Cost-effectiveness of a disease management programme for secondary prevention of coronary heart disease and heart failure in primary care


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 objective was to determine the cost-effectiveness of a disease management programme for patients with coronary heart disease and heart failure. The authors concluded that a nurse-led disease management programme might be a cost-effective service. The overall quality of the methodology was good, with the authors presenting a reasonably transparent analysis, and their conclusions appear to be appropriate.

Type of economic evaluation
Cost-utility analysis

Study objective
The objective was to determine the cost-effectiveness of a disease management programme for patients with coronary heart disease (CHD) and heart failure.

Interventions
Two interventions were compared. In the control group, patients received usual general practitioner (GP) and practice nurse care, with the possibility of being referred to open access echocardiography. In the intervention group, a peripatetic nurse, trained in the management of heart failure, held weekly clinics at the surgery for CHD and heart failure patients. This nurse intervention included patient assessment, confirmation of diagnosis by investigations, medication management and titration, home visits, and liaison between primary and secondary care.

Location/setting
UK/primary care.

Methods
Analytical approach:
The effectiveness and resource use data were obtained from a cluster randomised trial, the details of which were published (Khunti, et al. 2007, see 'Other Publications of Related Interest' below for bibliographic details). The time horizon of the analysis was one year. The authors reported that the perspective was that of the UK National Health Service (NHS) and patients.

Effectiveness data:
The effectiveness data were derived from a single clinical trial (Khunti, et al. 2007). The patients were recruited from 20 practices, which were randomised to either conventional care or a nurse-led disease management programme. A total of 505 patients were in the intervention group and 658 in the control group. All patients were followed-up for a period of one year. The main clinical effectiveness estimate was the quality of life. To adjust for patient characteristics, their quality of life scores were analysed and adjusted for diabetes, angina, myocardial infarction, heart failure, age and gender.

Monetary benefit and utility valuations:
Quality of life was measured using the European Quality of life (EQ-5D) questionnaire. This was sent to all patients both at baseline and at the one year follow-up.

Measure of benefit:
Quality-adjusted life-years (QALYs) were used as the measure of benefit.

Cost data:
The costs were those of medications, GP and practice nurse visits, nurse-led surgery and home visits, out-patient visits, in-patient stays, blood tests, and travel costs borne by patients when attending a primary care visit. The baseline and follow-up data were collected from general practice records at the end of the study period. Travel costs were derived from the responses to a questionnaire sent at the end of the follow-up period. The unit costs were derived from the British National Formulary for medications, published sources for GP and nurse visits, workload information derived from the trial for the nurse-led clinics, NHS reference costs for out-patient visits, and health care resource group (HRG) data for in-patient stays. Travel costs were derived from Department of Transport published values. All costs were adjusted to 2003 to 2004 prices using health care specific inflation indices when appropriate. The costs were reported in UK pounds sterling (£).

Analysis of uncertainty:
To illustrate the uncertainty relating to the cost-utility results, a cost-effectiveness acceptability curve was calculated, which showed the probability that the results were cost-effective at different willingness to pay values for a QALY.

**Results**
The disease management programme was associated with an increase of 0.0323 QALYs and an increase in the total NHS costs of £425, when compared with the control group.

The costs and benefits were combined using an incremental cost-utility ratio (i.e. the additional cost per QALY gained when the intervention was compared with the control). This ratio was £13,158.

At a willingness to pay of £30,000 per QALY gained, the probability that the intervention was cost-effective was approximately 90%.

**Authors' conclusions**
The authors concluded that a nurse-led disease management programme might represent a cost-effective service, because additional QALYs were generated at an acceptable extra cost.

**CRD commentary**
**Interventions:**
The interventions were reported clearly and in detail. No explicit justification was provided for the comparator used. However, it would appear to represent the contemporary practice in the authors' setting.

**Effectiveness/benefits:**
The effectiveness data were derived from a cluster randomised controlled trial. Although the full details of the trial were reported elsewhere, adequate details, such as the sample used, outcome measures and follow-up, were also reported in this paper. The use of a randomised controlled trial was valid, as this type of study, if well-conducted, is considered to be the gold-standard design when comparing different health care interventions.

**Costs:**
The categories of costs were consistent with the perspective. The resource use data and unit costs were well reported. The price year was adequately reported. The level of reporting made the costing extremely transparent, allowing the reader to ascertain fully which resource use and cost data were included. The results of the analyses were reported in full, and as with the outcomes, appropriate statistical analyses were conducted to test for any significant results.

**Analysis and results:**
The costs and benefits were combined appropriately by means of an incremental cost-utility analysis. The impact of uncertainty was adequately reported with differences in quality of life, resource use and costs between the two groups being tested for statistical significance. In addition, uncertainty in the incremental cost-utility ratios was adequately reported using a cost-effectiveness acceptability curve. The authors acknowledged in their discussion the limitation of their study, namely that there was only 43% participation from the eligible population.
Concluding remarks:
The overall quality of the methodology was good with the authors presenting a reasonably transparent analysis. The conclusions reached by the authors appear to be appropriate.

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Other publications of related interest


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