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## Cost-utility analysis of treatment with olanzapine compared with other antipsychotic treatments in patients with schizophrenia in the pan-European SOHO study

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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 investigated the cost-effectiveness of olanzapine compared with other available antipsychotic medications, for treating schizophrenic patients, in a real-world clinical setting. The authors concluded that olanzapine was likely to be cost-effective compared with other antipsychotic treatments and to produce lower costs and higher effects than both quetiapine and amisulpride. In summary, the methods were transparent, thorough and appropriate, and the authors' conclusions reflect the analysis undertaken.

### Type of economic evaluation

Cost-utility analysis

### Study objective

This study estimated the cost-effectiveness of olanzapine compared with other available antipsychotic medications, for the treatment of schizophrenic patients, previously or currently treated with medications related to schizophrenia, in a real-world clinical setting.

### Interventions

Olanzapine was compared with risperidone, quetiapine, amisulpride, clozapine, and oral and depot typical antipsychotics.

### Location/setting

10 European countries/secondary care.

### Methods

#### Analytical approach:

The evaluation was based on the first 12-months of data from a large, observational, multinational trial specifically intended to capture compliance and other real-world practices. The costs and effects were analysed over a 12-month period. The authors stated that the study perspective was that of the health service payer.

#### Effectiveness data:

The data on effectiveness, in terms of health-related quality of life, were derived from a single clinical study (Haro, et al. 2003, see 'Other Publications of Related Interest' below for bibliographic details). The EuroQol-5D (EQ-5D) questionnaire was administered to measure the health states at baseline, three, six and 12 months, with 9,107 patients finishing the study. Patients remained in the study regardless of whether their medication changed after the baseline. An Epoch analysis was carried out to account for any changes in medication and this fully accounted for the high cost or low effectiveness of treatment before switching (Windmeijer, et al. 2003, see 'Other Publications of Related Interest' below for bibliographic details). Multivariate regression analyses were used to account for variation in baseline characteristics.

#### Monetary benefit and utility valuations:

UK utility weights were applied to the EQ-5D data from all ten European countries.

#### Measure of benefit:

The measure of benefit was quality-adjusted life-years (QALYs).

#### Cost data:

The costs were antipsychotic drugs prescribed, concomitant medications related to schizophrenia treatment, hospital admissions for schizophrenia, days as an inpatient, days in hospital or days in day-care, outpatient psychiatrist consultations and blood or plasma tests. UK unit costs were applied to the resource data from all countries. The unit costs for inpatient days, days in hospital, and outpatient psychiatrist consultations were from the UK Personal Social Services Research Unit, while those of medications and blood or plasma tests were from available UK cost databases. All costs were reported in 2004 UK pounds sterling (£).

#### Analysis of uncertainty:

A probabilistic sensitivity analysis was performed to assess the parameter uncertainty. Non-parametric bootstrapping with replacement was used, for 200 replications, to obtain the sampling distribution of the incremental cost-effectiveness ratios. Cost-effectiveness planes were used to illustrate the results of the sensitivity analyses and cost-effectiveness acceptability curves were plotted using £30,000 per QALY gained as the willingness to pay threshold.

### Results

The adjusted average total treatment cost for olanzapine over 12 months was £3,259, whilst for the comparator drugs, the costs ranged from £2,154 to £3,962. For olanzapine, the costs were lower than for both quetiapine and amisulpride.

The incremental effect for olanzapine was 0.1787 QALYs which was more effective than other medications, which had a range of 0.1246 to 0.1620 QALYs gained.

The cumulative incremental cost-utility ratio ranged from £775 to 23,331 per QALY gained for olanzapine and olanzapine dominated quetiapine and amisulpride (its costs were lower and effects were greater).

At a threshold of £30,000 per QALY gained, the results of the probability sensitivity analyses showed that olanzapine was cost-effective at least 79% of the time compared with other antipsychotic treatments.

### Authors' conclusions

The authors concluded that olanzapine had a high probability of being cost-effective compared with other antipsychotic treatments.

### CRD commentary

#### Interventions:

The interventions were clearly reported and the dosages reflected usual clinical practice in the participating countries. It would appear that all available antipsychotic drug treatments were included in the analysis.

#### Effectiveness/Benefits:

The effectiveness data were based from a single multinational study and the selection of this study was justified by the authors. Multivariate regression models were used to adjust for baseline covariates and account for patient heterogeneity at baseline. The models were fully and transparently reported, which allows replication of the analysis. Quality of life was measured at periods throughout the study using the EQ-5D. The utility scores were then assigned, using UK population tariffs, to all the participants. UK tariffs were used because of their quality and availability, but the authors acknowledged that country specific tariffs, if available, might be more appropriate. The utilities and QALYs were clearly reported and rigorously analysed taking into account participant heterogeneity.

#### Costs:

The costs appear to have been appropriate for the perspective. The sources of costs and their references were clearly reported. Some limitations were acknowledged, by the authors, such as the quality and availability of resource values which were inferior in some countries and so required the use of UK unit cost estimates.

#### Analysis and Results:

The cost and effect analyses were transparent and the few assumptions and all analytical steps taken were reported. Missing data and losses to follow-up were discussed by the authors. The results of the sensitivity analyses were well-reported and illustrated and the study limitations were adequately discussed.

**Concluding remarks:**

The methodology appears to have been appropriate and was explicitly and clearly reported. The authors' conclusions appear to be appropriate and robust under sensitivity analysis.

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**Bibliographic details**

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**Other publications of related interest**

Haro JM, Edgell ET, Jones PB, et al. The European Schizophrenia Outpatient Health Outcomes (SOHO) study: rationale, methods and recruitment. *Acta Psychiatr Scand* 2003;107:222-32.

Windmeijer F, Kontodimas S, Knapp M, et al. Methodological approach for assessing the cost-effectiveness of treatments using longitudinal observational data: the SOHO study. *Int J Technol Assess Health Care* 2006;22:460-8.

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Adult; Antipsychotic Agents /economics /therapeutic use; Benzodiazepines /economics /therapeutic use; Costs and Cost Analysis; Europe; Female; Humans; International Cooperation; Male; Multivariate Analysis; Outcome Assessment (Health Care) /economics /statistics & numerical data; Outpatients; Prospective Studies; Quality-Adjusted Life Years; Schizophrenia /drug therapy /economics; Treatment Outcome

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