Reviewing the evidence used in cost effectiveness models in health technology assessment: a qualitative investigation of current concerns

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INTRODUCTION

Health technology assessment (HTA) reports involve the development of a cost-effectiveness model in addition to a systematic review of the clinical effectiveness evidence. The purpose of modelling is to draw together all relevant evidence and bring this to bear on the decision problem. By its very nature, the development of the economic model requires additional information beyond clinical efficacy to inform its parameters. The way in which this is done has a fundamental impact on the results of the model and ultimately the decision outcome. Whilst there are accepted methods for reviewing efficacy within the framework of a systematic review the same is not true for the scope of evidence required for models. A systematic approach is required but it is unclear exactly what that means.

Several issues need to be considered when reviewing evidence to use in populating cost-effectiveness models. Where timelines are stringent, rapid methods are needed. At the same time the approach needs to be transparent, reproducible, and systematic with precautions for minimising bias. Multiple sources of evidence will be required including: randomised controlled trials and other clinical studies, registry databases, elicitation of expert clinical judgement, industry submissions, routine costing datasets, health valuation studies, grey literature and other sources. Some of the issues around reviewing for model parameters have been highlighted in detail,[1,2,3,4] yet there remains very little guidance in the literature with regard to best practice in this area. This study used qualitative methods to explore these issues more fully.

METHODS

A focus group was held with 15 experienced systematic reviewers, information specialists and health economic modellers in January 2010. The topic guide included questions covering current practice, adequate information, the timing of reviewing of model parameters, ideal practice and areas for further research. The focus group was recorded and the recordings transcribed and coded. Qualitative Framework analysis was used to draw out emergent themes from the transcribed data.

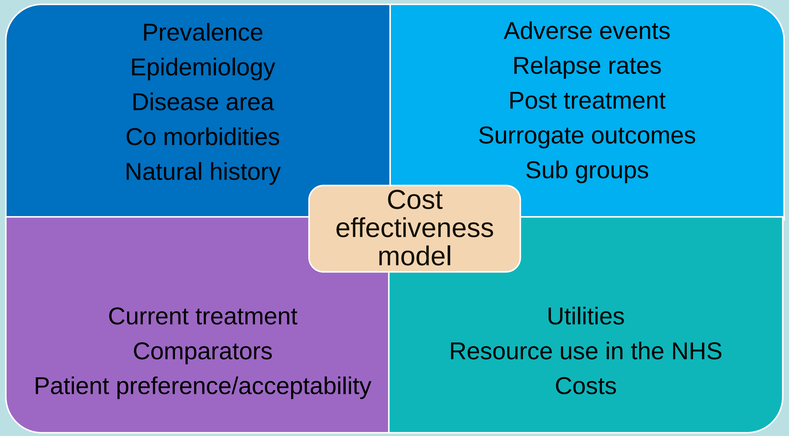

Figure 1 Types of model parameter values

RESULTS

The six main themes identified from the focus group were: problem structuring, current practice, adequate information, timing, ideal practice and future research. These themes were further separated into subthemes. There was some overlap between themes.

Problem structuring

Structuring the decision problem and identifying what parameters will be needed is an important part of the process. Respondents felt that some of the important parameters could be anticipated at the beginning and that problem structuring should happen early on in the process.

Current practice

Issues around the need for transparent and adequate reporting were discussed as well as the choice and use of clinicians. Good team dynamics were felt to be important and having the appropriate levels of expertise on the team.

Adequate information

It was agreed that comprehensiveness was not always the goal as it was not necessarily important to find all sources of information nor would there be time due to the constraints of a project. Finding the best source of evidence was an issue felt to be sometimes down to luck and sometimes down to taking the time to determine what was the most reliable or realistic source of information.

Timing

Although some parameters can be identified early on in the modelling process this can also happen quite late on. Judgements need to be made regarding the efficient use of time and resources in such cases. There is a danger that parameter values may be identified in a less than systematic way due to these constraints.

Ideal practice

Co-ordination of reference identification between reviewers and modellers, good communication and focussed and rapid search methods were mentioned as components of ideal practice.

Future research

There was considerable support for the need for training for rapid searching methods. More research was considered to be necessary regarding methods for problem structuring and ways this process could be communicated. Also mentioned were research into methods for decision-making processes around selecting and reviewing evidence for model parameter values.

DISCUSSION

Systematic reviewing of all model parameters is not feasible and may not be a requirement. Good communication, training in rapid review and problem structuring methods are important factors in optimising an efficient and rigorous approach. Previous research suggests that it should be possible to incorporate the established components of systematic reviewing within a rapid framework. [5]

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