Cost-utility analysis of group living in dementia 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.

Health technology
Care settings for dementia patients.

Type of intervention
Secondary prevention

Economic study type
Cost-utility analysis

Study population
Elderly people with dementia. The mean age of patients was 79 with a ratio of approximately 2

Setting
The three different residence regimes of group living, home living and institutional living were compared in Sundsvall, an industrial city in central Sweden.

Dates to which data relate
Patients were admitted to the group living regime between 1985 and 1990. Patients at home or institutionalised were included when a group living patient was included. 1987 prices were used.

Source of effectiveness data
Single study.

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

Study sample
The study sample consisted of: 46 patients in group living, 39 living at home, and 23 institutionalised. The patients in group living were included consecutively as they moved to group living (over a five year period between 1985 and 1990). The other patients were included from the waiting list for group living. Inclusion in the other groups from the waiting list was made to parallel inclusion in the group living group. Three patients who had a preliminary diagnosis of dementia but who were not regarded as demented by a psychogeriatrician were excluded. No power calculations were performed on the sample sizes.

Study design
Non-randomised prospective with concurrent controls design. It appears that the patients were recruited from different institutions and 'group living' regimes in Sundsvall but this is not clear. Baseline quality-of-life data were collected and assumptions were made about disease progression. No patients were lost to follow-up.

**Analysis of effectiveness**
Effectiveness was measured in terms of the quality of life-years gained of the patients in the different residence regimes. Their degree of dementia was measured using the global deterioration scale (GDS) and were ultimately based on the judgements of the project manager. Their rating on the GDS (between 4 and 7) was then converted into a 'utility' score (using a computer program) on the index of well-being (IWB) scale. A static model assumed that different residence regimes had no effect on the progression of the disease whilst a dynamic assumed that group living slowed the deterioration. A Markov model was used to model the progression of the disease in the different residence regimes. The progression of disease was modelled over an eight year period. The IB. scores over this period were discounted at 4%. The numbers of patients in GDS stages 4-7 were compared for the different residence regimes over this period. The probability of progression was based upon real changes in the first year. There seemed little need to control for age, sex, etc. since the patients in the three groups were very similar regarding these characteristics.

**Effectiveness results**
The probability of progression through the GDS was lowest for the group living patients and highest for those patients living at home. The gain in QALY terms according to IWB scores were: Group living = 3.27; Home living = 2.99; Institutional care = 2.89; Home and institutional = 2.95.

**Modelling**
A Markov model was constructed to describe the progression of dementia in each of the residence types and the implied use of resources.

**Measure of benefits used in the economic analysis**
QALYs based on assumptions about how GDS scores map into IWB utilities.

**Direct costs**
Quantities and costs were measured separately but not reported separately. The number of hours were recorded for: the use of group living (by the group living patients), institutional care, social services with home help, home care with nurses, remuneration paid to relatives caring for patients at home, and living at a home for the aged. These figures were multiplied by per item costs and added to overhead costs. The costs were estimated for the eight year survival period and discounted at 4%. 1987 prices were used. Total costs were calculated using a Markov model.

**Currency**
Costs were measured in Swedish Kroner (SEK) at 1987 prices and then converted into US$ using PPP. (US$=8.43SEK)

**Sensitivity analysis**
One way simple sensitivity analyses were performed on: Discount rates: on both costs and benefits; Utility figures: from mapping GDS into Rosser and Torrance matrices; Survival time; Transition probabilities; Costs of institutional care; Institutionalisation figures for the group living group. The estimated costs of informal care were also added.

**Estimated benefits used in the economic analysis**
The gain in QALY terms according to IWB scores were: Group living = 3.27; Home living = 2.99; Institutional care = 2.89; Home and institutional = 2.95.
Cost results
The total estimated costs in US$ for the eight year period (in the dynamic model studied) were (discounted at 4%):
Group living = $172,852; Home living = $215,022; Institutional care = $272,855; Home and institutional = $236,476.

Synthesis of costs and benefits
No synthesis was calculated. In the dynamic model (which takes account of the impact on disease progression), the group living alternative was the cheapest and yielded the greatest number of QALYs it was the preferred alternative.

This conclusion was unaffected by the various assumptions made in the sensitivity analysis but the magnitude of the difference between group living and the other alternatives did vary, particularly when GDS scores were mapped in the Rosser and Torrance matrices. Group living was much more attractive when using Rosser but only marginally more attractive using Torrance.

Authors' conclusions
Provided there are patients suitable for group living in institutions and provided there are patients living at home who are on the threshold of being institutionalised, there should be further investment in group living since it generates the most QALYs at lowest cost. However, the authors recognise that this is conditional on the quality of life of patients being no worse in group living than in institutions.

CRD Commentary
The paper gives a detailed account of the methodologies used and the assumptions made. The conclusions of the paper depend crucially on the QALY estimates which are based on 'mapping' GDS scores into IB utilities. The authors claim that this process indicates "satisfactory internal validity". However, mapping one set of scores into another set of values (especially those that purport to measure patient preferences) is notoriously difficult and is one of the main reasons why the findings of this paper should be treated with caution. The authors recognise the problems regarding the external validity of their results, notably the proxy nature of their results and are certainly correct when they argue for more cost-utility analyses of chronic, incurable diseases among the elderly.

Implications of the study
The study does indicate that group living is a viable alternative to home and/or institutional living for dementia patients but indicates even more strongly the need for further work into the quality of life associated with each of these residence regimes.

Bibliographic details

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Subject indexing assigned by NLM

MeSH
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