Cost analysis of transmural home care for terminal cancer patients
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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
A transmural home care programme for terminal cancer patients. The programme intended to optimise communication, cooperation and coordination between the intra- and extra-mural health care organisations (transmural care). The transmural home care intervention programme was specifically aimed at assisting the primary care team, and consisted of four components: a specialist nurse co-ordinator, a 24 hour telephone service in the hospital with access to a transmural home team, a collaborative home care dossier (case file), and protocols designed for specific care.

Type of intervention
Palliative care.

Economic study type
Cost-effectiveness analysis.

Study population
The study population was patients admitted to the hospital’s multidisciplinary oncology ward and who matched the following inclusion criteria: cancer, an estimated prognosis of less than 6 months, aged 18 years or older, and fully informed of their diagnosis.

Setting
The economic analysis was carried out in the Netherlands.

Dates to which data relate
Effectiveness and resource use data corresponded to patients cared for between 1 January 1994 and 1 February 1995. Data related to the quality of life of patients and to their direct caregivers were published elsewhere in 1997. The price year was 1994.

Source of effectiveness data
The evidence for the final outcomes was based on a single study and other studies by the authors published elsewhere.

Link between effectiveness and cost data
Costing was prospectively performed on the same patient sample as that used in the effectiveness analysis. Costing for home nursing was conducted differently for the intervention group (prospectively) than for the control group (retrospectively).

Study sample
Power calculations were not used to determine the sample size. A total of 79 patients were included in the intervention.
group and 37 in the control group. A complete set of data could be retrieved for 57 of the 79 patients in the intervention group, and 29 of the 37 patients in the control group. The mean (SD) age of the 57 patients in the intervention group was 63.4 (10.4) years compared with 63.6 (10.5) years in the 29 patients in the control group.

**Study design**

This was a non-randomised controlled study, carried out in two study areas: a city with 200,000 inhabitants for the intervention programme and a highly urbanised surrounding area with about 200,000 inhabitants for the comparator of standard care. The duration of the follow-up was until death. Loss to follow-up (patients with an incomplete set of data) was 22 patients (27.8%) in the intervention group versus 8 (21.6%) in the control group, (NS). The main reason for the incomplete sets of data was that 25 cases were not insured by one of the two local insurance companies that co-operated with this study; in three cases the data on standard community nursing and home help were lost, as were the data for home help in two cases. Patients in the drop-out group, compared with the patients with complete sets of data, had a higher socio-economic status (p=0.01) and had slightly less children living nearby, (p=0.05). Both groups received the standard care available in the Netherlands. In addition to this care, patients included in the intervention group were also offered the transmural home care intervention programme. It is important to stress that the implementation of the intervention programme did not alter the existing health care organisational structure.

**Analysis of effectiveness**

The principle used in the analysis of effectiveness was treatment completers only. The health outcomes were rehospitalisation and survival. The study groups were comparable in terms of baseline characteristics, except that the control group did show significantly more patients with a partner at home and more household members.

**Effectiveness results**

The patients in the intervention group underwent significantly less rehospitalisation with mean (SD) days of 5.3 (12.1) versus 12.7 (16.7), (p<0.01). Survival was not significantly different between the two groups: 85.2 (114.9) days versus 68.1 (79.9) days.

**Clinical conclusions**

While the patients in the intervention group had significantly less rehospitalisation, the survival interval was not significantly different between the two groups.

**Outcomes assessed in the review**

The outcomes assessed in the review were the patients’ and direct caregivers’ quality of life.

**Study designs and other criteria for inclusion in the review**

Study designs and other criteria for inclusion were not reported.

**Sources searched to identify primary studies**

These were not relevant since the authors relied on their own research, the results of which were reported elsewhere.

**Criteria used to ensure the validity of primary studies**

Criteria were not reported.

**Methods used to judge relevance and validity, and for extracting data**

Methods were not reported.
Number of primary studies included
A total of 2 studies were included.

Methods of combining primary studies
The methods of combination of primary studies were not reported.

Investigation of differences between primary studies
Investigations of differences between primary studies were not reported.

Results of the review
It was reported that the intervention contributed significantly to a better quality of life for patients and their direct caregivers.

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic analysis, and only separate clinical outcomes were reported.

