Randomised trial of monitoring, feedback and management of care by telephone to improve treatment of depression in primary care

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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
Two programmes aimed at improving the treatment of acute depression in primary care were examined. The first programme was feedback alone, which was based on computerised data on prescriptions and visits. The second was feedback plus care management, in which the feedback system was supplemented with systematic follow-up and care management by telephone.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients starting antidepressant treatment. Patients were excluded if they had not been diagnosed with depression at any visits, or had been diagnosed with bipolar disorder or psychotic disorder in the two years prior. They were also excluded if, in the previous 90 days, they had been diagnosed with alcohol or other substance misuse or had visited a psychiatrist.

Setting
The setting was primary care. The economic study was conducted at five primary care clinics in Seattle, USA.

Dates to which data relate
The dates to which the effectiveness, resource use and most health care costs related were not explicitly reported, although they are likely to refer to 1997 to 1998. The cost of a visit related to 1997.

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 patient sample as that used in the effectiveness analysis.

Study sample
The study sample consisted of all patients at participating clinics who had received new prescriptions for antidepressants (no antidepressant use in the previous 120 days).
Power calculations determined a sample size of 200 patients per group. This was based on the ability to detect a 10% difference in the treatment costs for depression, with 80% statistical power and a type I error of 5% (two-sided).

The method used to select the sample was not reported. There were 872 eligible patients. Of these, 101 patients could not be contacted by telephone and 157 declined to participate. The remaining 613 patients were randomly assigned to usual care, feedback only, or feedback plus care management. In the usual care group, there were 196 patients with a mean age of 46.8 (+/- 15.3) years, and 72% were women. In the feedback only group, there were 221 patients with a mean age of 46.5 (+/- 14.3) years, and 70% were women. In the feedback plus care management group, there were 196 patients with a mean age of 46.3 (+/- 14.9) years, and 74% were women.

Study design
The study was a randomised blind clinical trial, which was conducted in five clinics. The patients were randomised to usual care, feedback only, or feedback plus care management by computer-generated random numbers, stratified by clinic. In the usual care group, only the standard services were provided. In the feedback only group, the doctors received a detailed report at 8 and 16 weeks (the drug side effect and severity of depression information were unavailable) and made treatment recommendations on the basis of a computerised algorithm. In the care management group, the care manager made a 5-minute introductory phone call immediately after randomisation. This was followed by a 10- to 15-minute telephone assessment (including current use of antidepressants, side effects, severity of depressive symptoms) 8 and 16 weeks after the initial prescription. The care manager also provided a feedback report to the doctors, which included all other available data. The doctors then made their recommendations for changing the drugs, follow-up visit, and so on, which were implemented by the care managers. A psychiatrist supervised the care managers (approximately 15 minutes per week).

The follow-up assessments were carried out at 3 and 6 months after the initial prescription. These included a 20-item depression scale on the symptom checklist and the current depression module of the structured clinical interview for DSM-IV. The outcome assessments were conducted by independent telephone interviewers, who were blinded to both the treatment group and treatment received. The participants were advised not to reveal details of the treatment they received during these blinded assessments. Ninety-seven per cent of the patients responded to the 3-month follow-up assessment and 95% to the 6-month assessment.

Analysis of effectiveness
The analysis of the clinical study was conducted on an intention to treat basis. The primary health outcomes assessed from the blinded 3- and 6-month follow-up assessments were:

the average depression scores on the symptom checklist over time;

the probability of showing a 50% decrease in the depression scores; and

the probability of persistent major depression.

The average depression scores at follow-up were adjusted for age, gender, chronic disease score, and baseline depression score. The treatment groups were comparable in terms of their age (mean: 46 years), the proportion of females (70 to 74%), depression score based on Hopkins symptom checklist (1.67 to 1.74), and chronic disease score.

Effectiveness results
The adjusted average depression score was significantly lower in the care management group than in the usual care group, (p=0.008).

The mean score in the feedback only group did not differ from that in the usual care group, (p=0.82).

The adjusted mean depression score at 6 months was 0.83 in the care management group, compared with 0.98 in the usual care group (95% confidence interval, CI, for the difference: 0.02 - 0.27).
The care management group had a significantly higher probability of a 50% decrease in depression score on the symptom checklist (odds ratio 2.22, CI: 1.31 - 3.75). It also had a significantly lower probability of persistent major depression at follow-up (0.45, CI: 0.24 - 0.86).

