The effect of a physician assistant on the hospitalization of nursing home residents

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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
Using a gerontologist physician assistant (PA) for regular visits to a nursing home in order to reduce hospitalisation.

Type of intervention
Secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Patients residing in a nursing home.

Setting
Nursing home and hospital. The economic study was conducted in Georgia, USA.

Dates to which data relate
Effectiveness and resource use data were collected from 1992 to 1997 (from May 1994 for the intervention). The data relating to the number of hospitalisation were obtained from the literature published between 1980 and 1997. The price year was not reported.

Source of effectiveness data
Effectiveness data were derived from a single study and a review of the literature.

Link between effectiveness and cost data
Costing was retrospectively performed on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were not used to determine the sample size. The study site was a 92-bed nursing home. A total of 250 patients with an average age of 81.6 years lived in the study centre over the 6-year study period.

Study design
This was a non-randomised controlled trial with historical controls, carried out in a single centre. The mean duration of the follow-up was not reported. No loss to follow-up was reported.
Analysis of effectiveness
The principle (intention to treat or treatment completers only) used in the analysis of effectiveness was not explicitly specified. The clinical outcome measures were the number of annual hospital admissions, the number of hospital days per 1,000 patient years, and mortality. The effects of potential confounding variables such as gender, age, race, and the duration of stay (short-stay versus long-stay patients) were discussed.

Effectiveness results
The number of hospital admissions per 1,000 patient years decreased from 598 in 1992 to 371 in 1997: a reduction of 38%, (p=0.03). The number of hospital days per 1,000 patient years decreased from 4,170 in 1992 to 1,310 in 1997: a reduction of 68.6%, (p<0.001). The number of deaths was 29 in 1992 and 30 in 1997.

Clinical conclusions
The intervention sought to provide comprehensive medical care in the nursing home, using the hospital only when necessary. The intervention reduced hospital admissions and number of days in hospital. “Other characteristics of the nursing home and medical coverage remained relatively constant throughout the study period.”

Outcomes assessed in the review
A literature review was conducted to estimate the number of hospitalisations per 1,000 resident-years, and the number of hospital days per 1,000 resident years.

Study designs and other criteria for inclusion in the review
Not reported.

Sources searched to identify primary studies
Not reported.

Criteria used to ensure the validity of primary studies
Not reported.

Methods used to judge relevance and validity, and for extracting data
Not reported.

Number of primary studies included
A total of 16 studies and reports were included in the review.

Methods of combining primary studies
Not reported.

Investigation of differences between primary studies
Not reported.

Results of the review
The number of hospitalisation per 1,000 resident-years ranged from 262 to 1,132 and the number of hospital days per 1,000 resident-years ranged from 1,582 to 8,505.
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 despite the length of the study period (more than 1 year). Quantities were reported separately from the costs in general categories. Cost items were reported separately. The cost analysis covered the costs of physician/PA visits and hospitalisation. The perspective adopted in the cost analysis was that of Medicare. The charge data was used as a proxy for the true costs. The source of charge data was Medicare-allowed charges for professional and hospital services. No adjustment was made for inflation. The price date was not explicitly specified. The charges associated with consultants, nursing facility costs, medications, therapy, hospice care, ambulance transport, emergency department services, and out-of-pocket or private insurance costs of residents were not included in the cost analysis.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The total allowed charges decreased from $374,035 in 1992 to $300,296 in 1997, a reduction of 19.7%.

Synthesis of costs and benefits
Costs and benefits were not combined since the intervention was regarded as the dominant strategy.

Authors' conclusions
The introduction of regular visits to nursing home patients by a physician assistant can reduce hospitalization and medical costs of these frail older people.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of effectiveness
The internal validity of the estimates of effectiveness may be weakened by the lack of a randomised design, a comprehensive literature review, and a quality assessment of the primary studies included in the review.

Validity of estimate of costs
Quantities were reported separately from the costs in general categories and adequate details of methods of cost estimation were given. The study, however, lacked a comprehensive, and prospective cost analysis. Charges were used
instead of true costs and no discounting was performed.

**Other issues**
Given the lack of randomisation, sensitivity analysis, and statistical analysis of the costs, the results need to be treated with some caution. The issue of generalisability to other settings and countries was systematically addressed by the authors.

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