Direct costs
Costs were not discounted due to the short time frame of the cost analysis. Some quantities were reported separately from the costs. Cost items were reported separately. Cost-analysis covered the costs that were covered by health care insurance companies including physicians' fees, hospital admissions, outpatient/day care treatments, physiotherapy, drugs, transportation and medical aids supplied at home; costs made by home care facilities including "intensive" community nursing care, standard community nursing care and (professional) home help; and costs attributable to the intervention programme including the specialist nurse co-ordinator, the 24-hour consultation telephone service and the transmural home team. The perspective adopted was that of the health care system. The sources of costs covered by the insurance companies and for "intensive" community nursing care were the databases of the two local insurance companies that co-operated with this study. Standard nursing care, home help costs and the costs for the intervention programme itself were recorded prospectively for the intervention group. For the control group these costs could only be retrospectively retrieved from the various home care agencies. The time spent with patients by the home help staff for the control group was estimated using the assumption that the ratio of "community nursing time" to "home help time" would be the same for the intervention and control group. True costs were calculated for hospital admissions per day for the study patients rather than basing them on tariffs. Costs refunded by insurance companies for physicians' fees, hospital outpatient treatments, drugs and transportation and medical aid supplies were considered to represent the approximated real costs. The price year was 1994.

Statistical analysis of costs
The Mann-Whitney U test was used to compare groups in terms of individual cost categories and total costs. A search was performed for potential confounders to the relationship between the experimental condition and the total health care costs. In order to correct for the effects of the possible confounders, a hierarchical backward multiple regression analysis was performed.

Indirect Costs
Indirect costs were not considered.

Currency
Dutch guilders (Dfl). The conversion rate in 1994 was approximately $1 = 1.8 Dfl.
Sensitivity analysis
The cost analysis was performed using the health care tariffs instead of real costs. An alternative cost comparison was made by assuming that the cost ratios between the intervention and control group for both community nursing and home help would be the same as the costs ratios for “intensive” community nursing between these groups.

Estimated benefits used in the economic analysis
These were not applicable.

Cost results
The mean (SD) total cost was Dfl 14,287 (Dfl 15,285) for the intervention group versus Dfl 13,052 (Dfl 11,477) for the control group, (NS). Using health tariffs instead of true costs resulted in the same conclusions.

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

Authors' conclusions
Comparison of the intervention and control group revealed significantly lower pharmaceutical and rehospitalisation costs in the intervention group, whilst community nursing and home help costs were significantly higher. However, no significant difference could be found for total health care costs between the groups.

CRD COMMENTARY - Selection of comparators
A justification was given for the choice of the comparator (the standard primary care) in that it was the standard care in the Netherlands in the context in question. You, as a database user, should consider whether this is a widely used health technology in your own setting.

Validity of estimate of measure of effectiveness
The internal validity of the effectiveness results can not be reasonably assured due to the quasi-experimental nature of the study design, the lack of intention to treat analysis, and the high rate of drop-outs. However, the comparison between the drop-out group and the evaluable group revealed differences only in socio-economic status and the number of children living nearby amongst a broad set of initial characteristics. The study groups were comparable in terms of baseline characteristics, except that the control group did show significantly more patients with a partner at home and more household members. The study sample appears to have been representative of the study population.

Validity of estimate of measure of benefit
The authors did not derive an explicit measure of health benefit. The study may therefore be regarded as a cost-consequences analysis.

Validity of estimate of costs
Some quantities were reported separately from costs and adequate details of the methods of cost estimation were given. It appears that all direct cost categories relevant to the perspective adopted were included in the cost analysis. Real costs, rather than tariffs, were considered wherever possible. The effects of different procedures on indirect costs related to patients were not addressed, since the patients were all terminally ill and it could be safely assumed that possible productivity loss would be on the same low level for both groups. The indirect costs associated with the productivity loss of the patients' direct caregivers and the extra costs incurred by patients being at home for a longer period of their terminal phase were not included in the cost analysis due to lack of data. However, it was noted that the possible extra costs to patients' direct caregivers were compensated by a better quality of life as shown in a previous study by the same authors. Some resource items related to the control group were gathered retrospectively, leading to
the possibility of bias, as acknowledged by the authors. It was deemed unlikely that the difference in residential areas between the study groups would have biased the cost results since they were quite similar especially in terms of hospital accessibility. Statistical analyses were performed on some of the resource use data and all of the cost data. The effects of possible confounders on cost results were investigated. The price year and conversion rate were specified. Cost results may not be generalisable to other settings or countries.

Other issues
The authors did not investigate the effect of uncertainties in the data through sensitivity analyses. The issue of generalisability to other settings or countries was not addressed. Appropriate comparisons were made with other studies. The study sample was representative of terminally ill cancer patients and this was acknowledged in the authors' comments.

Implications of the study
In view of the fact that no significant difference could be found for total health care costs between the groups, and that the intervention programme has proved to have significantly positive effects on both the patients' and direct caregivers' quality of life, the installation of such programmes in every hospital with a multidisciplinary oncology unit is recommended by the authors.

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