A cost consequence study of the impact of a dermatology-trained practice nurse on the quality of life of primary care patients with eczema and psoriasis

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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
Care of patients with diagnosis of psoriasis or eczema by a primary care dermatology liaison nurse. One of the study practice nurses received a structured training programme from the study hospital dermatology department over a period of 87 hours. This included ward and outpatient attendance, direct tuition, and background reading encompassing the treatment, education, and psychological support of patients, carers, and their families. The trained nurse followed guidelines outlined in the dermatology manual supplied to primary care by the dermatology department of the local hospital. General practitioners (GPs) signed prescriptions for the nurse's recommendations without seeing the patients.

Type of intervention
Treatment and supportive care.

Economic study type
Cost-effectiveness analysis.

Study population
The study included patients between the ages of 18 and 65 years who had a diagnosis of psoriasis or eczema. For inclusion in the study patients had to have had a minimum of three repeat prescriptions for a topical medication in the past year. There were no exclusion criteria.

Setting
Primary care. The economic analysis was carried out in Exeter, UK.

Dates to which data relate
Not given.

Source of effectiveness data
The evidence for the final outcomes was based on a single study.

Link between effectiveness and cost data
Costing was performed prospectively on the same patient sample as that used in the effectiveness analysis as well as on some assumptions made by the authors.

Study sample
Power calculations were used to determine the sample size (based on a previous study, the authors estimated that for
80% power at a 5% level of significance, the study would require 32 patients in each group to detect a reduction of 50% in the Dermatology Life Quality Index (DLQI) score. A total of 199 patients were suitable for inclusion, of whom 109 (55%) agreed to take part in the study. These 109 patients were randomly assigned to either the intervention group (to receive dermatology nurse care over a period of 4 months) (n= 55) or the control group (to receive routine GP care for a period of 4 months before seeing the dermatology nurse) (n= 54). A total of 9 (16%) patients from the intervention group did not attend for an initial clinic appointment and were excluded from the trial. The remaining patients (n= 46) in the intervention group had a mean (SD) age of 47.4 (18.4) years versus 51.7 (15.8) years in the control group.

**Study design**
The study was a randomised controlled trial, carried out in a single centre. The duration of the follow-up was 4 months. Losses to follow-up were 11 (24%) patients in the intervention group versus 8 (15%) in the control group; they were not significantly different in terms of DLQI scores. The percentage of patients with completed questionnaire at 4 months was 76% in the intervention group versus 85% in the control group. Participating subjects were randomised using computer-generated random numbers. The study took the form of a randomised controlled trial with delayed intervention as control. These were patients who agreed to take part in the study but who received routine GP care for a period of four months before seeing the nurse. The dermatology nurse was unaware of allocation but the allocator who managed the study was not blinded. Patients were invited to attend a clinic where as many consultations over a period of four months could be offered as was felt by the nurse to be indicated.

**Analysis of effectiveness**
The principle used in the analysis of effectiveness was intention to treat but patients who did not attend for an initial clinic appointment were not included. The primary outcome measure was dermatology-related quality of life as measured by the DLQI (a score between zero (worst state) and 30 (best case)). A Euroqol instrument scored from zero (worst state) to 100 (best state) was used to detect changes in overall quality of life. To obtain disease-specific clinical data, the patients were asked to specify up to three aspects of their skin condition from a list of eight (scaling, redness, etc.) and to score each of these elements from one (mild) to five (very severe). The study groups were comparable in terms of age, diagnosis, and previous consultant referral. Those who participated had more cases of psoriasis than those who did not (33% versus 18%; p<0.004).

**Effectiveness results**
The effectiveness results were as follows:

The mean (SD) DLQI score in the intervention group was 6.1 (4.9) at study entry and 4.6 (4.7) at study completion.

The corresponding values for the control group were 6.8 (5) at study entry and 6.2 (5.2) at study completion.

Clinical score (0-15) in the intervention group was 9.3 (2.9) at study entry and 7.6 (3.3) at study completion.

The corresponding values for the control group were 8.4 (3.1) at study entry and 8.1 (3.3) at study completion.

Euroqol generic quality of life (0-100) in the intervention group was 62.9 (20.8) at study entry and 68.4 (20.8) at study completion.

The corresponding values for the control group were 62.5 (23.1) at study entry and 65.1 (23.8) at study completion.

