A randomized controlled trial of the cost-effectiveness of a district co-ordinating service for terminally ill cancer patients

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
Using a coordination service versus standard services for terminally ill cancer patients expected to live less than one year. In the coordination service two nurses ("brokers" of services) were designated to tailor the range of services available, in the district, to the changing needs and circumstances of terminally ill cancer patients in the district.

Type of intervention
Palliative care.

Economic study type
Cost-effectiveness analysis.

Study population
Terminally ill cancer patients expected to live less than one year.

Setting
Community care. The economic study was carried out in London, UK.

Dates to which data relate
The data for the effectiveness analysis and resources used were collected from April 1987 to June 1990. 1987-8 prices were used.

Source of effectiveness data
The evidence for the final outcomes was derived from a single study.

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used in the effectiveness study. The collection of resource data was undertaken prospectively.

Study sample
A power calculation was not used to determine the sample size. There were 554 eligible patients in the study. Forty-two percent of these were excluded because of death or moving out of the district. Seven percent refused to participate. At the initial random allocation, 89 general practices were assigned to the coordination group and 79 to the control group. Later, however, 13 randomly selected control group practices were shifted to the coordination group. The number of subjects in the coordination group and control group differed between the effectiveness analysis and the cost analysis because complete data on service use were not available for all the patients. The number of patients in the coordination
group for the purpose of effectiveness analysis was 104. The corresponding number for the cost analysis was 86. There were 99 patients in the control group for the effectiveness study. The corresponding figure for the cost analysis was 81. Fifty-six carers of patients in the coordination, and 62 in the control group were interviewed at least once.

**Study design**

The study was a randomised controlled trial. The unit of randomisation was general practice. Stratification was carried out by number of general practitioners and postal district. The loss to follow up was 28%. The independent interviewers were blinded to the group assignment of patients.

**Analysis of effectiveness**

The analysis of the clinical study was based on intention to treat. The clinical outcomes were measured by presence and severity of physical symptoms, psychiatric morbidity, use of and satisfaction with services, and carer's problems. Psychological distress was measured by the Hospital Anxiety and Depression (HAD) scale. The family Apgar scale was used to evaluate social support. The Spitzer quality of life index was completed by interviewers after each interview to measure the severity of the patient's condition. The Leeds Depression and Anxiety Scale was completed by the carers. Carers' and patients' characteristics were comparable between groups.

**Effectiveness results**

On the basis of presence and severity of physical symptoms the study revealed no significant differences between groups, except in the case of vomiting. The coordination group suffered from vomiting significantly less than control group (combined chi-square= 3.69, df= 1, P= 0.05). In regard to psychiatric morbidity the analysis of the Leeds Depression Scale demonstrated no significant differences between groups except that anger was less likely to be felt by the carers in the coordination group. The groups did not differ significantly in terms of frequency of contact with service agencies or satisfaction with them. The only significant difference was in the number of contacts with a chiropodist, the coordination group having more contacts (combined chi-square= 6.05, df=1, P<0.02). The study revealed no significant differences in regard to carers' problems except that the carers in the coordination group had more contact with a Macmillan nurse, oncology nurse or coordinator (11% versus 25%, unadjusted odds ratio= 0.14, combined chi-square= 6.05, df= 1, P=0.02).

**Clinical conclusions**

There were negligible differences between groups in terms of the clinical outcome measures.

**Measure of benefits used in the economic analysis**

Since the effectiveness analysis showed no difference in effectiveness between the intervention and the comparator, the economic analysis was based on the difference in costs only.

**Direct costs**

The services used were reported separately from the costs. The unit cost per inpatient day, per home visit, and outpatient and day case attendance were calculated. The average cost was estimated by applying the unit costs to the services used data. The cost of coordinated services provided by the two nurses included their salaries and unspecified overhead cost. The costs were measured from a societal perspective. The relevant data were obtained from the community health services, interviews, and the district hospital. The patients' and their family's direct and indirect costs were collected but omitted from the study since there were no significant differences between groups in this regard. The costs of GP and local social services were omitted for the same reason. The importance of omitted items in the total costs was negligible. 1987-88 prices were used.

**Statistical analysis of costs**

The differences between groups were explored using t tests. The effects of change in randomisation were investigated
by regression analysis for interval data and Mantel-Haenzel test for categorical data.

**Indirect Costs**
Data on indirect costs were collected but were not considered in the economic analysis as there were no differences between the two arms of the trial.

**Currency**
UK pounds Sterling (€).

**Sensitivity analysis**
One-way and multi-way sensitivity analyses was performed on unit costs, sensitivity to contacts with the medical oncologist and oncology homecare sister, and the effects of any putative differences in severity between the two groups.

**Estimated benefits used in the economic analysis**
Not applicable.

**Cost results**
The average cost was 4,773 (SD = 8,721) for the coordination group, and 8,034 (SD = 8,721) for the control group (adjusted t = 2.8, P= 0.006). The estimated cost-saving ratio was approximately 4:1 for 86 patients in the coordination group (mainly due to reduced inpatient days in the coordination group).

**Synthesis of costs and benefits**
A synthesis was not carried out since the coordination technology was the weakly dominant strategy. The sensitivity analysis did not change the main core of results.

**Authors' conclusions**
The coordination service for cancer patients who were terminally ill with a prognosis of less than one year was more cost effective than standard services, achieving the same outcomes at lower service use, particularly in terms of the number of inpatient days in acute hospital. Assuming that the observed effects are real, improved coordination of palliative care offers the potential for considerable savings. Further research is needed to explore this issue.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of the comparator was clear. You should consider if this applies to your own setting.

**Validity of estimate of measure of benefit**
As the authors noted, the uneven contraction in numbers of patients in the alternative groups from the initial sample may have had some adverse effects on the validity of the estimates of benefits.

**Validity of estimate of costs**
The authors also pointed out that the poor quality of data leading to the estimation of unit costs may cast some doubts on the absolute values of the average costs, but that the sensitivity analysis established the robustness of the relative average costs.

**Other issues**
The results of this study, as the authors noted, may not be generalisable to other settings, because residents of the study district have a relatively greater probability of dying in hospital, compared to residents of other districts. Therefore they may not be representative of the national average.

**Implications of the study**
More studies are urgently needed.

**Source of funding**
Supported by the Medical Research Council

**Bibliographic details**

**PubMedID**
8800823

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adolescent; Adult; Aged; Cost Control; Cost-Benefit Analysis; Female; Home Care Services /economics; Humans; London; Male; Managed Care Programs /economics; Middle Aged; Neoplasms /economics /therapy; Palliative Care /economics; Patient Admission /economics; Patient Care Team /economics; State Medicine /economics; Terminal Care /economics

**AccessionNumber**
21996000484

**Date bibliographic record published**
31/12/1998

**Date abstract record published**
31/12/1998