Handling uncertainty when performing economic evaluation of healthcare interventions

Briggs A H, Gray A M

Record Status
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Citation

Authors' objectives
1. To perform a structured review of the way in which uncertainty has been handled in economic evaluation.
2. To assemble data on the actual distributional form and variance of healthcare costs, and to devise guidelines to improve current practice. In particular the focus was on the handling of cost and cost-effectiveness data.

Authors' conclusions
Potential guidelines arising from this review are:

Analysts should aim to present results using a methodological reference case in order to increase the comparability of results between studies.

Analysts should be aware of the potential for the incremental cost-effectiveness ratio to vary at the margin.

Analysts should avoid selective comparison of their results with the results from other studies.

Analysts should ensure that they consider the potential implications of uncertainty for the results of their analysis.

Interval estimates should accompany each point estimate presented.

Where sensitivity analysis is employed to estimate an interval, analysts should be comprehensive in their inclusion of all variables in the analysis.

When reporting sensitivity analysis, analysts should be aware of the probabilistic nature of the reported range.

When reporting patient level cost information, analysts should make more use of descriptive statistics.

Even when data are skewed, economic analyses should be based on means of distributions.

When reporting statistical tests of cost differences, analysts should be aware that significance tests may be more powerful on a transformed scale but that confidence limits should be reported on the original scale.

Where patient level data on both cost and effect are available, the parametric approach based on Fieller's theorem or the non-parametric approach of bootstrapping should be employed to estimate a confidence interval for the cost-effectiveness ratio.

Sensitivity analysis has a continuing role in handling uncertainty not related to sampling variation.

Consideration should be given to using cost-effectiveness acceptability curves to present uncertainty in stochastic cost-effectiveness studies.