Screening for postnatal depression in primary care: cost effectiveness analysis

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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.

CRD summary
This study examined the cost-effectiveness of screening for postnatal depression, using standardised postnatal and generic depression questionnaires. The authors concluded that the routine application of depression questionnaires was not cost-effective compared with usual care, from the perspective of the UK National Health Service. On the whole, the study was well conducted and the authors’ conclusions appear to be valid and robust.

Type of economic evaluation
Cost-utility analysis

Study objective
This study examined the cost-effectiveness of several screening options for postnatal depression, including standardised postnatal and generic depression questionnaires.

Interventions
The main screening implements were the Edinburgh Postnatal Depression Scale (EPDS) and the Beck Depression Inventory (BDI). The EPDS was standardised for postnatal depression and the BDI was a generic depression questionnaire. Various cut-off points were considered and other instruments, such as the Whooley questions (recommended by the National Institute for Health and Clinical Excellence, NICE), were also considered, in some scenarios. These instruments were compared against routine care, which consisted of no formal screening for postnatal depression.

Location/setting
UK/primary care.

Methods
Analytical approach:
The analysis was based on a decision analytic model with a one-year time horizon. The authors stated that the analysis was carried out from the perspective of the National Health Service (NHS) and personal social services.

Effectiveness data:
A systematic review of the literature in 20 electronic databases was undertaken to identify the relevant sources of data. A meta-analytic approach was used to determine most of the parameters for the model. The key clinical input was the accuracy of the questionnaires (their sensitivity and specificity rates) and this was obtained using a random-effects meta-analysis. Other data came from a UK follow-up study, a published systematic review, and a recent clinical guideline published by the NICE.

Monetary benefit and utility valuations:
The utility valuations were derived from a published study, but the details of this were not given. The utility weights were obtained from patients with depression and were not specific to postnatal depression.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure.

Cost data:
The economic analysis included the costs of questionnaires, subsequent treatment, and incorrect diagnosis (contacts...
with health care professionals and supporting care). The NHS costs were derived from official NHS reference costs and the unit costs were reported. The resource quantities were based on NICE clinical guidelines, published data, or expert opinions. The costs were in UK pounds sterling (£) for the fiscal year 2006 to 2007.

**Analysis of uncertainty:**
Monte Carlo simulations were used to deal with the issue of uncertainty in the model inputs. A deterministic sensitivity analysis was also carried out to explore the impact of alternative model assumptions, such as for the cost incurred by and approach to managing those wrongly identified as depressed (false positives); and the decision to include or exclude formal screening strategies, such as the Whooley questions, that were not evaluated in the bivariate meta-analysis because of insufficient data.

**Results**
The expected QALYs were 0.8455 with routine care, 0.8468 with the BDI (at a cut-off point of 10), and ranged from 0.8461 to 0.8472 with the EPDS depending on the cut-off point. The expected mean costs were £49.29 with routine care, £121.51 with the BDI, and ranged from £73.49 to £215.07 with the EPDS.

Considering routine care as the reference strategy and excluding the dominated strategies, the most favourable incremental cost per QALY gained was £41,103 with EPDS at a cut-off point of 16. The other cost-utility ratios ranged from £49,928 to £272,463.

The probability that routine care was the most cost-effective option was 87.65% at a threshold of £20,000 per QALY and 58.69% at a threshold of £30,000 per QALY.

The sensitivity analysis showed that the key driver of the model was the assumption of lower costs associated with false positives, but the findings were not altered significantly. Only at the lowest cost, assumed for women wrongly diagnosed, was the incremental cost per QALY gained, with the EPDS at a cut-off point of 16, lower than £30,000.

**Authors’ conclusions**
The authors concluded that the routine application of either postnatal or general depression questionnaires was not cost-effective compared with usual care. The authors stated that further research should consider alternative management approaches for those positively identified by formal screening.

**CRD commentary**

**Interventions:**
The rationale for the selection of the comparators was clear, but standard care was not fully described. The identification of the relevant questionnaires was appropriately based on a literature review, which should have ensured the inclusion of all relevant alternatives.

**Effectiveness/benefits:**
The clinical analysis was well conducted. Some key details of the search criteria and the literature review were reported. The use of supplementary data from UK sources appears to have been appropriate. The authors acknowledged that there was some heterogeneity between studies across all cut-off points of the questionnaires, but the use of a random-effects meta-analysis should have reduced the uncertainty due to this. QALYs were used as the summary benefit measure, but the authors noted that they might not have been the most appropriate measure of health outcome for this patient population.

**Costs:**
The cost categories and their sources were consistent with the perspective. The unit costs, price year, and use of assumptions were reported. More information on the resource consumption should be available in the full technical report of the study, which was published elsewhere. Alternative assumptions for the cost of women incorrectly diagnosed with depression were made and these had an impact on the results.

**Analysis and results:**
The costs and benefits of the various strategies were clearly presented and were appropriately synthesised using an...
incremental approach. The issue of uncertainty was generally well addressed and the results of the various scenarios were clearly presented and discussed. The authors pointed out the strengths of their analysis, such as the use of meta-analysis, systematic reviews, and probabilistic techniques, which were compatible with the most recent best practice guidelines from NICE for technology appraisal in the UK. Some potential limitations were also noted and were mainly related to the lack of published evidence for some parameters of the model and health-related quality of life. In particular, the use of utility weights from patients with depression, but not from women with postnatal depression was an issue.

Concluding remarks:
On the whole, the study was well conducted and the authors’ conclusions appear to be valid and robust.

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