A pharmacoeconomic model of outpatient antipsychotic therapy in "revolving door" schizophrenic patients

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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
Outpatient antipsychotic therapies for "revolving door" schizophrenic patients. The strategies investigated were traditional oral neuroleptics, depot neuroleptics, and atypical oral agents.

Type of intervention
Treatment

Economic study type
Cost-effectiveness analysis.

Study population
Hypothetical patients with chronic schizophrenia requiring repeated institutional care were included in the model. Patients were assumed to have responded to a traditional oral neuroleptic and a decision was needed between continuing on that therapy or switching to one of the two other strategies. Patients had a history of 2 relapses and re-hospitalisation in a single year.

Setting
Hospital and community mental health centre. The study was carried out in the USA.

Dates to which data relate
The effectiveness data were derived from opinion based on evidence published between 1992 and 1995. The resource data were not dated. The price year was not stated (referred to as "current" figures).

Source of effectiveness data
The effectiveness data were based on opinion.

Modelling
A decision tree technique was used to determine the final costs. The model incorporated the dichotomous outcome referring to compliance as the basis of the analysis: The patient either complied or did not comply with the prescribed drug regimen. The model then allowed for three possibilities:

1. patient remaining stable;
2. patient suffering exacerbation(s) or relapse(s) not severe enough to warrant re-hospitalisation; and
3. patient suffering relapse(s) requiring rehospitalisation.
The costs associated with treatment under each of those outcome paths, including adverse effects, were included in the analysis.

**Methods used to derive estimates of effectiveness**
The effectiveness estimates were based on the authors’ assumptions based on published data and personal clinical experience.

**Estimates of effectiveness and key assumptions**
The estimates of effectiveness were compliance rates and associated re-hospitalisations, that is, the patient may:

1. remain stable,
2. suffer exacerbation(s) or relapse(s) not severe enough to warrant rehospitalisation, or
3. suffer relapse(s) requiring rehospitalisations over a 1 year period.

The assumptions used were:

- for traditional oral drugs, over 1 year, about 50% of patients would adhere and 50% would not adhere to the prescribed regimen in an outpatient setting;
- for depot drugs, the probabilities were about 80% compliant and 20% non-compliant;
- for atypical oral neuroleptic, the probability was 65% compliant and 35% non-compliant.

Under medication-compliant conditions, the probability of a stable course with any of the 3 neuroleptics would be 80%, while the probabilities for recurrence and rehospitalisation would be 10% each.

Similarly, for non-compliant conditions, there would be a 15% probability of a stable course, 30% of recurrence relapse without hospitalisation, and 55% of relapse requiring rehospitalisation.

**Measure of benefits used in the economic analysis**
The estimates of effectiveness were approximated by the compliance rates (see above).

**Direct costs**
Costs were not discounted due to the 1-year duration of the study period. Quantities and costs were reported separately. Health service costs were included: drug therapy, clinic visits, case management, monitoring and management of moderate/severe side effects, and daily impatient costs of re-hospitalisation. Average wholesale prices were used to value the therapeutic agents. Health care costs reflected prices at the authors' institutions (precise sources were not given). The price year was not stated, although the authors referred to the prices as "current".

**Currency**
US dollars ($).

**Sensitivity analysis**
Sensitivity analysis was carried out on the probabilities of clinical outcomes and cost data.

**Estimated benefits used in the economic analysis**
For traditional oral drugs, about 50% of patients adhere and 50% do not adhere to the prescribed regimen during a
1-year period in an outpatient setting. For depot drugs, the corresponding probabilities were 80% compliant and 20% non-compliant. For the atypical oral neuroleptic agents, the probabilities were 65% compliant versus 35% non-compliant.

Cost results
The total direct treatment cost per patient for continuing a traditional oral neuroleptic was estimated to be $5,752. The total cost if the patient was switched to a depot neuroleptic was $4,595. The total cost if the patient was switched to an atypical oral agent was $7,162 during the first post discharge year. The costs of adverse effects were dealt with in the costing.

Synthesis of costs and benefits
A combination of costs and benefits was not undertaken since the depot neuroleptic agent was dominant. From five alternate scenarios presented in the sensitivity analysis, one showed the situation under which the dominant outcome would change. Alternative E assumed that the compliance rate with atypical oral drugs was equal to depot agent (80%), and average wholesale price of the atypical drug was reduced by 25%. Consequently, the atypical oral antipsychotic would have the lowest total treatment cost ($3,890) as compared with $5,752 for the traditional oral drug and $4,595 for the depot agent. The incremental cost-effectiveness ratio was nevertheless not calculated.

Authors' conclusions
The results of the decision analysis model indicate that switching a "revolving door" patient to a depot medication for outpatient maintenance therapy could result in lower total direct treatment costs over the first year.

CRD COMMENTARY - Selection of comparators
The strategies being compared were described as commonly used treatment options in the setting studied.

Validity of estimate of measure of effectiveness
Although the effectiveness study was based to a certain extent on published evidence, the base case estimates were obtained from authors' assumptions or best guesses (the authors provided a justification for this on the grounds of the quality of the available evidence). This may thus lead to biased results in comparison to future effectiveness studies using systematic literature review methods. Nevertheless, the study is an important step towards the recognition of the problems involved in using efficacy data for addressing real life effectiveness and cost-effectiveness questions. Since compliance was the main factor affecting the cost and outcomes of the treatment options, its importance for future, prospective studies is clear. All the assumptions underlying the model were adequately explained.

Validity of estimate of costs
Quantities of resource use were reported separately from the costs, but the source of cost data was not clearly stated, and nor was the price year. Sensitivity analysis explored the effects of different effectiveness parameter values on total costs, thereby tentatively exploring the generalisability of base case results to other settings or countries.

Implications of the study
Further prospective studies are needed to assess the effectiveness of outpatient antipsychotic therapy in schizophrenic patients with re-hospitalisation and/or recurrences. This may provide more precise and valid economic studies of the treatments commonly used for that patient population.

Source of funding
Supported in part by grant RO-39665 from the National Institute of Mental Health (Dr Glazer) and a grant from McNeil Pharmaceutical Inc.

Bibliographic details

**PubMedID**
8752015

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Administration, Oral; Ambulatory Care /economics; Antipsychotic Agents /economics /therapeutic use; Cost-Benefit Analysis; Decision Support Techniques; Decision Trees; Delayed-Action Preparations; Drug Costs /statistics & numerical data; Economics, Pharmaceutical; Health Care Costs; Hospitalization /economics; Humans; Patient Compliance; Patient Readmission /economics; Probability; Quality of Life; Recurrence; Schizophrenia /drug therapy; Schizophrenic Psychology; Treatment Outcome

**AccessionNumber**
21996000875

**Date bibliographic record published**
31/08/1999

**Date abstract record published**
31/08/1999