Cost-effectiveness of a nurse-led case management intervention in general medical outpatients compared with usual care: an economic evaluation alongside a randomized controlled trial


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 determined the clinical and economic impact of a nurse-led, home-based, case management intervention (NHI) added to usual care, compared with usual care alone, in patients discharged from a general hospital in the Netherlands. The study showed that the programme was not a cost-effective intervention, and the authors’ conclusions highlighted the uncertainty surrounding the benefits and costs of the NHI. The quality of the study methodology was good, with extensive presentation of data sources and results.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The objective of the study was to determine the clinical and economic impact of a nurse-led, home-based, case management intervention (NHI) added to usual care, compared with usual care alone, for patients discharged from a general hospital in the Netherlands. Discharged patients included those admitted to the departments of internal medicine, gastroenterology, pulmonology and cardiology.

Interventions
The NHI consisted of a case manager such as a trained nurse specialist, who visited each patient at home within 3 to 10 working days after discharge in order to assess the patient's status using the INTERMED instrument. Subsequent follow-up depended on the INTERMED result, and could consist, for example, of psychosocial support for the patient and relatives, improvement in compliance with medication, physical exercise, diet, smoking and alcohol recommendations. Usual care consisted of no home management after discharge.

Location/setting
Netherlands. Primary/community care.

Methods
Analytical approach:
This economic evaluation was carried out alongside a randomised clinical trial (RCT). The time horizon of the study appears to have been 24 weeks. The authors stated that the perspective of the health care system was adopted.

Effectiveness data:
The clinical data were derived from an RCT that enrolled 208 patients in the Netherlands. Of these patients, 61 dropped out and 26 had incomplete data. Thus, the final clinical analysis was carried out on 121 patients (69 in the NHI group and 52 in the usual care group) who were followed for 24 weeks post-discharge. Blinding was not possible given the nature of the intervention. The key clinical end points were frequency of emergency re-admissions, quality of life (assessed using the SF-36 questionnaire) and psychological functioning (based on the Hospital Anxiety and Depression Scale, HADS). Various statistical tests were applied to determine the statistical significance of differences between the groups.

Monetary benefit and utility valuations:
The SF-36 mental and physical components were used in the RCT to estimate the patients’ quality of life at baseline and
at 12 and 24 weeks.

Measure of benefit:
The four key clinical end points (frequency of emergency readmissions, physical and mental components of the SF-36, and HADS) were considered as summary benefit measures and were combined with the costs.

Cost data:
The economic analysis included the costs of general practitioner visits, visits to other professionals, supportive care at home, admissions to hospital or rehabilitation clinics, residential home stay, drugs and the NHI. The unit costs were reported separately from the resource quantities. The costs were derived from Dutch guideline prices and the Royal Dutch Society for Pharmacy. The resource use data were estimated using cost diaries kept by the patients and information on drug consumption derived from the patients’ pharmacists. The costs were in euros (EUR). The price year was not reported.

Analysis of uncertainty:
The issue of uncertainty was addressed by repeating the analysis after excluding outliers. In addition, the bootstrapping method was applied to deal with the uncertainty surrounding the cost-effectiveness ratios.

Results
Clinical end points were similar between groups, as differences were not statistically different.

Despite a substantial difference in the total costs (EUR 4,286; 95% confidence interval, CI: -41 to 8,026), this difference did not reach statistical significance.

Due to the very small differences in clinical outcomes, there was high variability and uncertainty around the incremental cost-effectiveness ratios. When the SF-36 or HADS were considered, the NHI was dominated by usual care (i.e. NHI was more costly and less effective). When the rate of emergency readmissions was considered, the incremental cost per reduced emergency readmission was EUR 35,270.

The bootstrapping method highlighted the uncertainty surrounding these estimates, but the NHI dominated in 92% of simulations.

The exclusion of outliers reduced the difference in total costs to EUR 369 (95% CI: -83 to 822), but did not alter the conclusion of the basic analysis.

Authors’ conclusions
The authors concluded that the NHI was not a cost-effective intervention in comparison with usual care for patients discharged from a general hospital in the Netherlands. It was pointed out that future studies should assess the complexity of disease in a broader cost-effectiveness evaluation of the NHI.

CRD commentary
Interventions:
The rationale for the choice of the comparator (i.e. usual care) was appropriate in that it represented standard care in the authors’ setting. The study intervention was described in detail.

Effectiveness/benefits:
The use of an RCT to derive the clinical data was a strong feature of the analysis, owing to the validity and robustness of this design. RCTs are usually considered to be good sources of data because of their randomised allocation of patients to study groups. Furthermore, the authors carried out appropriate statistical analyses of the clinical data in terms of power calculations and significance of results. The length of follow-up appears to have been appropriate. The demographic characteristics of the patient sample were reported. The benefit measures were based on clinical end points, but also included quality of life which will enable comparisons to be made with other studies.

Costs:
The analysis of the costs was consistent with the authors' stated perspective. Extensive information on resource use, costs and sources of data was reported, which enhances the possibility of replicating the analysis in other settings. The price year was not explicitly reported, although the costs may refer to 2000. Statistical analyses of the costs were performed and the impact of excluding outliers was considered in the sensitivity analysis. The authors justified the exclusion of indirect costs on the basis of the high percentage of retired patients in their sample.

Analysis and results:
The results of the analysis were presented in detail. The synthesis of the costs and benefits was appropriate despite the lack of statistically significant differences in them. The use of bootstrapping should have ensured an appropriate analysis of uncertainty, which is relevant given the borderline results. The authors noted that a key limitation of the analysis was the relatively high proportion of patients who withdrew their informed consent. Another drawback the authors acknowledged was that power calculations were performed on the basis of statistical significance of differences in clinical outcomes and not costs. This led to very wide CIs around total cost estimates because of the skewed cost data, but although there was a large difference in the cost results this did not reach statistical significance.

Concluding remarks:
The quality of the study methodology was good, with satisfactory reporting of sources of data and methods and presentation of results. The authors' conclusions appear appropriate.

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Bibliographic details

Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
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