Cost-effectiveness analysis for antidepressants and cognitive behavioral therapy for major depression in Thailand

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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
The study assessed the cost-effectiveness of fluoxetine and cognitive-behavioural therapy (CBT) for episodic and maintenance treatment of major depression. The authors concluded that both fluoxetine and CBT were cost-effective treatments for major depression in Thailand. Maintenance treatment provided the greatest potential for health gain. The analysis used a valid and transparent methodology that considered the overall issue of uncertainty. The authors’ conclusions appear robust.

Type of economic evaluation
Cost-utility analysis

Study objective
The study assessed the cost-effectiveness of fluoxetine and cognitive-behavioural therapy (CBT) for the episodic and maintenance treatment of major depression.

Interventions
Two available treatments for major depression were considered: fluoxetine (the cheapest generic medication available in the authors’ setting) and CBT. Interventions were classified by three phases of treatment: acute episodic phase (time from initiation of treatment to remission, usually between eight and 12 weeks); continuation phase (period following the episodic phase for preventing relapse, usually at least six months); and maintenance treatment (given during a long-term period following an episode to prevent recurrence). Thus, the five strategies analysed were episodic drug treatment, continuation drug treatment, maintenance drug treatment, episodic CBT treatment and maintenance CBT treatment. The comparator for each treatment was do-nothing.

Location/setting
Thailand/secondary care.

Methods
Analytical approach:
The analysis was based on a discrete event simulation model derived from a published modelling study. A five-year time horizon was assumed. The perspective was that of the health care sector and included costs borne by government and individuals (including time and travel costs).

Effectiveness data:
A selective approach was used to identify relevant sources of evidence, which included national surveillance databases (such as the National Mental Health Survey) for epidemiological inputs and published peer-reviewed studies for other clinical inputs. Treatment effect for drugs and CBT was taken from pooled clinical trials estimates and meta-analyses. The relative risk of suicide with depression was a key input of the model and was also taken from meta-analyses.

Monetary benefit and utility valuations:
Disability weights were calculated using various published sources that included the 1999 Thai Burden of Disease study and meta-analyses.

Measure of benefit:
Disability-adjusted life-years (DALYs) were used as the summary benefit measure and were discounted at an annual rate of 3%.

Cost data:
The economic analysis included costs of psychiatric outpatient visits, generic fluoxetine, time cost per visit and travel cost per visit. Most data on quantities of resources used were derived from an expert advisory team for mental health involved in a wider Australian cost-effectiveness assessment project. Costs were taken from various official sources (such as the Department of Mental Health) supplemented with estimates from published Thai studies. Time cost was assumed to have been 25% of personal income per capita in Thailand. Travel cost was calculated from the average cost of the return trip to the hospital by public transport. Costs were in Thai baht and were discounted at an annual rate of 3%. The price year was 2005.

Analysis of uncertainty:
First- and second-order analysis of uncertainty was investigated. In particular, a multivariate probabilistic Monte Carlo simulation was performed to generate confidence intervals (CIs) around model outcomes.

Results
In a hypothetical cohort of 100,000 individuals, compared to do-nothing the expected total costs and DALYs averted were 370 million baht and 9,000 with episodic drug treatment, 460 million baht and 14,000 with continuation drug treatment, 680 million baht and 18,000 with maintenance drug treatment, 290 million baht and 13,000 with episodic CBT treatment and 210 million baht and 20,000 with maintenance CBT treatment. Maintenance CBT treatment was dominant (more effective and less expensive than the other options).

Compared to a do-nothing alternative, the incremental cost per DALY averted was 42,000 baht with episodic drug treatment, 33,000 baht with continuation drug treatment, 38,000 baht with maintenance drug treatment, 23,000 baht with episodic CBT treatment and 11,000 baht with maintenance CBT treatment. All treatments were deemed as very cost-effective as they were below the gross domestic product (GDP) per capita often advocated as a cost-effectiveness threshold. Probabilistic sensitivity analysis showed that all simulations remained below this threshold for all strategies.

Authors' conclusions
The authors concluded that both fluoxetine and CBT were cost-effective treatments for major depression in Thailand. Maintenance treatment provided the greatest potential for health gain.

CRD commentary
Interventions:
The authors justified the selection of the comparators and these appeared appropriate. Various drug interventions were available in the authors' setting. Fluoxetine (the cheapest medication) was selected as the reference treatment as previous studies had shown no difference in efficacy between antidepressant drugs. CBT was the most common non-pharmacological treatment available for major depression. These comparators were likely to be generalisable to other health care settings. The authors pointed out that CBT was not fully available in the Thai setting at the time of the study.

Effectiveness/benefits:
Clinical inputs were identified selectively and appeared to have been taken from valid sources. Epidemiological estimates were obtained from local databases and treatment effect came from meta-analyses of clinical trials which should have ensured high internal validity. The authors stated that a specific meta-analysis was selected that minimised selection bias. Extensive sensitivity analysis was conducted on all clinical parameters. DALYs were a valid benefit measure for the disease and enabled comparisons with other disease areas. The authors stated that there were some issues for translating treatment effect to utility weights.

Costs:
The economic analysis adopted a broad perspective. It appeared that all relevant costs were included. The authors stated that cost offsets (reduction in hospital costs as a direct result of psychiatric treatment) were not considered because of a lack of reliable estimates of these costs, but they would have been relevant. In general, the economic analysis was reported satisfactorily. Daily drug costs and unit costs of visits were reported as well as details on patterns of resource
consumption, which enhanced the transparency of the economic side of the analysis. The authors stated that starting-up costs for CBT were not considered and this might have underestimated total costs of this option. The price year was stated explicitly, which enabled reflation exercises in other time periods. Appropriate discounting was applied. Data sources were clearly reported and reflected the Thai environment. Costs were varied in the sensitivity analyses.

Analysis and results:
The study results were clearly reported for each strategy and only incremental findings versus the do-nothing strategy were presented, probably because maintenance CBT was dominant compared to the other options. Overall, the issue of uncertainty was investigated satisfactorily and the results of the sensitivity analyses were presented clearly. Use of a discrete event simulation appeared appropriate although the model was not described. The authors acknowledged some limitations of their analysis, mostly a lack of Thai data for some clinical parameters. The study results were specific to the Thai environment and no attempt was made to make this transferable to other settings.

Concluding remarks:
The analysis used valid and transparent methodology that considered the overall issue of uncertainty. The authors’ conclusions appear robust.

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