

The Use of Mixed Treatment Comparisons in NICE Technology Appraisals

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Introduction

Comparative effectiveness research is seen as a powerful tool to assist payers in determining the most effective treatment option when multiple possibilities exist. Whilst head-to-head trials of all potential comparator treatments are uncommon, indirect comparison methods, such as Mixed Treatment Comparisons (MTCs), offer the potential to help assess the comparative efficacy of therapies, which can inform payers about their comparative effectiveness.

The objective of this study was to review the use of MTCs in published technology appraisals from the National Institute for Health and Clinical Excellence (NICE) in the UK.

Methods

Two individuals independently reviewed all completed NICE technology appraisals published between 2006 and March 2011.¹

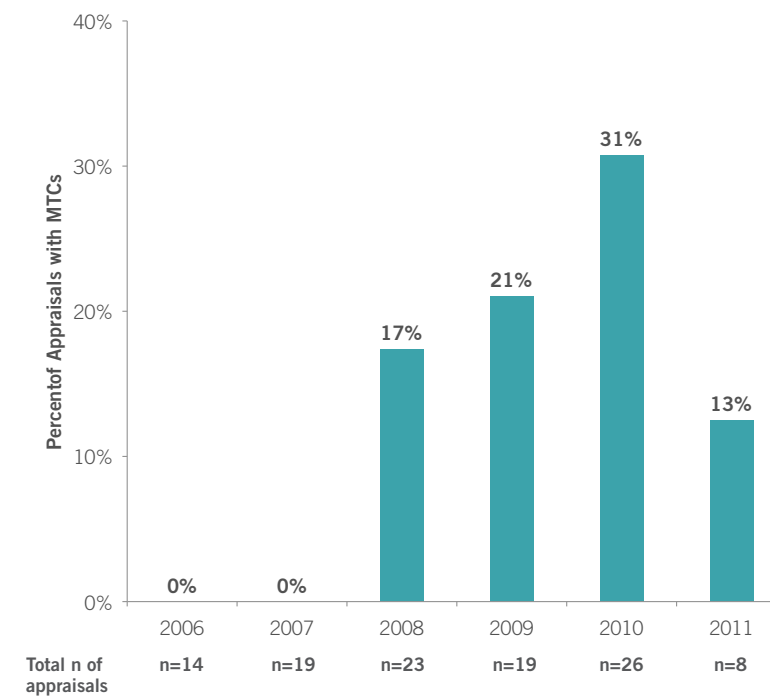
Each technology appraisal was searched for the presence of an MTC by searching the document for the phrase 'mixed treatment comparison'. Submissions that were withdrawn, had their appraisal terminated or had been superseded by updated guidance were excluded from the analysis.

Appraisals were counted as having mixed treatment comparisons if specifically stated in the text of the final appraisal document released by NICE.

Results

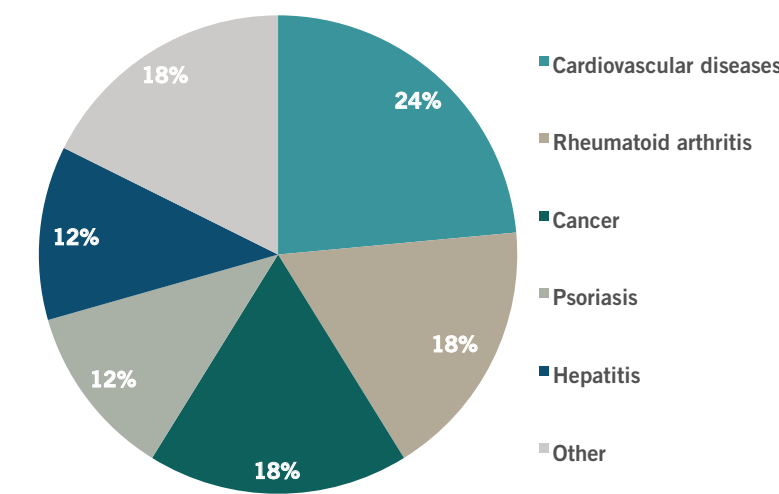
Overall, 17 technology appraisals incorporating MTCs were identified. There was an obvious trend in the use of MTCs by year, with no MTCs used in technology appraisals in 2006 and 2007, compared with 17% of appraisals utilising MTCs in 2008, rising to 31% in 2010 (see Figure 1). Currently in 2011 (until March), 1 published appraisal has incorporated an MTC.

Figure 1: Percentage of NICE technology appraisals incorporating an MTC from 2006 to 2010



MTCs were used in appraisals of therapies across a number of disease areas, with cardiovascular conditions being the most common to contain an MTC, followed by rheumatoid arthritis and cancer (see Figure 2).

Figure 2: Breakdown of appraisals containing MTCs by disease area (n=17)



Out of the 17 appraisals with MTCs completed so far, 15 contained MTCs that were conducted by the manufacturer as part of the submission, and two utilised MTCs conducted by the evidence review group (ERG).

In 12 out of the 15 manufacturer-conducted MTCs, the ERG criticised the MTCs and the results were "considered with caution" by the appraisal committee. Concerns raised by the ERG include: inappropriate inclusion/exclusion of studies, lack of detail on the methodology of the MTC, lack of comment on the heterogeneity of included studies and the inappropriate use of patient subgroups rather than the whole randomised population. However, for those MTCs not criticised by the ERG, the results provided a valuable indication of the comparative effectiveness of the treatment under consideration.

Discussion

Over the past 4 years, MTCs have become more frequently used in NICE technology appraisals, with 31% of appraisals published in 2010 containing MTCs. In 2008, NICE published an updated version of the "Guide to the Methods of Technology Appraisal", which for the first time laid down guidelines on the use of MTCs in technology appraisals.² The release of these guidelines may account to some extent for manufacturers' increasing willingness to incorporate MTCs into their submissions.

Technology appraisals with MTCs are mainly concentrated in the disease areas of cardiovascular conditions, rheumatoid arthritis and cancer. MTCs are only appropriate when a number of different treatments exist for a disease and therefore these represent disease areas where multiple therapies compete for reimbursement. Thus MTCs may be particularly useful from a manufacturer's point of view in differentiating their product from the competition.

Indeed, the majority of MTCs incorporated into technology appraisals were conducted by the manufacturer, rather than the evidence review group, which suggests that manufacturers are aware of the need to demonstrate comparative effectiveness in the HTA process. Without funding expensive head-to-head trials against all potential competing products in a disease area, MTCs represent a useful method for demonstrating comparative effectiveness.

However, whilst the value of MTCs for determining comparative effectiveness in Health Technology Assessments (HTA) cannot be disputed, manufacturers need to ensure that they follow robust methodologies when preparing MTCs in order for these to be accepted by HTA agencies. The ERGs at NICE criticised the majority of manufacturer-submitted MTCs and in doing so cautioned the appraisal committee in their consideration of the results from the MTC. Therefore, unless manufacturers can conduct robust MTCs, the value of these may not be fully realised, or they may even weaken the manufacturer's submission.

Conclusion

MTCs are increasingly becoming a common feature in the NICE appraisal process and have been incorporated by manufacturers into appraisals across a number of disease areas.

However, manufacturers should ensure that their MTCs are robustly designed otherwise the success of their submission may be jeopardised.

References

- ¹ NICE guidance website: <http://guidance.nice.org.uk>
- ² Guide to the methods of technology appraisal. NICE, 2008.