The cost-effectiveness of atypicals in the UK

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 atypical antipsychotics in comparison with conventional antipsychotics for the first-line treatment of schizophrenia, focusing on the differences in treatment-related side effects. The authors concluded that atypical antipsychotics were cost-effective, but the model assumptions required further validation in large naturalistic studies, with a reasonable length of follow-up. The study was based on valid and sophisticated methodology and, despite some limited reporting, especially for the clinical data, the authors’ conclusions appear to be robust.

Type of economic evaluation
Cost-utility analysis

Study objective
This study examined the cost-effectiveness of atypical antipsychotics in comparison with conventional antipsychotics for the first-line treatment of schizophrenia, focusing on the differences in treatment-related side effects.

Interventions
The two treatments were atypical compared with conventional antipsychotics. Conventional antipsychotics included (in order of market share) flupentixol depot, zuclopenthixol depot, haloperidol oral, sulpiride, chlorpromazine, and trifluoperazine. Atypical antipsychotics included (in order of market share) olanzapine, quetiapine, risperidone oral, amisulpride, long-acting risperidone, and aripiprazole.

Location/setting
UK/secondary care.

Methods
Analytical approach:
This economic evaluation was based on a discrete event simulation model with a five-year time horizon. The authors stated that the perspective of the third-party payer (the National Health Service and social care trusts) was adopted.

Effectiveness data:
The clinical data came from multiples sources, which appear to have been selected. Most estimates were already incorporated in the decision model and were based on both published studies and experts’ opinions. The assumptions and statistical methods were described, but details about the sources of clinical inputs were not. The key clinical endpoints were the treatment efficacy and incidence of side effects.

Monetary benefit and utility valuations:
The utility valuations were derived from published studies, the details of which were not reported.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure and were discounted at 3.5% per annum.

Cost data:
The economic analysis included the costs of drugs, psychiatrist visits, a fortnight of community care, intensive community care, staffed hostel for patients with mental health problems, and psychiatric hospital stay. The unit costs were reported and they were derived from the British National Formulary and the Unit Costs of Health and Social Care.
Report. The drug dosages were based on official recommendations and quantities of other resources were based on published reports or assumptions. All costs were in UK pounds sterling (£) and were discounted at 3.5% per annum. The price year was not explicitly reported.

Analysis of uncertainty:
The issue of uncertainty was investigated using both a probabilistic multivariate sensitivity analysis (Monte Carlo simulation) and a series of deterministic univariate analyses. The types of probability distributions and the alternative values for the deterministic analyses were reported. In a scenario analysis, it was assumed that both treatment groups differed only in their side effect profile.

Results
In the base case, the use of atypical antipsychotics led to a gain of 0.101 QALYs and saved £1,633 in comparison with conventional ones. The additional cost of the atypical antipsychotics was more than offset by a reduction in the cost of hospitalisation. Atypical antipsychotics were the dominant strategy as they were both more effective and cost less than conventional ones.

At a threshold of £30,000 per QALY, the expected incremental net benefit of the atypical drugs was £4,668 and the probability of them being cost-effective was 98.2%.

The sensitivity analysis identified the probability of a patient being at risk, or changes in the relationship between QALYs and the Positive and Negative Symptom Score (PANSS) as the most influential model parameters. However, atypical antipsychotics remained dominant or cost-effective in all cases. In the scenario analysis, the incremental cost per QALY rose to £45,205.

Authors' conclusions
The authors concluded that atypical antipsychotics were a cost-effective alternative to conventional ones, but the model assumptions needed further validation, in large naturalistic studies, with a reasonable length of follow-up.

CRD commentary
Interventions:
The rationale for the selection of the two comparators was clear. Two groups of drugs were compared (atypical versus conventional antipsychotics) and the choice of drug from each group was based on UK market share data to reflect the real-world prescription patterns.

Effectiveness/benefits:
The approach used to identify the relevant sources of data was based on those known to the authors and these data were supplemented with experts' opinions. Extensive details on the process of converting the data for the model were given, but there was little information on the design and other characteristics of the source studies. This information would have been useful for judging the validity of the clinical inputs. Similarly, the validity of the utility values, used to calculate QALYs, is difficult to judge due to the lack of information on the sources used. To address this uncertainty, a comprehensive sensitivity analysis was conducted on the clinical inputs.

Costs:
The categories of costs and their sources, which were official UK sources, were consistent with the perspective. The drug resource use reflected recommended dosages. The data on unit costs were explicitly presented for all items, although the resource quantities were only reported for the drugs. The price year was not explicitly stated, but costs were derived from reports published in 2004 and 2005. The cost estimates were assessed for uncertainty in the sensitivity analysis.

Analysis and results:
The synthesis of costs and benefits was appropriately performed and presented. The issue of uncertainty was satisfactorily addressed and the techniques used were clearly reported. The authors stated that a lifetime horizon would have been more appropriate, but this was not possible due to the lack of long-term data on the course of the disease. However, the five-year time frame was adequate to capture the relevant health and economic consequences of
treatment. The authors acknowledged that data had to be derived from multiple sources and experts’ opinions due to the scarcity of relevant published evidence.

Concluding remarks:
On the whole, the study was based on valid and sophisticated methodology and, despite some limited reporting especially for the clinical data, the authors’ conclusions appear to be robust.

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Other publications of related interest


Jones PB, Barnes TR, Davies L, et al. Randomized controlled trial of the effect on Quality of Life of second- vs first-generation antipsychotic drugs in schizophrenia. Cost Utility of the Latest Antipsychotic Drugs in Schizophrenia Study (CUtLASS 1). Arch Gen Psychiatry 2006;63:1079-87.


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