Bayesian methods in health technology assessment: a review

Record Status
This is a bibliographic record of a published health technology assessment from a member of INAHTA. No evaluation of the quality of this assessment has been made for the HTA database.

Citation

Authors' objectives
This report is intended to provide:

1. a brief review of the essential ideas of Bayesian analysis
2. a full structured review of applications of Bayesian methods to randomised controlled trials, observational studies, and the synthesis of evidence, in a form which should be reasonably straightforward to update
3. a critical commentary on similarities and differences between Bayesian and conventional approaches
4. criteria for assessing the reporting of a Bayesian analysis
5. a comprehensive list of published 'three-star' examples, in which a proper prior distribution has been used for the quantity of primary interest
6. tutorial case studies of a variety of types
7. recommendations on how Bayesian methods and approaches may be assimilated into health technology assessments in a variety of contexts and by a variety of participants in the research process.

Authors' conclusions
Bayesian methods could be of great value within health technology assessment, but for a realistic appraisal of the methodology, it is necessary to distinguish the roles and requirements for five main participant groups in health technology assessment: methodological researchers, sponsors, investigators, reviewers and consumers. Two common themes for all participants can immediately be identified. First, the need for an extended set of case studies showing practical aspects of the Bayesian approach, in particular for prediction and handling multiple substudies, in which mathematical details are minimised but details of implementation are provided. Second, the development of standards for the performance and reporting of Bayesian analyses, possibly derived from the BayesWatch checklist.

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