Cost and effectiveness of venlafaxine extended-release and selective serotonin reuptake inhibitors in the acute phase of outpatient treatment for major depressive disorder


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
Venlafaxine extended release (VXR) was compared with selective serotonin reuptake inhibitors (SSRIs) in the outpatient treatment of major depressive disorder (MDD).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients who met criteria identified in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) for major depression or MDD for at least one month. In addition, the patients were required to have a minimum score of 20 on the 21-item Hamilton Rating scale for Depression (HAM-D) or of 25 on the Montgomery Asberg Depression Rating Scale.

Setting
The setting was primary care. The economic study was carried out in the USA.

Dates to which data relate
The dates to which the effectiveness data referred were not reported. The price year was 2002.

Source of effectiveness data
The effectiveness data were derived from pooled data of patients treated in 8 double-blind, randomised clinical trials.

Modelling
A decision analytical model was developed to evaluate the economic implications of the results of the pooled data.

Outcomes assessed in the review
The outcomes reviewed were remission, response without remission and non response.

Study designs and other criteria for inclusion in the review
Pooled data from 8 clinical trials were used to calculate the probabilities of being in each health state.
Sources searched to identify primary studies
Not reported.

Criteria used to ensure the validity of primary studies
Not reported.

Methods used to judge relevance and validity, and for extracting data
Not reported.

Number of primary studies included
Eight primary studies were included in the study.

Methods of combining primary studies
Not reported.

Investigation of differences between primary studies
Not reported.

Results of the review
The remission rates used in the model were not reported, although another paper was referred to (Thase et al. 2001, see 'Other Publications of Related Interest' below for bibliographic details).

Methods used to derive estimates of effectiveness
The effectiveness measures were derived from observed outcomes in the pooled clinical data.

Estimates of effectiveness and key assumptions
Depression-free days (DFDs) were calculated on the basis of the HAM-D score. Patient with a score of 15 or greater were assigned 0 DFDs, while those with a score of less than or equal to 7 were assigned 14 DFDs. For a HAM-D score of between 8 and 14, DFDs were prorated.

DFDs were transformed into quality-adjusted days (QADs). It was assumed that each DFD signified a gain of 0.2 to 0.41 QADs compared with a day suffering from fully symptomatic depression.

Achievement of full activity and productive days were calculated using item 7 of the 17 item HAM-D. Scores of 0 were assigned 14 productive days, scores of at least 3 were assigned 0 days, and scores of 1 or 2 were assigned a weighted score between 0 and 14.

Measure of benefits used in the economic analysis
Quality-adjusted life-years (QALYs) were used to measure the benefit. The QALYs were calculated by multiplying the QAD by 365.

Direct costs
Direct health care costs were included in the analysis. These were the pharmacy and non-pharmacy costs of physician visits and laboratory tests. Discounting was not relevant as the time horizon was 8 weeks in the acute phase of MDD treatment. The cost data were obtained from public sources, with drug costs based on Average Wholesale Prices and
non-pharmacy costs taken from the 2002 Physicians Fee and Coding Book: A Comprehensive Fee and Coding Reference. The price year was 2002.

**Statistical analysis of costs**
No statistical analysis was undertaken.

**Indirect Costs**
The indirect costs were not included in the analysis.

**Currency**
US dollars ($).

**Sensitivity analysis**
A sensitivity analysis was undertaken using Monte Carlo stochastic simulation. The costs of the health care services were estimated to vary by +/-50% and the probability data were varied within the corresponding 95% confidence intervals (CIs).

**Estimated benefits used in the economic analysis**
The remission of symptoms was 44.9% in the VXR group compared 34.7% in the SSRI group.

The number of DFDs was 22.82 in the VXR group compared with 18.61 in the SSRI group.

The number of QADs ranged from 4.56 to 9.36 in the VXR group and from 3.72 to 7.63 in the SSRI group.

The achievement of full activity was 25.9% in the VXR group compared with 19.6% in the SSRI group.

The number of productive days was 22.06 in the VXR group compared with 19.34 in the SSRI group.

**Cost results**
The pharmacy cost was $226.87 in the VXR group compared with $143.42 in the SSRI group.

The non-pharmacy cost was $358.60 in the VXR group compared with $282.27 in the SSRI group.

**Synthesis of costs and benefits**
The costs and benefits were combined to give a cost per QALY.

The average cost per QALY was $22,831 (95% CI: 19,659 - 50,567) in the VXR group and $25,148 (95% CI: 20,856 - 57,013) in the SSRI group.

The incremental cost-effectiveness ratio for VXR compared with SSRI was $12,611 (95% CI: 8,964 - 36,383).

The 95% CI were estimated ranges based upon the sensitivity analysis performed using Monte Carlo simulation.

**Authors' conclusions**
Both venlafaxine (VXR) and selective serotonin reuptake inhibitors (SSRIs) provide positive health outcomes at a reasonable per unit cost and are cost-effective in relation to an absence of antidepressant therapy. However, the estimated incremental cost-effectiveness ratio and associated sensitivity ranges suggest that VXR is likely to be somewhat more cost-effective in achieving these benefits than an SSRI.
CRD COMMENTARY - Selection of comparators
The rationale for the selection of the comparators was clear. VXR had been shown to be more effective than SSRIs in patients with MDD in both outpatient and inpatient settings. The benefits and costs were evaluated to enable more informed choices for a broad range of depressed patients.

Validity of estimate of measure of effectiveness
The effectiveness data were taken from pooled data in 8 randomised clinical trials. Neither the designs of the trials nor the results were reported, although reference was made to another paper. The authors carried out sensitivity analyses on several parameters to explore the impact of uncertainty in the parameter values.

Validity of estimate of measure of benefit
The economic benefit was measured in QALYs, which were estimated using a decision model. The model considered the health states that the patients could enter and the probability of moving between the states. The utility weights were taken from published literature.

Validity of estimate of costs
The authors presented results from both the US third-party payer perspective and from that of the employer. The source of the cost data and the price year were reported, which would assist any reflation exercises. A sensitivity analysis was also undertaken. This helped validate the results.

Other issues
The authors made appropriate comparisons with other studies. The authors acknowledged a number of limitations of the study and these were discussed thoroughly in the paper. Sensitivity analyses, which further increase the external validity of the analysis, were conducted.

Implications of the study
The authors made no recommendations for changes in practice or for further research.

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Other publications of related interest

Indexing Status
Subject indexing assigned by NLM
MeSH
Activities of Daily Living /classification /psychology; Acute Disease; Ambulatory Care /economics; Cost-Benefit Analysis; Cyclohexanols /economics /therapeutic use; Decision Support Techniques; Delayed-Action Preparations /economics; Depressive Disorder, Major /drug therapy /economics; Double-Blind Method; Drug Costs /statistics & numerical data; Female; Fluoxetine /economics /therapeutic use; Fluvoxamine /economics /therapeutic use; Humans; Male; Paroxetine /economics /therapeutic use; Quality-Adjusted Life Years; Randomized Controlled Trials as Topic; Retrospective Studies; Serotonin Uptake Inhibitors /economics /therapeutic use; Treatment Outcome; Venlafaxine Hydrochloride

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