A comparison of the clinical effectiveness and costs of mental health nurse supplementary prescribing and independent medical prescribing: a post-test control group study

Norman IJ, Coster S, McCrone P, Sibley A, Whittlesea C

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.

CRD summary
This study compared the outcomes and costs of supplementary prescribing by a mental health nurse versus independent medical prescribing. The authors concluded that their study showed no significant differences in the clinical outcomes, and health and social care costs. The methods were appropriate, and they and the results were reported in detail. The authors highlighted the main limitations of their study and their conservative conclusions appear to be appropriate for the scope of their analysis.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to compare the outcomes and costs of prescribing by a mental health nurse supplementary prescriber against independent medical prescribing.

Interventions
The interventions were the prescription of medicines either by a mental health nurse or by an independent medical practitioner.

Location/setting
UK/out-patient secondary care.

Methods
Analytical approach:
The cost and outcome evidence was from one case-control study, with a time horizon of one year. The authors reported that the perspective was that of the health and social care system, plus informal care costs. A cost-consequences analysis was undertaken to compare the service costs between groups.

Effectiveness data:
A post-test control group design was used, in five mental health trusts where mental health nurse supplementary prescribers provided a service for a minimum of 10 patients. Each patient who received nurse prescribing was matched on primary diagnosis, gender, age, and length of time since diagnosis to a patient whose medication was managed by a consultant psychiatrist. A total of 90 patients, most with a primary diagnosis of depression or schizophrenia, were included, with 45 in each group.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The primary outcome measure was self-reported adherence to medication. This was measured on the Medication Adherence Report Scale (MARS), which ranges from five to 25, with five being high adherence. Secondary outcomes included: patient satisfaction, depression (measured by the Beck Depression Inventory), and side-effects. Outcome data were collected by structured face-to-face interviews.
Cost data:
The direct costs included the intervention, out-patient and day care visits, therapist visits, visits to the psychiatrist, hospitalisations, social care visits, general practitioner visits, community nurse time, psychologist visits, and accident and emergency care. The costs of informal care provided by friends or relatives were included. The intervention costs were from staff at the study sites, and included training and the consultation with the mental health nurse. Resource use was collected using a short version of the Client Services Receipt Inventory. They were assessed retrospectively for one year, and valued using unit costs from a UK compendium of health and social care costs. Informal care costs were calculated by multiplying the hours spent caring by the unit cost of a home care worker. All costs were reported at 2005 to 2006 prices, in UK pounds sterling (£).

Analysis of uncertainty:
A one-way sensitivity analysis was performed to assess the impact of variations in the nurse prescriber's case load (number of patients treated) on the costs. Paired t-tests were conducted to test for differences in the key outcome measures, and regression analysis examined the differences in costs. For the cost data, 95% confidence intervals were estimated using bootstrapping to account for skew in the distribution of cost data.

Results
There were no statistically significant differences in reported adherence between the two groups. The mean MARS score was 21.25 (SD 4.09) for patients with a nurse prescriber and 21.90 (SD 2.68) for patients with a medical prescriber. The 95% confidence interval for the difference was -2.25 to 0.94.

Excluding informal care, the mean cost per patient was £4,526 (SD 5,996) for nurse prescribing and £3,723 (SD 4,391) for psychiatrist prescribing. The 95% confidence interval for the difference was -1,341 to 3,020. Including informal care, the mean cost was £10,714 (SD 13,257) for nurse prescribing and £9,001 (SD 14,465) for psychiatrist prescribing. The 95% confidence interval for the difference was -3,950 to 6,699.

The sensitivity analysis showed that the nurse prescriber's caseload had little impact on the mean costs of the intervention.

Authors' conclusions
The authors concluded that their study showed no significant differences in the clinical outcomes, and health and social care costs. Mental health nurse supplementary prescribers could deliver benefits for patients similar to those delivered by consultant psychiatrists.

CRD commentary
Interventions:
The interventions were reported clearly and in detail.

Effectiveness/benefits:
The effectiveness estimates were from a case-control study. The authors appropriately reported how the cases were matched to controls. Case-control studies have inherent limitations, for instance, patients could vary systematically between the two groups in unobserved variables, as the authors pointed out. For example, these patients could have varied their disease severity. Sample size power calculations indicated that 60 rather than 45 patients per group were needed. An effect size of ±0.54 was sufficient with 80% power at 5% significance, with 45 patients per group.

Costs:
The perspective was explicitly reported and all the costs relevant to this health and social care perspective appear to have been included. The authors also analysed the inclusion of informal care costs. They reported how the resource use was collected and the sources for the unit costs. The price year and time horizon were reported.

Analysis and results:
No synthesis of the effectiveness and cost data was conducted as a cost-consequences analysis was undertaken. The differences in costs and outcomes between the two groups were tested and 95% confidence intervals for these differences were reported. It would have been informative to present the differences with p-values from appropriate
statistical tests. Both the methods and the results were reported in detail. The main limitations, as reported by the authors, were the case-control design and the fact that the outcome measures were self reported.

Concluding remarks:
The methods were appropriate, and they and the results were reported in detail. The authors highlighted the main limitations of their study and their conservative conclusions appear to be appropriate for the scope of the analysis.

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