Randomised controlled trial of clinical medication review by a pharmacist of elderly patients receiving repeat prescriptions in general practice

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
The use of pharmacists rather than general practitioners (GPs) to repeat prescriptions, through consultations with elderly patients. During the consultation, the pharmacist did not physically examine the patient but discussed the condition to be treated and asked about relevant symptoms. The patient was directed to a practice nurse or doctor if required. Repeat prescriptions were defined as prescriptions that were represcribed without a consultation between the doctor and patient.

Type of intervention
Primary care.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients aged at least 65 years who were receiving at least one drug on repeat prescription. The patients were excluded if they lived in nursing or residential homes, had terminal diseases, or if they were already participants in clinical trials.

Setting
The setting was the community. The economic study was carried out in Leeds, UK.

Dates to which data relate
The effectiveness evidence and resource use data were gathered from June 1999 to June 2000. The price year appears to have been 1998.

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

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations to determine the sample size were not reported. Consecutive eligible patients from randomly selected general practices in Leeds Health Authority were enrolled in the study. The general practices were selected from a list of those practices with four or more partners, computerised repeat prescribing, no prior or current clinical
pharmacist involvement, and prescribing costs close to average. Of 3,308 eligible patients, 2,403 were contacted. A final sample of 1,118 patients was enrolled but data were available for 1,131 patients (581 in the intervention group and 550 in the control group).

Study design
This was a randomised controlled trial that was carried out in four general practices in Leeds Health Authority. The patients were randomised to the control or intervention group using computer-generated random numbers. The choice of the general practices was also made on the basis of a randomised design. A single pharmacist saw all of the patients, who were followed for 28 days after the consultation. Data were collected for the 6 months before the beginning of the study, in order to assess whether the pharmacist’s presence had any impact on the analysis.

Analysis of effectiveness
The effectiveness analysis was carried out on the sample of 1,131 patients for whom data were available at the end of the study. The primary health outcome was the number of changes to repeat prescriptions between the baseline and the end of the 12-month study. The secondary outcomes included the need for consultation with a GP or hospital treatment. The study groups were reported to be comparable in terms of their age, gender, practice, the number of drugs on repeat prescription, and the number of doses at baseline.

Effectiveness results
Overall, 97% of the patients in the intervention group had a consultation with the pharmacist, while 44% of those in the control group had a documented review with a doctor.

The mean number of changes per patient was 2.2 in the intervention group and 1.9 in the control group (difference 0.31, 95% confidence interval, CI: 0.06 - 0.57; p=0.02).

No evidence of adverse health outcomes, as measured by the need for consultation with a GP or hospital treatment, was reported.

The presence of the pharmacist had no impact on the study results.

Clinical conclusions
The effectiveness analysis showed that the review by a pharmacist resulted in significantly more drug changes than the routine review.

Measure of benefits used in the economic analysis
The health outcomes were left disaggregated and no summary benefit measure was used. A cost-consequences analysis was therefore carried out.

Direct costs
Discounting was irrelevant as the costs were incurred over a period of one year. The unit costs and the quantities of resources were not reported separately, except for pharmacist time, which was not used to calculate the total cost. The cost/resource boundary adopted in the study was unclear. The net ingredient cost of 28 days' supply, based on the actual drug costs, was included in the analysis. The hourly gross cost of a pharmacist was also reported. The quantities of resources were measured from June 1999 to June 2000. The prices for 1998 were used.

Statistical analysis of costs
Statistical analyses of the total costs were carried out to test for statistical significance of the results.
Indirect Costs
The indirect costs were not included in the analysis.

Currency
UK pounds sterling ( ).

Sensitivity analysis
Sensitivity analyses were not carried out.

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

Cost results
The mean cost over 28 days increased from 29.27 to 31.07 in the intervention group, in other words, a change of 1.80. The mean cost in the control group increased from 28.23 to 34.85, in other words, a difference of 6.52.

The difference between the groups was -4.72 (95% CI: -7.04 to -2.41; p=0.0001) in favour of the pharmacist review.

The number of repeat medicines prescribed increased less in the intervention group than the control group.

Synthesis of costs and benefits
Not relevant.

Authors' conclusions
The review of elderly patients' clinical medication by a pharmacist was a feasible alternative. It resulted in more changes to treatment than normal care and significant cost-savings, even after the cost of the intervention was deducted. The authors highlighted that the smaller number of prescriptions in the intervention group reflected the cessation of unnecessary drugs, which reduced the risk of adverse effects and interactions.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear. The review of patient treatment by GPs was selected as it represented the usual care. You should assess whether it represents a commonly used intervention in your own setting.

Validity of estimate of measure of effectiveness
The analysis of the effectiveness used a randomised controlled trial. The method of randomisation was reported and the impact of the presence of the pharmacist was assessed. The study groups were reported to have been comparable at baseline in terms of several factors. The authors acknowledged that the general population of eligible elderly patients was not perfectly represented by the study participants, who were younger and taking less drugs. However, this may suggest that the study results underestimated the effects of the intervention examined, which was likely to provide even more benefits than those assessed. The measure of health outcome was based on the assumption that changes in prescription were beneficial, although there were no recorded consultations for adverse events.

Validity of estimate of measure of benefit
No summary benefit measure was used in the economic analysis, thus a cost-consequences analysis was carried out.
Validity of estimate of costs
The economic perspective of the analysis was not explicitly stated and only the drug costs were included in the analysis. The unit costs and the quantities of drugs used were not reported, except for pharmacist time. Since pharmacists spent an average of 20 minutes with each patient (far longer than a GP consultation) and saw more patients (97% versus 44%), this could have tipped the balance against the pharmacist intervention in terms of the cost. Statistical analyses were carried out only on the total costs. The cost estimates were specific to the UK and sensitivity analyses were not carried out.

Other issues
The authors did not compare their findings with those from other studies. The issue of the generalisability of the study results to other countries was not addressed and sensitivity analyses were not carried out. As a result, the external validity of the study is somewhat limited. The authors stated that "the small scale of this trial, involving only four practices in one city and just one pharmacist, limits the generalisability of the results". Elderly patients were enrolled in the study and this was reflected in the authors' conclusions. The authors presented the effectiveness results selectively, giving little cost data.

Implications of the study
The study suggested that consultations carried out by pharmacists may be effective and cost-saving, although there were limitations in the measure of benefit and a lack of cost data relating to personnel time. Further large-scale studies are needed to assess the practicality, costs and benefits of the intervention.

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