Economic evaluation of a randomized clinical trial of hospital versus telephone follow-up after treatment for breast cancer


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
This study investigated the costs and health effects of offering, to women who have received breast cancer treatment, a telephone versus a traditional hospital follow-up programme. The authors concluded that the telephone follow-up could reduce the burden on hospitals, but was unlikely to lead to cost or salary savings. The methods and results were comprehensively reported and, despite some limitations in the analyses, the authors’ conclusions appear to be reasonable.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to assess the costs and health effects of telephone follow-up, compared with hospital follow-up, after treatment for breast cancer, in patients with a low-to-moderate risk of cancer recurrence.

Interventions
A telephone follow-up programme was compared with the standard clinical practice, for a mean duration of 24 months. The telephone follow-up was provided by breast-care nurses, using a structured format of questions about changes in condition, new symptoms, and information needs. Traditional follow-up was conducted at hospital and included a clinical examination and checking if hormone therapy was being taken. Both programmes followed the same protocols for ordering mammograms.

Location/setting
UK/out-patient care.

Methods
Analytical approach:
The economic evaluation was undertaken alongside a single clinical trial. The time horizon was the duration of follow-up, which was a mean of 24 months. The authors reported that the perspective was that of the UK National Health Service (NHS).

Effectiveness data:
The clinical data were from a single, prospective, randomised clinical equivalence trial (Beaver, et al. 2009, see ‘Other Publications of Related Interest’ below for bibliographic details). The primary outcome was psychological morbidity, measured by the State-Trait Anxiety Inventory. Secondary outcomes were satisfaction, recurrence rates, and mean time to recurrence. The sample size was 374 and the study was powered to detect equivalence bounds of ±3.5 points on the morbidity scale. An intention-to-treat approach was undertaken for the primary analyses; 24 women changed follow-up care (16 changed from telephone to hospital and eight changed from hospital to telephone), five women withdrew at baseline (and were excluded from the analyses), and 49 women did not complete follow-up care (17 due to recurrence, 22 dropped out, three died, and seven developed other cancers).

Monetary benefit and utility valuations:
Not relevant.
Measure of benefit:
No measure of benefit was used as the trial effects were found to be equal for both groups.

Cost data:
The resource types included in the analysis were nurse training in telephone follow-up, routine follow-up consultations plus tests ordered, referrals to other clinicians, care for recurrent breast cancer and metastases, and patient and carer travel and productivity costs. Medical charts were reviewed to quantify the resources, and hospital consultations were audio-recorded to establish the duration of appointments and to confirm any referrals made. National reference unit costs were used to value these resources (Unit Costs of Health and Social Care, 2007 and NHS Reference Costs 2006/07) and the median national weekly wage was used for productivity costs. The costs were reported in 2006 to 2007 UK pounds sterling (£) and were discounted at 3.5% per year, where necessary.

Analysis of uncertainty:
Sensitivity analysis was used to estimate the uncertainty in the base-case cost estimates for several scenarios. These included 100% higher hospital consultation costs, and lower nurse training costs. To handle the skewed cost data, mean group costs were analysed using the Student's t-test and bootstrapped to generate the bias-corrected and accelerated 95% confidence intervals. The results of these analyses were reported in the text.

Results
As the main clinical outcome was deemed to be equivalent for the two interventions, the economic evaluation focused on the cost differences.

The mean costs to the NHS were £179 for telephone follow-up compared with £124 for hospital follow-up, with a mean significant difference of £55 (bias-corrected 95% CI 29 to 77).

Telephone consultation costs were higher (£115) than those for hospital consultations (£70) due to the cost of nurse training, greater frequency and longer duration of telephone consultations, and the use of junior medical staff for hospital follow-up. This mean cost difference per patient of £45 (bias-corrected 95% CI 32 to 58) was significantly higher for telephone consultations.

Combined transport and productivity mean costs per patient were lower by £45 (bias-corrected 95% CI 40 to 55) for telephone follow-up compared with hospital follow-up.

These results were sensitive to increasing hospital consultations by 100%, and excluding the cost of nurse training sessions in the telephone group, which resulted in similar consultation costs for both groups.

Authors' conclusions
The authors concluded that a telephone follow-up programme for patients with breast cancer could reduce the burden on hospitals, but might not necessarily lead to cost or salary savings for the UK NHS.

CRD commentary
Interventions:
The two intervention groups were briefly described and the hospital group reflected the usual clinical practice in two participating centres in the north-west of England.

Effectiveness/benefits:
The efficacy data from the trial demonstrated equivalent health outcomes for the two interventions, but only limited details were presented. The trial was a prospective, randomised controlled trial that used intention-to-treat analysis and was powered to assess the primary outcome of psychological morbidity. The primary report (Beaver, et al. 2009) should have details of the patient sample, the clinical outcomes (including patient satisfaction), the success of randomisation, and the patient withdrawals from the study, and these should indicate the quality of the clinical findings. Based on the equivalence in this trial, a cost-minimisation analysis was undertaken.

Costs:
The costing methods were reported in detail, including the types of costs and their measurement. The authors stated that the perspective was that of the NHS, but they also separately reported the patient out-of-pocket expenses and productivity losses. These patient costs were significantly lower for telephone follow-up and, whilst not normally included in a NHS perspective, they provide a more comprehensive view of the overall costs. The inclusion of training costs, and the lack of power to detect differences in some of the costs outcomes, were highlighted as limitations by the authors. Overall the cost and resource use were well reported, which will aid transferability to other settings.

Analysis and results:
Bootstrapping was a valid approach for analysing patient-level costs that were skewed. Some sensitivity analyses were conducted, but they were limited and it is not clear if they were sufficient to fully assess the uncertainty. The details of the baseline socio-demographic and clinical characteristics of the women in the sample were not reported, making it difficult to assess whether any of these factors, such as cancer severity, the extent of comorbidities, and their general health, income, and education, might have influenced the costs. Multivariate cost analyses were not undertaken to adjust for any of these factors.

Concluding remarks:
The cost methods and results were comprehensively reported. Despite some limitations in the analyses, the authors’ conclusions appear to be reasonable.

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