Multidisciplinary and multisetting team management programme in heart failure patients affects hospitalisation and costing
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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.

Health technology
The technology assessed was a multidisciplinary and multi-setting disease management programme for heart failure (HF) patients. Full details of the programme's components were reported in the paper.

Type of intervention

Economic study type
Cost-effectiveness analysis.

Study population
The patient population studied included all inpatients and outpatients with symptomatic HF. The diagnosis of HF was confirmed by medical examination.

Setting
The setting was primary and secondary care. The economic study was undertaken in Piacenza, Italy.

Dates to which data relate
The effectiveness and resource use data were obtained between February 2002 and September 2004. The price year was not stated.

Source of effectiveness data
The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data
The resource use data were collected prospectively from the same sample of patients as that used in the effectiveness analysis.

Study sample
No power calculations were reported. A convenience sample was obtained using all inpatients and outpatients with symptomatic HF who presented at the G da Saliceto Polichirurgico Hospital in Piacenza, Italy. This comprised a total of 571 patients, of which 535 patients consented to participate. Subsequently, 5 patients died during the first month of follow-up and 21 were referred back to their local physician after a one-time consultation. This left a study sample of 509 patients. The mean age was 77.7 years and 56.8% of the patients were women.
Study design
This was a within-group analysis of a cohort of HF patients. Hospitalisations were assessed for a 12-month period prior to the beginning the intervention and for 12-months post referral. The outcomes were assessed at baseline and 12 months after enrolment in the programme. No loss to follow-up was reported.

Analysis of effectiveness
All patients included in the study were accounted for at analysis. The primary outcome measures were hospitalisations and the global score of the New York Health Association (NYHA) functional classification.

Effectiveness results
Enrolment in the programmed resulted in:

a reduction in hospitalisations for all causes (82 versus 190, \( p<0.001 \));

a reduction in the number of patients hospitalised (62 versus 149, \( p<0.001 \));

a reduction in the hospitalisation of those potentially at higher risk because of a recent hospitalisation (65.5% versus 42.3%, \( p<0.05 \));

an improvement in the global NYHA score, 2.61 to 2.10 (+19.4%); and

an improvement in NYHA functional class for 63% of patients (of the other 37%, 27% showed no change and 10% got worse).

Clinical conclusions
The multidisciplinary disease management programme was found to improve clinical outcomes and reduce hospitalisations for HF patients.

Measure of benefits used in the economic analysis
No summary measure of benefit was derived. In effect, a cost-consequences analysis was performed.

Direct costs
The analysis included the cost of hospitalisations, nursing case management and physician hospital (outpatient) visits. The cost of a hospitalisation was based on reimbursement allowances for Diagnosis-Related Group (DRG) 127. The costs of nurse and physician time were based on the authors' own estimates. The unit costs and the quantities (number of hospitalisations, outpatient visits and nursing time) were reported separately. The price year was not stated. Discounting was not conducted, nor was it required, as the costs were compared over a 12-month period.

Statistical analysis of costs
No statistical analysis of the costs was conducted.

Indirect Costs
No indirect costs were included.

Currency
Euros (EUR).
Sensitivity analysis
No sensitivity analysis was conducted.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The estimated cost-saving due to reduced hospitalisation was EUR 300,305.

The estimated average saving in hospital administration costs was EUR 590 per patient.

The cost of outpatient visits was EUR 68.50 per patient and the cost of nursing time was EUR 25.10 per patient.

Synthesis of costs and benefits
The costs and benefits were not combined.

Authors’ conclusions
A multidisciplinary approach managing heart failure (HF) patients can lead to both improved clinical outcomes and reduced costs.

CRD COMMENTARY - Selection of comparators
The authors undertook a within-group comparison, such that the comparator chosen represented current practice. This allowed for the added value of the management programme to be evaluated.

Validity of estimate of measure of effectiveness
The analysis was based on a within-group comparison, which was appropriate for the study question. However, a controlled trial would have provided more rigorous evidence of effectiveness. The study sample was a convenience sample and should have been representative of the study population, although no reasons were given for the 7% of patients who refused to participate. In addition, the analysis of effectiveness did not take potential biases and confounding factors into consideration. Overall, the internal validity of the clinical analysis is likely to be quite low.

Validity of estimate of measure of benefit
The authors did not derive a summary measure of health benefit. The reader is referred to the comments in the 'Validity of estimate of measure of effectiveness' field (above).

Validity of estimate of costs
The analysis of the costs included only the costs of hospitalisation and the management programme, in terms of nursing time and outpatient visits. The authors acknowledged that they had no reliable information on the frequency and duration of the home visit; hence, they did not attempt to determine the costs outside of the hospital setting. These costs are likely to be important contributors, such that the cost-savings of the programme might have been overestimated. The costs and the quantities were reported separately, and there was limited statistical analysis of the quantities (changes in hospitalisations). No sensitivity analysis was conducted. DRGs were used to proxy prices, and the authors used their own estimate of cost for nursing and physician time. The price year was not stated. These factors may affect and limit the generalisability of the findings.

Other issues
The authors made appropriate comparisons of their findings with those from other studies. The authors do not appear to have presented their results selectively and their conclusions reflected the scope of the analysis. It was noted that the non-randomised study with fewer exclusion criteria allowed for greater extrapolation to the general population. The authors acknowledged that the major limitation of the study was the study design, specifically the lack of a control group.

**Implications of the study**
The authors suggested that their HF management programme could be a valuable design for an international controlled study.

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