Economic evaluation of antipsychotic drugs for schizophrenia treatment within the Brazilian Healthcare System
Mendonca Lindner L, Marasciulo AC, Rocha Farias M, Motta Grohs GE

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 first- (haloperidol) and second- (risperidone and olanzapine) generation antipsychotics for the treatment of chronic schizophrenia. The authors concluded that haloperidol and risperidone were more cost-effective than olanzapine. The methods were valid, but there was limited reporting around 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 first- (haloperidol) and second- (risperidone and olanzapine) generation antipsychotics for the treatment of chronic schizophrenia.

Interventions
The three treatments were haloperidol, olanzapine, and risperidone. The average dose of haloperidol was 9.35mg per day, olanzapine was 14.54mg per day, risperidone was 3.33mg per day, and clozapine was 466.58mg per day.

The sequences of treatment for patients requiring a switch of medication were from haloperidol, to risperidone, to clozapine (or olanzapine for those who did not tolerate clozapine); from risperidone, to olanzapine, to haloperidol, to clozapine; and from olanzapine, to risperidone, to haloperidol, to clozapine.

Location/setting
Brazil/out-patient (psychosocial care facility).

Methods
Analytical approach:
The analysis was based on a Markov model with a five-year horizon. The authors stated that the perspective of the health care system (Sistema Unico de Saude, SUS) was taken.

Effectiveness data:
The clinical inputs were derived from published literature, but the details of a systematic review were not reported. No information on the design or other characteristics of these studies was given. It appears that the event probabilities were from published economic evaluations. The key clinical input was the rate of discontinuation of treatment.

Monetary benefit and utility valuations:
The utility values were derived from published studies, conducted in Canada, using the standard gamble method to elicit the preferences.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure and were discounted at an annual rate of 3%.

Cost data:
The analysis included the costs of antipsychotics, secondary medication (support treatment and for adverse events),
specialised medical appointments, relapse-related hospitalisations, and suicide. The resource consumption was derived from the charts of 59 patients at a psychosocial care facility in 2006. Drug consumption was calculated from the daily dose, a dose adjustment, time between doses at each dose, total duration of treatment, and the use of secondary medication. The unit costs were based on prices from the Santa Catarina State Secretariat of Health (drugs) and hospital databases (other items). The cost of suicide was based on a published study. The price year was 2006 and costs were discounted at an annual rate of 3% and were expressed in US dollars ($).

Analysis of uncertainty:
One-way sensitivity analyses were undertaken for all the inputs, using confidence intervals derived from the literature (for utility and clinical estimates) or the opinions of the authors (for economic inputs).

Results
The expected costs were $3,935.15 starting with haloperidol, $5,964.57 starting with risperidone, and $10,423.12 starting with olanzapine. The QALYs were 4.1647 with haloperidol, 4.2156 with risperidone, and 4.2189 with olanzapine. The incremental cost per QALY gained was $39,890.33 with risperidone over haloperidol and $1,329,394.88 with olanzapine over risperidone.

The sensitivity analysis showed that these findings were sensitive only to the choice of medication when switching. When patients, who began with risperidone changed to haloperidol instead of olanzapine, this scenario became dominant, which means it was more effective and cheaper than the others.

Authors’ conclusions
The authors concluded that haloperidol and risperidone were more cost-effective than olanzapine.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear, as all the available treatments were considered. The sequences of treatment were based on the recommendations of the Brazilian Ministry of Health and the average dosages for each medication were reported.

Effectiveness/benefits:
The authors did not report the methods of the literature review that they used to identify the primary sources of evidence. Most of this evidence appears to have been from economic evaluations, but their methods were not reported, which prevents an objective assessment of the quality of this evidence. Other relevant issues, such as those arising from the use of data from varied sources, were not addressed. The utility values were from a Canadian study that used the standard gamble technique. The authors acknowledged the potential issues of applying Canadian values to Brazil. QALYs were an appropriate benefit measure as the disease impacts on both survival and quality of life.

Costs:
The cost items were appropriate for the perspective. The authors stated that only those items that differed between the treatment arms were considered and the other health care resources were assumed to be similar. Details of the unit costs, quantities of resources used, the price year, and sources of data were clearly presented, enhancing the transparency of the analysis and making it easy to replicate in other settings. In general, the economic analysis appears to have been carried out appropriately.

Analysis and results:
The analytical approach, used to synthesise the costs and benefits, was appropriate. Both average and incremental cost-utility ratios were presented. The results were thoroughly presented, except for the deterministic analysis, where only the key result was reported. A description and diagram of the decision model were provided. Conventional discounting was applied. The authors acknowledged that the results of their study were not transferable to other settings and should be considered to be specific to the Brazilian context.

Concluding remarks:
The methods were valid, but there was limited reporting around the clinical data. The authors’ conclusions appear to be
robust.

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