One-year economic evaluation of intensive vs conventional patient education and supervision for self-management of new asthmatic 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
Self-management of mild asthmatic patients.

Type of intervention
Patient education.

Economic study type
Cost-effectiveness analysis and cost-utility analysis.

Study population
Mildly asthmatic patients.

Setting
Hospital and community. The study was carried out at the South Karelia Central Hospital, Finland.

Dates to which data relate
Effectiveness and resource data were collected between September 1991 and February 1993. The price year was 1993.

Source of effectiveness data
Effectiveness data were 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 costing was undertaken prospectively alongside the effectiveness study.

Study sample
162 consecutive new mildly asthmatic patients were included. Patients were randomised to the intervention group (n=80) and the control group (n=82). No power calculations were reported.

Study design
The study was a prospective randomised controlled trial carried out in a single centre. The randomisation was conducted using a computerised list with consecutive numbers. Patients were followed up for one year. 3 patients from the intervention group dropped out, because they did not attend follow-up visits. In the control group one patient died in a traffic accident and another had moved.
Analysis of effectiveness
The analysis of the clinical study was based on the intention to treat principle. The primary health outcomes studied included forced vital capacity (FVC), forced expiratory volume in 1 s (FEV1), peak expiratory flow (PEF), the provocative dose of histamine required to cause a 15% fall in FEV1 (PD15) expressed as geometric means and as dose steps. At analysis, groups were shown to be comparable in terms of sex, age, atopy, smoking habits, FVC, FEV1, PEF, health-related quality of life and treatment.

Effectiveness results
All effectiveness measures indicated a significant improvement in the intervention group during the treatment (p<0.001 except in FEV%, p<0.05). No significant changes were noted in the control group, except for PEF (p<0.01) and PD15 expressed as dose steps (p<0.001) which were significantly higher after one year. With respect to the difference between the group at one year, all outcome variables were higher in the intervention group: FVC (99.8 versus 94.7, p=0.08), FEV1 (92.3 versus 84.7, p=0.02), FEV% (91.9 versus 88.9, p=0.18), PEF (91.6 versus 87.1, p=0.17), PD15 expressed as geometric mean (0.31 versus 0.25, p=0.56), and PD15 expressed as dose steps (1.41 versus 1.23, p=0.28).

Clinical conclusions
At 1 year, the intervention group showed a better result than the control group in all outcome variables, but statistically the groups differed significantly from each other only in FEV1.

Modelling
No modelling was used.

Measure of benefits used in the economic analysis
The measure of benefits used was health-related quality of life (HRQOL) measured by the disease specific St George's Respiratory Questionnaire (SGRQ) and the generic 15D.

Direct costs
The costs were not discounted given the short time frame of the study (1 year). Quantities and costs were not reported separately. The direct cost estimate included the cost of a visit to the lung clinic, the cost of an inpatient day, the cost of a visit to the emergency clinic, drug costs, nursing costs and transportation costs. The quantity/cost boundary adopted was that of the hospital. The estimation of quantities and costs was based on actual data. The source of the cost data was the South Karelia Central Hospital. The price year was 1993.

Statistical analysis of costs
The Mann-Whitney test was carried out as appropriate.

Indirect Costs
The costs were not discounted given the short time frame of the study (1 year). Quantities and costs were not reported separately. All sickness days, the time required for intervention visits including time used for travelling and the average time spent on extra health care visits were recorded for the calculation of indirect costs. The quantity/cost boundary adopted was that of the patient. The estimation of quantities and costs was based on actual data. The source of the cost data was the South Karelia Central Hospital. The price year was 1993.

Currency
Finnish marks (FIM). The paper also reports cost results in UK pounds sterling (£).
Sensitivity analysis
No sensitivity analysis was reported.

Estimated benefits used in the economic analysis
At one year, health-related quality of life was non-significantly higher in the intervention group if measured by 15D (0.93 versus 0.91, p=0.47), but was lower in the intervention group when measured by SGRQ (16.5 versus 20.5, p=0.16). Scores under 10 for SGRQ are considered to be within the “normal” range.

Cost results
Direct costs were higher in the intervention group (FIM 1,269 versus 595, p<0.0001). Indirect costs were lower in the intervention group (FIM 1,489 versus 1,727, p=0.067). Total costs in the intervention group (FIM 2,757) exceeded those of the control group (FIM 2,351) (p<0.0001).

Synthesis of costs and benefits
The following incremental cost-effectiveness and cost-utility ratios were found for different outcome measures:

FIM 203 for 15D,
FIM 162 for SGRQ,
FIM 140 for FVC,
FIM 86 for FEV1,
FIM 1,845 for PD15,
FIM 110 for PEF.

Authors' conclusions
The intervention was not superior to the conventional programme in terms of cost-effectiveness.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear.

Validity of estimate of measure of benefit
The relevant effectiveness and benefit measures were included. The difference between the 15D results and the SGRQ results was not explored although these results were non-significant. The authors acknowledged that the clinical importance of these health-related quality of life changes and their relationship to clinical parameters are not yet known and that they need to be explored further.

Validity of estimate of costs
All relevant direct and indirect costs were included. However, no sensitivity analysis was carried out and, hence, the robustness of the cost results was not examined.

Other issues
The generalisability of the cost and effectiveness results to other settings or countries was not examined. The authors acknowledged that a 1 year follow-up period may be too short to draw firm conclusions about the cost-effectiveness of an intensive education programme for a chronic condition.

Implications of the study
Further research should be conducted in order to be able to identify at baseline which patients may not benefit from a conventional education programme.

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