

Next: System Dynamics
Explore influence of changes in the follow-up system, e.g.:

- New biomarker for better risk prediction
- Better technologies for early detection

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BIOMEDICAL TECHNOLOGY AND TECHNICAL MEDICINE

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