Economic evaluation of a diabetes disease management programme with a central role for the diabetes nurse specialist

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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.

CRD summary
This study evaluated the cost-effectiveness of a diabetes disease management programme (DMP), with a central role for the diabetes nurse specialist (DNS). The authors concluded that a DMP was associated with improvement in quality of care within existing budgets and that the DNS was a critical success factor. Despite the limitations of the study design, the authors provided a relatively transparent analysis and their conclusions appear to be appropriate.

Type of economic evaluation
Cost-utility analysis

Study objective
This study evaluated the cost-effectiveness of a diabetes disease management programme (DMP), with a central role for the diabetes nurse specialist (DNS).

Interventions
The DMP was compared with usual diabetes care. The DNSs in the DMP played a central role in the diagnosis and treatment, as well as patient education, and promotion of self-management. The patients were assigned to care with a general practitioner (GP), DNS or endocrinologist.

Location/setting
Netherlands/primary care.

Methods
Analytical approach:
This economic evaluation was based on a quasi-experimental study of patients with diabetes mellitus and who were aged 16 years and over. The clinical evidence and resources used were reported in the study. The time horizon of the analysis was two years and the authors stated that a societal perspective was adopted.

Effectiveness data:
: The population included patients attending nine randomly chosen general practices and one hospital outpatient department between April 2001 and February 2002. The study sample comprised 473 patients, of which, 254 were assigned to GPs, 160 to DNSs and 59 to endocrinologists. The main clinical end point was the change in glycaemic control, defined as the change in glycated haemoglobin level (percentage HbA\textsubscript{1c}).

Monetary benefit and utility valuations:
: The utility estimates were based on the Dutch version of the SF-36 questionnaire and the visual analogue scale. Self-management of patients was measured using a diabetes-specific instrument, the Self-care Behaviour Checklist.

Measure of benefit:
: The summary benefit measure was the expected quality-adjusted life-years (QALYs).

Cost data:
: The analysis included all diabetes-related direct costs and productivity costs. The direct costs were for the employment of a medical and project co-ordinator, the education of the DNS, the administrative support office, maintenance of the
electronic patient record system, communication and travel costs of the DNS, and salary of the unit leader. The productivity costs were assessed in terms of sick-leave days and calculated using the age-dependent friction cost method. The resource use data were collected in the clinical study. The unit costs were presented. This data came from official sources for the Dutch care system. The costs were presented in Euros (EUR) for the price year in which the study was carried out.

Analysis of uncertainty:
: Bootstrapping was performed in order to assess the probability of the intervention being cost-effective.

Results
The authors found statistically significant improvements in glycaemic control, health-related quality of life, compliance, and most aspects of self-care behaviour. No statistically significant differences were found in the total cost of care. All improvements were greatest in patients assigned to the DNS.

The bootstrapping simulation demonstrated that the DMP was most associated with improved quality of care at lower costs for patients treated by the DNS.

Authors' conclusions
The authors concluded that a DMP was associated with improvement in quality of care within existing budgets and that the DNS was a critical success factor.

CRD commentary
Interventions:
The interventions were described in detail and the comparator appears to have been relevant.

Effectiveness/benefits:
The clinical evidence was clearly reported. However it was based on a quasi-experimental study which increases the risk of selection bias due to the lack of concealed and randomised allocation of patients.

Costs:
The categories of costs were consistent with the perspective adopted. The costing methods were fairly well reported, with unit costs being provided separately, which helps with replicating the analysis for other settings.

Analysis and results:
The costs and benefits were synthesised and an incremental analysis was appropriately conducted with the results being presented as cost-effectiveness plane diagrams. Overall, the analysis and the results were transparently reported. The authors also acknowledged the main limitations to their analysis.

Concluding remarks:
Despite the limitations of the study design, the authors provided a relatively transparent analysis. The conclusions reached by the authors appear to be appropriate.

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