Effect of physician profiling on utilization: meta-analysis of randomized clinical trials


Authors' objectives
To assess the clinical effect of peer-comparison feedback intervention (profiles) in changing practice patterns.

Searching
MEDLINE, the Health Planning and Administration database, CINAHL and the Science Citation Index were searched using the textwords 'peer-comparison' and 'feedback' combined with MeSH terms such as 'randomised controlled trials' and 'clinical trials'. Additional material was located by examining the Columbia Registry of Information and Utilisation Management Trials, and by manually searching reference lists of retrieved studies and review articles.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were included.

Specific interventions included in the review
Peer-comparison feedback interventions aimed at changing the average utilisation of a targeted procedure in the study group (frequency of feedback ranged from daily to every 3 months).

Participants included in the review
Physicians, general practice groups and nurse practitioner teams were included.

Outcomes assessed in the review
The frequency of a clinical procedure (e.g. number of prescriptions for target drugs, number of laboratory tests, number of cancer screening tests, number of appointments kept), with the final measurement taken 1 to 3 months following the final feedback report.

How were decisions on the relevance of primary studies made?
Two research associates worked independently to check the relevance of the primary studies.

Assessment of study quality
The quality of eligible trials was evaluated using a 20-question tool designed to assess health services research trials (see Other Publications of Related Interest nos.1-2). Site, sample, randomisation, process of observation, data quality and statistical analysis were all assessed. A total score from 1 to 100 was awarded to each article. To be included, a score of 55 had to be reached. The authors do not state how the papers were assessed for quality, or how many of the authors performed the quality assessment.

Data extraction
The data were extracted by two research associates working independently. A third researcher checked the abstracts and noted the degree of agreement between the two abstractors. For studies in which the number of clinical actions could not be derived from the published report, the authors of the primary study were contacted for further information.

Methods of synthesis
How were the studies combined?
The included trials were combined using three different methods to analyse three slightly different sets of studies. The methods used were a vote-counting method, a z-transformation method, and an odds ratio (OR) method, calculated using the Mantel-Haenszel procedure. A description of each of these methods is provided in the paper.
A sensitivity analysis was undertaken to calculate tolerance, i.e. the minimum number of additional but unpublished negative studies that would be needed to make the result of the statistical synthesis non significant and reverse the conclusions.

How were differences between studies investigated?
The chi-squared test of heterogeneity was used to examine differences between the studies included in the OR method.

**Results of the review**

Twelve RCTs (n=552) were included.

The vote-counting method of the meta-analysis included all 12 trials. Ten of the trials were positive and 2 were negative. The significance level for all 12 trials was p<0.05.

In the z-transformation meta-analysis (8 trials), the combined significance test resulted in an overall z-value of 1.98 (p<0.05).

In the OR analysis (5 trials), the primary effect variable in 2 of the 5 trials had a non significant OR. The overall OR was significant, 1.09 (95% confidence interval: 1.05, 1.14), but the 5 trials were heterogeneous.

The tolerance calculations suggest that the results of the vote-counting and z-transformation methods are unlikely to be overturned by unpublished negative studies.

**Authors' conclusions**

Profiling has a statistically significant, but minimal effect on the utilisation of clinical procedures. The results of this study indicate a need for controlled clinical evaluations before subjecting large numbers of physicians to utilisation-management interventions.

**CRD commentary**

The authors present a thorough systematic review, although no information is presented on the time period covered by the literature search. Quality scores for the primary studies are reported in the review, but these do not appear to be taken into account in the analyses. Three methods of combining the data are presented and discussed. The results of the more rigorous method (the OR method) are undermined by significant heterogeneity. The results of the other two methods (vote-counting and z-transformation) suggest a statistically significant benefit of physician profiling. However, these methods are relatively crude, and as the authors discuss, further controlled studies should to be carried out before such interventions are implemented.

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**Bibliographic details**


**PubMedID**

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**Other publications of related interest**


These additional published commentaries may also be of interest. Poses RM. Review: Peer-comparison feedback has a modest effect on the use of clinical procedures. ACP J Club 1997;126:81. Donaldson LJ. Performance information has a statistically significant but minimal effect on physician use of diagnostic tests and treatments, and may cost more money than it saves. Evidence-Based Health Policy and Management 1997;1:67. Donaldson LJ. Giving physicians data comparing their own performance with that of their peers has a statistically significant, but small effect and the cost of doing so may be greater than the savings that result. Evidence-Based Health Policy and Management 1997;1:94.

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**Record Status**
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