Only the improvement in clinical symptom score was significantly different between the two study groups (p<0.05).

**Clinical conclusions**
The study found a significant improvement in a patient-generated clinical measure. Although this instrument has not been formally validated it does reflect a reduction in dermatology-related burden on patients. The study could not identify an impact on a broader quality of life instrument using the Euroqol linear analogue scale.
Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic analysis, and only individual health outcomes were reported.

Direct costs
Costs were not discounted due to the short time frame of the cost analysis (less than one year). Quantities were reported separately from the costs. Cost items were reported separately. Cost analysis covered the cost implications of nurse and GP time only. The perspective adopted in the cost analysis was that of the National Health Service (NHS) (a limited NHS perspective). The source of unit costs of nurse and GP time was a study published in 1997. The price year was not given. It was reported that the duration of the study was insufficient to identify prescribing implications.

Statistical analysis of costs
A statistical analysis of costs was not performed.

Indirect Costs
Indirect costs were not included.

Currency
UK pounds sterling (£).

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
See effectiveness results above.

Cost results
It was calculated that the annual cost of the dermatology clinic was £2,208 and the annual potential saving in GP consultations was £504. The cost of training the practice nurse was £1,392 and the training implications for the hospital dermatology nurse was £384.

Synthesis of costs and benefits
Costs and benefits were not combined.

Authors' conclusions
This study demonstrates the difficulties of obtaining relevant information to facilitate decisions on how resources should be allocated in primary care.

CRD COMMENTARY - Selection of comparators
The strategy of using routine GP care, as the standard approach in the context in question, was regarded as the comparator. You, as a database user, should consider whether this is a widely used health technology in your own setting.
Validity of estimate of measure of effectiveness
The effectiveness results are likely to be internally valid due to the randomised nature of the study design and the fact that the effectiveness analysis was based on the intention to treat principle. However, it was acknowledged that the study was underpowered to detect a reduction, which the authors could have anticipated. Regarding the comparability of the two study groups, it was noted that they were comparable in terms of age, diagnosis, and previous consultant referral. However, in a comparison of those who participated in the study versus those who did not, it was noted that those who participated had more cases of psoriasis (33% versus 18%; p<0.004). The study sample appears to have been representative of the study population.

Validity of estimate of measure of benefit
The authors did not derive a measure of health benefit. The analysis was therefore one of cost-consequences in design.

Validity of estimate of costs
Positive aspects of the cost analysis were as follows: quantities were reported separately from the costs; adequate details of methods of cost estimation were given; the perspective adopted in the cost analysis was reported. Limitations of the cost analysis were as follows: some important direct cost items were omitted from the cost analysis (such as long-term implications for drug expense and hospital referral and patients’ direct cost), as acknowledged by the authors; the effects of alternative procedures on indirect costs were not addressed; statistical analyses appear not to have been performed on cost data and resource consumption; the price year was not reported. Cost results may not be generalisable outside the study setting.

Other issues
Given the limitations of the study, the lack of sensitivity analysis and of a statistical analysis of costs, the study results may need to be treated with some degree of caution. The issue of generalisability to other settings was addressed by acknowledging that the study results may not be generalisable since it showed the effects of one nurse on a specific population. Appropriate comparisons were not made with other studies. The issue of the whether the study sample was representative of the study population was not addressed.

Implications of the study
The authors believe that not all questions can be answered by large multi-centred trials and that studies themselves have an opportunity cost, consuming resources that could otherwise be spent on direct health care. Often, local resource decisions are based on partial evidence-yielding solutions that are satisfactory rather than optimal but which are, nevertheless, better than decisions taken with no evidence at all.

Source of funding
Funded with a grant of 7,500 from Leo Pharmaceuticals, St Thomas’ Medical Groups is a research practice and receives funding from the South West NHS Research and Development Executive.

Bibliographic details

PubMedID
10954937

Indexing Status
Subject indexing assigned by NLM
MeSH
Adolescent; Adult; Aged; Eczema /economics /nursing; Female; Great Britain; Humans; Male; Middle Aged; Nurse Clinicians /economics; Primary Nursing /economics /organization & administration; Psoriasis /economics /nursing; Quality of Life; Treatment Outcome

AccessionNumber
22000008240

Date bibliographic record published
30/06/2001

Date abstract record published
30/06/2001