Safety and cost-effectiveness of shortening hospital follow-up after breast cancer treatment

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The study examined clinical/economic impacts of strategies for follow-up of women treated for breast cancer. The authors concluded that reduced hospital follow-up time, a lower age of referral to the National Screening Programme or general practitioners and termination of annual physical examinations reduced costs substantially without decreasing detection of small tumours. The analysis reported data sources poorly and did not investigate the issue of uncertainty so caution is required when interpreting the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study examined the clinical and economic impact of various strategies for the follow-up of women after treatment for breast cancer.

Interventions
Four follow-up strategies were considered. The reference strategy was based on Dutch guidelines that recommended hospital follow-up for five years with yearly mammography; after this follow-up, women aged over 60 years who had undergone mastectomy were referred to the National Screening Programme for mammography every second year. After breast-conserving therapy women were referred to the general practitioner (GP) for mammography every other year and annual physical examination.

In the first alternative strategy, follow-up time in hospital was shortened by a shift of care from the hospital to the National Screening Programme or GP after two years. In the second alternative strategy, hospital follow-up time was reduced by a shift of care from the hospital to the National Screening Programme or GP after two years and by lowering the referral age from 60 to 50 years. In the third alternative strategy, hospital follow-up time was reduced by a shift of care from the hospital to the National Screening Programme or GP after two years, by lowering the referral age from 60 to 50 years and by terminating yearly physical examination in general practice.

Location/setting
The Netherlands/hospital.

Methods
Analytical approach:
Analysis was based on a previously validated simulation-based decision model. A lifetime horizon was considered. The perspective adopted in the study was not reported.

Effectiveness data:
It appeared that a selective approach was used to identify relevant sources of evidence. Key data on demographic and clinical characteristics of the eligible patient population were taken from a database of medical records of 5,073 women with breast cancer between 1989 and 2003 who were treated at four hospitals in the North Netherlands. Other inputs were already incorporated in the decision model and full details of their sources were not reported. The rate of false-positive findings was a key input of the model and was taken from published studies.

Monetary benefit and utility valuations:
Not considered.
Measure of benefit:
The proportion of small tumours detected (percentage of second primary tumours diagnosed with a size of 2cm or less) was a key outcome of the model.

Cost data:
The economic analysis included costs of mammography (in hospital and in the National Screening Programme), costs of false-positive results for pathological evaluation, costs of a specialist visit and costs of breast cancer treatment, which depended on the size of tumour at diagnosis. Unit costs were taken from Dutch sources. Quantities of resources used depended on guidelines, strategies implemented and published studies. Costs were in Euros (€).

Analysis of uncertainty:
One thousand replications of the simulation were performed and confidence intervals were calculated.

Results
The proportion of small tumours was 51.7% with the standard strategy, 51.5% with the first alternative strategy and 50.6% with both the second and third alternative strategies.

Total screening costs were €4.3 million with the standard strategy, €3.98 million with the first alternative strategy, €3.52 million with the second alternative strategy and €3.16 million with the third alternative strategy.

The cost per 1% increase in tumour detection was €83,100 with the standard strategy, €77,300 with the first alternative, €69,400 with the second alternative and €62,100 for the third alternative.

Authors' conclusions
The authors concluded that reducing hospital follow-up time and lowering the age of referral to the National Screening Programme or GP as well as termination of annual physical examinations led to a substantial reduction in costs and did not decrease detection of small tumours.

CRD commentary
Interventions:
Comparator selection was appropriate as the regular follow-up pattern was compared to alternative strategies for this patient population.

Effectiveness/benefits:
Clinical data were retrieved selectively. Most data came from a large database of Dutch women with breast cancer and these were representative of the authors setting. Other data came from published studies that were not described so it was not possible to judge their validity. No variation of model input was made.

The benefit measure was disease-specific and relevant to the study objective but did not allow for comparisons with other studies. The authors stated that use of QALYs would have been more appropriate but should not change the model's results.

Costs:
The economic perspective of the study was not stated explicitly. Only direct medical costs were included in the analysis. Unit costs were reported for some items. Other costs (such as for treatment of breast cancer) were presented as macro-categories. These costs were taken from Dutch sources that were not described clearly. Reflation exercises were not possible as the reference year was not reported. Variations in economic inputs were not performed.

Analysis and results:
The study results were reported clearly. Only average cost-effectiveness ratios were calculated. No differences were found in tumour detection. The issue of uncertainty was not investigated using sensitivity analysis but confidence intervals around model outcomes were calculated appropriately. The model outcomes were validated using data of second primary breast cancers from the hospital database. The study results appeared specific to the Dutch setting and it was unclear whether these would be relevant to other settings.
Concluding remarks:
The analysis reported data sources poorly and did not investigate the issue of uncertainty so caution is required when interpreting the authors’ conclusions.

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