WHEN DOES VALUE OF INFORMATION ANALYSIS ADD VALUE?

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Value of information (VOI) is a monetary measure of the impact of uncertainty on a decision, quantified in terms of the expected value of perfect information. When uncertainty in control parameters is high, new information will carry high value in improving the decision. Conversely, if parameters are known precisely, new information would not be considered valuable. VOI analysis is intuitively appealing, but overestimating VOI leads to wasted funds on unnecessary research and delays in getting new treatments to markets, while underestimation exaggerates the strength of a possibly false decision. In this research, we present a conceptual overview of VOI and discuss some of the key challenges involved in its proper use, with particular focus on the elements that are not being discussed: components that may bear the largest uncertainty such as the structure of the underlying model, the choice of modeling technique and the way in which the core control parameters are formulated and estimated.

EARLY MODELLING: METHODS IN THE ECONOMIC ANALYSIS OF PRE-PHASE II PRODUCTS

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OBJECTIVES: Economic evaluations are increasingly used as tools to inform decision-makers about the cost-effectiveness of health technologies. Such evaluations are often undertaken during the late stages of the technology development (i.e. around the time of product launch or, in some cases, post-launch). However, there is an increasing need for the manufacturers of the technology to appraise the likely cost-effectiveness of the intervention before making decisions on price and indication, as well as to inform the development of clinical trials. METHODS: Due to the simplified nature of such ‘early analyses’, there is no availability of Phase III trial data, or evidence of subtle interactions between parameters. The purposes of such an analysis are to allow the user to determine the relative importance of different parameter inputs, in order to inform decisions on pricing, target populations and further research. This study outlines the key advantages and limitations of early modelling, and how the decision maker should interpret such analyses. RESULTS: This study demonstrates that early modelling is a vital exercise even (and, sometimes, especially) when there is a significant lack of cost and effectiveness data. Early models can be an effective tool for determining price and target indications. A variety of outputs are demonstrated that will maximise the usefulness of such models to the decision maker. CONCLUSIONS: Even when there is a lack of Phase III data, economic models are a useful tool. However, the approach to modelling in such circumstances is significantly different to that when ‘full’ models are prepared. This study demonstrates how the value of early models can be increased, using a number of key outputs.