The feedback only intervention had no significant effect on either the probability of treatment response (1.12, 0.73 - 1.73) or the probability of major depression at follow-up (0.89, 0.55 - 1.46).

**Clinical conclusions**
The authors concluded that the feedback alone intervention did not produce significant benefits for the patients. However, a feedback and care management significantly improved the outcomes for patients in primary care starting antidepressant treatment.

**Measure of benefits used in the economic analysis**
No measure of benefit was used in the economic analysis. A cost-consequences analysis was therefore conducted.

**Direct costs**
The cost/resource boundary reflected the perspective adopted in the analysis. The direct costs analysed were for treating outpatient depression and for care management. The treatment costs for outpatient depression included antidepressant prescriptions, follow-up visits, visits for mental health, and visits to primary care with depression diagnoses. The resource use (prescriptions, visits, treatment costs) was available for 93% of those patients remaining in the health plan for 6 months. The treatment costs were calculated using the 1997 Medicare fee schedule for visits and the health plan's actual costs for all other services. No discounting was necessary, as the duration of follow-up was only 6 months. The quantities of the health care services and the costs were analysed separately.

**Statistical analysis of costs**
Adjusted incremental costs were estimated using mixed linear regression. This incorporated two random intercepts to account for the clustering of patients within doctors and of doctors within clinics.

**Indirect Costs**
The indirect cost analysed was the patient time in treatment. This was estimated from the average hourly wage of the patients treated for depression and the average time spent attending an outpatient visit, which were derived from a published study.

**Currency**
US dollars ($). These were converted into UK pounds sterling (£).

**Sensitivity analysis**
No sensitivity analysis was carried out.

**Estimated benefits used in the economic analysis**
Not applicable given the cost-consequences approach adopted. See the 'Effectiveness Results' section.

**Cost results**
The primary analyses considered the treatment costs for outpatient depression over 6 months. After adjustment for age, gender, chronic disease score and baseline depression score, these resulted in mean incremental costs of $22 (95% CI: -27 - 71) for feedback only over usual care and $83 (95% CI: 32 - 134) for care management over feedback only.
Alternatively, 13.75 (95% CI: 16.9 - 44.81) for feedback only over usual care and 51.88 (95% CI: 20 - 83.75) for care management over feedback only.

The secondary analysis of costs for total health services showed higher costs for the care management, mainly due to a single outlier with costs of $120,000. The total health service costs were $1,645 for usual care, $1,673 for feedback only, and $2,327 for care management. After removal of the outlier, the total health services costs in the care management group were $1,729.

The costs of time in treatment were comparable among the three groups, being $244 (usual care), $232 (feedback only) and $249 (care management). Neither intervention had a significant effect on the number of visits for primary care, mental health or follow-up.

**Synthesis of costs and benefits**
Not applicable.

**Authors' conclusions**
The feedback plus care management intervention significantly improved the outcomes of patients in primary care starting antidepressant treatment, at a modest cost. The feedback only programme, however, did not show significant benefits for the patients.

**CRD COMMENTARY - Selection of comparators**
The authors justified their selection of usual care as the comparator on the grounds it was current practice. You should decide whether the comparator represents current practice in your own setting.

**Validity of estimate of measure of effectiveness**
The internal validity of the analysis is likely to be high. The analysis used a randomised controlled trial with blinded assessment of the outcomes, which was appropriate for the study question. Power calculations were performed in the planning phase and the study sample was appropriate for the study population. The patient groups were shown to be comparable, and adjustments were made at analysis for the individual characteristics of the patients. Appropriate statistical analyses were undertaken and the clinical analysis was conducted on an intention to treat basis.

**Validity of estimate of measure of benefit**
The authors did not derive a summary measure of health benefit. The study was therefore categorised as a cost-consequences analysis.

**Validity of estimate of costs**
All the categories of costs relevant to society, which appears to have been the perspective adopted in the study, were included in the analysis. The major costs and categories were reported separately. No sensitivity analyses were performed (with the exception of the exclusion of the major outlier in the care management group), and the uncertainty associated with the results was not investigated. Reimbursement rates and fees rather than true costs were used. The price year was not explicitly stated.

**Other issues**
The authors made appropriate comparisons of their findings with those from other studies. The issue of generalisability to other settings was not addressed through sensitivity analyses. However, the authors pointed out that their results might not be generalisable to primary care doctors with different level of knowledge and experience in the treatment of depression, or to patients with prior antidepressant prescriptions.
Implications of the study
The authors recommend the implementation of an organised monitoring and care management programme to improve the treatment of depression.

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