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 patient self-management programme for asthma was under evaluation. It involved three interventions:

- patient education classes offered to both paediatric and adult patients,
- a home treatment plan (HTP) issued by the patient’s physician, and
- an organised physician or nurse follow-up system to monitor the course of treatment.

Type of intervention
Education, secondary prevention and patient management.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised asthmatic patients aged one year to adult. Specific inclusion and exclusion criteria were not reported.

Setting
The setting was community care. The economic study was carried out at the Naval Hospital, Jacksonville (FL), USA.

Dates to which data relate
The dates to which the effectiveness and resource use data related were unclear. The effectiveness data were gathered before June 1999. The price year was 1998.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was carried out retrospectively on the same sample of patients as that used in the effectiveness study.

Study sample
Power calculations were not reported. Eligible patients were enrolled at the study hospital during or before January 1999 and were included in the effectiveness study. Of the 48 asthmatic patients (16 men; mean age 26 years) initially identified, eight were excluded from the study because they had moved from the area, lost contact, and so on. Thus, 40 patients were included in the study. Twenty-eight patients received the HTP, of which 13 received all three
interventions and 15 received the HTP and nurse follow-up (no asthma class). The remaining 12 patients did not receive the HTP or the asthma class, and received only nurse follow-up.

Study design
This was a within-group comparison that was carried out in a single centre. Data were collected 6 months before and after enrolment. The patients were offered an asthma education class and were instructed in the National Institutes of Health’s (NIH) asthma guidelines. An HTP was created according to NIH guidelines and made available for use. Beginning one week after the initial visit, each patient received one follow-up phone call every 3 months from specially trained members of the authors’ staff.

Analysis of effectiveness
Only those patients who completed the treatment were considered at analysis. The health outcomes used were hospital admissions, family practice clinic visits, emergency department visits, beta-2 agonist use and oral anti-inflammatory use.

Effectiveness results
In the HTP group, there were statistically significant reductions between the 6-month before and 6-month after periods in clinic visits (122 versus 56; p=0.002), chest radiographs (17 versus 4; p=0.045), beta-2 agonists (44 versus 21; p=0.0001) and oral anti-inflammatory drugs (38 versus 13; p=0.031).

The authors reported that there was a trend toward statistical significance for reduction in emergency department visits in the HTP patients (20 versus 9; p=0.086).

There were no statistically significant reductions in clinic visits, chest radiographs, beta-2 agonists and oral anti-inflammatory drugs for the patients who did not receive the HTP.

There was a small difference in outcomes between those patients who received the asthma class and those who did not (the results were not shown).

Clinical conclusions
The patient self-management programme for asthma was associated with improved care. The greatest clinical improvement was seen in those patients who had received the HTP as part of their asthma case management.

Measure of benefits used in the economic analysis
No summary benefit measure was used in the economic evaluation. The evaluation was, in effect, a cost-consequences analysis.

Direct costs
The cost/resource boundary of the study was not reported. The categories of costs included in the analysis were hospitalisation, emergency department visits (including professional fee), clinic visits, and posterior/anterior and lateral chest radiographs. The resource use data were estimated using data derived from the sample of patients involved in the effectiveness study. The pharmaceutical costs were obtained from the military price listing for the most commonly prescribed inhaled beta-2 agonist, inhaled anti-inflammatory agent and oral anti-inflammatory agent. The average costs for treating paediatric asthma were obtained from the Health Support Office at the military hospital. Discounting was not relevant as costs per patient were incurred during less than 2 years. The unit costs and the quantities of resources used were presented separately. The price year was 1998.

Statistical analysis of costs
A statistical analysis of the costs was not carried out.

**Indirect Costs**
The indirect costs were not included.

**Currency**
US dollars ($).

**Sensitivity analysis**
Sensitivity analyses were not performed.

**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section.

**Cost results**
For the 28 patients who received the HTP, the total cost was $32,367.99 before the intervention and $14,072.67 after the intervention.

For the 12 patients who did not receive the HTP, the cost was $9,533.68 before the intervention and $8,151.83 after the intervention.

For the 28 patients who received the HTP, resource-savings for 6 months were $18,295.32 ($653.40 per patient).

For the 12 patients who did not receive the HTP, resource-savings for 6 months were $1,331.85 ($115.15 per patient).

The resource-savings for the total number of patients (40) in the 6-month period were $19,647.22 ($491.90 per patient).

**Synthesis of costs and benefits**
A synthesis of the costs and benefits was not relevant.

**Authors’ conclusions**
A combined intervention consisting of patient education, a coordinated self-monitoring plan, and patient follow-up was associated with improved care and economic outcomes.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of the comparators (no HTP for asthma) was clear. It represented normal practice in the authors’ setting prior to the introduction of the new technology. You should decide whether it represents a valid comparator in your own setting.

**Validity of estimate of measure of effectiveness**
The analysis of effectiveness was based on a within-group comparison, which was not really appropriate for the study question. A randomised controlled trial would have been a more appropriate design. Several drawbacks should be highlighted. First, power calculations were not carried out. Second, the sample size was small and, therefore, the study might not have had adequate statistical power to detect significant differences in the outcomes, especially in the group of patients without an HTP. Third, the validity of the estimate of effectiveness may be questionable because of the
principle used when analysis the effectiveness data (i.e. treatment completers only). Fourth, the dates during which the study was conducted were unclear. Thus, caution is required when transferring the results of the analysis to other centres, owing to variability in standard patterns. The effectiveness analysis was carried out credibly and appropriate statistical analyses were performed.

Validity of estimate of measure of benefit
No summary benefit measure was used in the analysis. In effect, a cost-consequences analysis was conducted.

Validity of estimate of costs
Since the perspective of the study was not stated, it was not possible to assess whether all the relevant categories of costs were included in the analysis. The perspective appears to have been that of the hospital. Discounting was not relevant and, appropriately, was not carried out. Details of the unit costs, quantities of resources used, and the price year were reported, which enhances the transferability of the economic analysis to other settings. However, the cost estimates were derived from a single centre and were specific to the study setting. The main drawback of the cost analysis was that statistical and sensitivity analyses were not performed on the costs. Consequently, the external validity of the cost analysis may be low.

Other issues
The authors did not compare their results with those from other published studies. They also did not address the issue of the generalisability of the study results to other settings. The results were not reported selectively and the effectiveness conclusions reflected the scope of the study. The authors reported a number of further limitations. First, a follow-up period of more than 1 year would have helped eliminate errors attributable to seasonal variation. Second, local environmental factors should have been considered. Finally, there was no subjective quality of life measurement. Sensitivity analyses, to account for variability in the cost or effectiveness data, were not performed. Hence, the robustness of the results was not examined. Consequently, caution should be exercised when extrapolating the study results to different contexts.

Implications of the study
The authors recommended that further randomised controlled studies with wider sampling and longer follow-up should be conducted.

Source of funding
None stated.

Bibliographic details

PubMedID
11901573

Indexing Status
Subject indexing assigned by NLM

MeSH
Adolescent; Adult; Asthma /therapy; Case Management; Child; Child, Preschool; Family Practice; Female; Humans; Infant; Male; Middle Aged; Military Personnel; Pilot Projects; Prospective Studies; Self Care; United States

AccessionNumber