Direct cost of depression: analysis of treatment costs of paroxetine versus imipramine in Canada

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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.

Health technology
Paroxetine (selective serotonin reuptake inhibitor) and Imipramine (tricyclic antidepressant).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study modelled individuals with moderate to severe depression.

Setting
Primary care. The economic study was carried out in Canada.

Dates to which data relate
The effectiveness and resource use data were primarily obtained from studies published in 1991 and 1993 respectively. The unit costs were obtained from publications from 1988, 1989, 1991 and 1992.

Source of effectiveness data
Effectiveness data were derived from a single study and the authors’ assumptions.

Link between effectiveness and cost data
Costing was not undertaken on the same patient sample but was applied to a hypothetical patient cohort. Costs were collected retrospectively.

Study sample
A total of 717 outpatients were included in the study.

Study design
Randomized-controlled trial (double-blind). The duration of follow-up was six weeks. The study used placebo as a control.
Analysis of effectiveness
"Initial Response" was the primary health outcome used in the analysis and this was measured in the form of continuation rates (percent response/tolerance to initial therapy).

Effectiveness results
The continuation rates for paroxetine and imipramine were 57.5% and 46.4% respectively.

Clinical conclusions
The study reported comparable therapeutic efficacy with the two active treatments.

Modelling
A computer-simulated decision tree model of the therapeutic options and sequelae in the management of depression was used to determine annual direct costs. The model aimed to reflect "normal practice".

Methods used to derive estimates of effectiveness
Estimates of effectiveness were the authors' assumptions based on results for relapse rates at six months from a double-blind clinical trial of 135 patients with major depression who had previously responded to an 8-week trial of paroxetine and from a "long term trial" (for imipramine).

Estimates of effectiveness and key assumptions
The estimated 6-month relapse rates were 5% with paroxetine and 20% with imipramine. To adopt a conservative approach, the model doubled the paroxetine relapse rate (to 10%) and halved the imipramine relapse rate (to 10%).

Measure of benefits used in the economic analysis
Benefits were measured by means of the initial response rate (continuation rate).

Direct costs
The estimation of the quantities of resource use were based on two separate focus group panels of psychiatrists and general practitioners or family physicians with interests in psychiatry. The estimation of costs was based on modelling (decision tree). Monetary values for physician and hospital services were obtained from the Ontario Ministry of Health. The cost of generic imipramine and paroxetine was obtained from the Ontario Drug Benefit Formulary and SmithKline Beecham Pharma (personal communication), respectively. Costs, which were estimated for a 12 month period, were not discounted or analysed separately with respect to quantities. The costs included in the analysis related to hospitalizations, drug acquisition costs, and costs associated with relapses. The unit costs applied to resources used were obtained from studies published in 1988, 1989, 1991 and 1992.

Currency
Not clearly stated.

Sensitivity analysis
Sensitivity analysis was performed on 4 variables which were identified as having a strong bearing on the results: (1) drug price; (2) hospitalization costs; (3) relapse rate; and (4) continuation rate.

Estimated benefits used in the economic analysis
Paroxetine was associated with an initial response rate of 57.5%. Imipramine had a corresponding figure of 46.4%.
Cost results
The annual direct costs of managing a patient with moderate to severe depression were $1,697 with paroxetine, and $1,793 with imipramine, a difference of $96 per patient per year.

Synthesis of costs and benefits
Costs and benefits were not combined. The sensitivity analysis suggests that the over-all cost of care is relatively insensitive to drug costs and relapse rates after receiving a 6 month course of either therapy. Hospitalization costs were varied from $0.00 to $10,000 per 21 day stay (baseline $7,872). At $0.00, the overall cost of care was comparable in the 2 treatment arms. As inpatient costs increased, the cost of imipramine treatment increased relative to paroxetine. Paroxetine was less costly than imipramine, the former's continuation rate being >= 47% against a corresponding value of 46.4% for the latter.

Authors' conclusions
According to the present results, the first-line management of moderate to severe depression with paroxetine would be expected to save about $96 per patient over a 12-month period compared to first-line treatment with imipramine. This study and previous evidence suggest that paroxetine is a cost-effective alternative to imipramine in the context in question.

CRD Commentary
Whilst modelling data may be a low cost method of producing cost-effectiveness analyses, it may not represent an accurate reflection of clinical practice. The author acknowledged this caveat. This is not to say that a clinical trial will produce results which are more reliable, valid and robust, but it is felt that results from a well conducted RCT, for example, can be more confidently generalised. The study, including sensitivity analysis of four variables, is, per se, robust and the results could be used in conjunction which those from other clinical studies. A broader perspective (i.e. societal) may be relevant to the context of the study since, according to the authors, cost-shifting factor could be influencing the results to an important extent. The study did not clearly report the price year used in the analysis or the currency unit. The authors made clear that the cost analysis reflected the physician practice and costs of Ontario and, therefore the corresponding results may not be generalisable to other regions or countries.

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Adolescent; Adult; Aged; Antidepressive Agents, Second-Generation /adverse effects /therapeutic use /economics; Antidepressive Agents, Tricyclic /adverse effects /therapeutic use /economics; Canada; Comparative Study; Computer Simulation; Cost-Benefit Analysis; Decision Trees; Depressive Disorder /drug therapy /psychology /economics; Direct Service Costs; Dose-Response Relationship, Drug; Double-Blind Method; Drug Administration Schedule; Female; Humans; Imipramine /adverse effects /therapeutic use /economics; Male; Middle Aged; Paroxetine /adverse effects /therapeutic use /economics; Patient Readmission /economics; Research Support, Non-U.S. Gov't; Treatment Outcome

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