Cost savings using a stepped-care prescribing protocol for nonsteroidal anti-inflammatory drugs

Jones D, Kroenke K, Landry F, Tomich D, Ferrel R

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 prescribing protocol for nonsteroidal anti-inflammatory drugs (NSAIDs) which restricts the use of expensive agents until second or third-line treatment.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
All patients with outpatient prescriptions for nonsteroidal anti-inflammatory drugs (NSAIDs).

Setting
Primary care (military facilities). The study was conducted in Washington DC, USA.

Dates to which data relate
Data were collected over an 18 month period during 1992 and 1993. The price year was, alternatively 1992 and 1994.

Source of effectiveness data
The effectiveness of the prescribing protocol was estimated from a single study.

Link between effectiveness and cost data
Costing was undertaken prospectively on the same patient sample as that used in the effectiveness study.

Study sample
The study involved all eligible beneficiaries who had a new or refill prescription for a NSAID from the participating hospitals and clinics. It was not reported whether power calculations were used to determine the sample size.

Study design
The study was a before and after comparison of the impact of a restrictive prescribing protocol (study site), a cost reminder (control 1) and no intervention (control 2). Control site 2 (no intervention), consisted of two clinics, giving a total of four study sites in all.
Analysis of effectiveness
The primary outcome was a comparison of the numbers of expensive NSAIDs prescribed before, during and at the end of the intervention period for each of the three interventions. Patient outcome and clinician acceptance were assessed by a questionnaire completed by clinicians after 10 months of follow-up.

Effectiveness results
The percentages of expensive NSAID prescriptions for each hospital were initially:

study site 34.2%;
control 1, 45.8%;
and control 2, 47%.

During the last three months of the intervention the percentages of expensive NSAID prescriptions were:

study site, 21.0%;
control 1, 42.2% and control 2, 45.3%.

The 10-month follow up of patient outcomes revealed that 4 patients (1 from each of 4 physicians) may have experienced worse pain control than would have been the case without the protocol. No other patient harm was reported. Nine percent of responding clinicians considered the protocol to be "very bothersome" and 2% considered that it should be discontinued.

Measure of benefits used in the economic analysis
Since the effectiveness study showed no difference in clinical benefit the economic study was based on the difference in costs between the strategies.

Direct costs
The quantities of resource use were reported separately from the costs. Costs were calculated using actual NSAID acquisition costs from 1992 in the study site. Alternatively, 1994 wholesale prices were used. Costs were not discounted due to the quarterly structure of the cost analysis used by the authors. Quantities of resource use were derived from actual data from the clinical study.

Statistical analysis of costs
Two-tailed student t-tests were performed for quarterly comparisons of costs in each site.

Indirect Costs
Not included.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was conducted.
Estimated benefits used in the economic analysis
Not applicable.

Cost results
The NSAID cost per 100 visits, at baseline, was $51 for the study site, $78 for control site 1 and $173 for control site 2. The corresponding figures for the last 3 months of the analysis were $36, 78 and $180. Total NSAID costs decreased by 31% on the study site, 5% at control site 1 and increased 2% at control site 2. Volume adjusted NSAID savings on the study site were estimated to be $152,800. NSAID costs at the study site were estimated to be $8,000 lower than either control site.

Synthesis of costs and benefits
Not applicable.

Authors’ conclusions
Application of a simple stepped care prescribing protocol for NSAIDs, in addition to being less restrictive than rigid formulary management, can produce substantial costs savings while still maintaining physician acceptance and quality of patient care.

CRD Commentary
According to the authors, the study has the following limitations:

(1) NSAID prices have changed significantly since the intervention was introduced and, therefore, the distinction between expensive and inexpensive drugs may easily be altered in the future with corresponding differences in the costs savings reported in the study.

(2) The results of this study may not be easily generalisable since the feasibility of the protocol in this case was enhanced by the fact that patients used a single pharmacy system.

(3) The questionnaire may not have been a sufficiently sensitive tool for measuring patient outcome.

The study design, given its lack of randomisation, is a potential source of bias.

Implications of the study
The development and implementation of prescribing protocols may result in savings in the use of more expensive drug but is probably a site specific activity. Further studies are therefore needed on this issue.

Source of funding
None stated.

Bibliographic details

PubMedID
8598620

Other publications of related interest
**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Anti-Inflammatory Agents, Non-Steroidal /economics /therapeutic use; Clinical Protocols; Cost Savings /statistics & numerical data; District of Columbia; Drug Costs /statistics & numerical data; Drug Utilization Review; Hospital Costs; Hospitals, Military /economics; Humans; Ibuprofen /economics /therapeutic use; Indomethacin /economics /therapeutic use

**Accession Number**
21996008095

**Date bibliographic record published**
28/02/1999

**Date abstract record published**
28/02/1999