(standard deviation [SD]) per patient and likelihood (SD) of good outcomes was CAD 291,769 (CAD 11,576) [USD 226,207 (USD 8,975)] and 41.82 percent (0.013) when considering optimal clinical outcomes, and CAD 287,725 (CAD 4,141) [USD 223,097 (USD 3,211)] and 41.67 percent (0.016) when considering optimal economic efficiency.

CONCLUSIONS:

Our model reduces the gap that exists between health technology implementation and cost-effectiveness analysis; namely, neither fully addresses relative efficiency driven by geographical variation, which may misrepresent system value in local settings. Implementation strategies generated in our model capture full values in terms of patient outcomes and costs.

OP53 Comparing Approaches To Univariate Sensitivity Analysis

AUTHORS:

Conor Teljeur (cteljeur@hiqa.ie), Patricia Harrington, Máirín Ryan

INTRODUCTION:

Fully probabilistic analyses are now standard for economic models, with all parameters varied according to probability distributions. Using univariate sensitivity analyses to explore the influence of different parameters on the model results are also standard. Although there are several approaches available, there has been little discussion of the merits of each or justification for the method used in any given analysis. The aim of this study was to compare three approaches to univariate sensitivity analysis using a case study.

METHODS:

We considered three univariate sensitivity analysis approaches: (i) set one parameter at its upper and lower bounds while all others are set at their mean value; (ii) analysis of variance; and (iii) set one parameter at its mean and vary all others. We compared these approaches using an economic model of mechanical thrombectomy for the treatment of acute ischemic stroke, considering outcomes of incremental costs, incremental quality-adjusted life-years (QALYs), and net monetary benefit (NMB).

RESULTS:

For incremental costs and QALYs the correlation between the approaches was moderate to high, with correlation coefficients between 0.46 and 0.94. For NMB the correlation between approaches was also high (range 0.89 to 0.98), but some of the most influential parameters were ranked differently. Setting one parameter at its upper and lower bounds was the only method that facilitated an analysis of direction of influence.

CONCLUSIONS:

The three approaches addressed different but relevant questions. Setting individual parameters at their bounds is effectively a systematic scenario analysis and may be misleading to decision makers. Analysis of variance may be more easily interpreted, but it has disadvantages. Setting a parameter at its mean, while varying other parameters, is similar to value of information analysis. As with any sensitivity analysis, it is imperative that the uncertainty associated with each parameter is adequately captured in the model.

OP56 Rehabilitation Of Memory In Brain Injury: A Cost-Utility Analysis

AUTHORS:

Shaun Harris (s.r.s.harris@swansea.ac.uk), Deborah Fitzsimmons, Roshan das Nair, Lucy Bradshaw

INTRODUCTION:

People with traumatic brain injuries (TBIs) commonly report memory impairments which are persistent, debilitating, and reduce quality of life. As part of the Rehabilitation of Memory in Brain Injury trial, a cost-effectiveness analysis was undertaken to examine the comparative costs and effects of a group memory rehabilitation program for people with TBI.

METHODS:

Individual-level cost and outcome data were collected. Patients were randomized to usual care (n=157) or usual care plus memory rehabilitation (n=171). The primary outcome for the economic analysis was the EuroQol-5D quality of life score at 12 months. A UK NHS costing perspective was used. Missing data was addressed by multiple imputation. One-way sensitivity

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analyses examined the impact of varying different parameters, and the impact of available cases, on base case findings whilst non-parametric bootstrapping examined joint uncertainty.

RESULTS:

At 12 months, the intervention was GBP 26.89 (USD 35.76) (SE 249.15) cheaper than usual care; but this difference was statistically non-significant (p=0.914). At 12 months, a QALY loss of −0.007 was observed in the intervention group confidence interval (95% CI: −0.025–0.012) and a QALY gain seen in the usual care group 0.004 (95% CI: -0.017–0.025). This difference was not statistically significant (p=0.442). The base case analysis gave an ICER of GBP 2,445 (USD 3,252) reflecting that the intervention was less effective and less costly compared to usual care. Sensitivity analyses illustrated considerable uncertainty. When joint uncertainty was examined, the probability of the intervention being cost-effective at a willingness-to-pay threshold of GBP 20,000 per QALY gain was 29 percent and 24 percent at GBP 30,000.

CONCLUSIONS:

Our cost-utility analysis indicates that memory rehabilitation was cheaper but less effective than usual care but these findings must be interpreted in the light of small statistically non–significant differences and considerable uncertainty was evident. The ReMemBrIn intervention is unlikely to be considered cost-effective for people with TBI.

OP60 Optimising Risk-Based Screening: The Case Of Diabetic Eye Disease

AUTHORS:

Christopher Sampson (csampson@ohe.org), Marilyn James, David Whynes, Antonio Eleuteri, Simon Harding

INTRODUCTION:

There is growing evidence that many people attending annual screening for diabetic retinopathy in the United Kingdom (UK) are at low risk of developing the disease. This has led to new policy statements. However, the basis on which to establish a risk-based individualized variable-recall screening program has not yet been determined. We present a methodology for using information on an individual's risk factors to improve the allocation of resources within a screening program.

METHODS:

We developed a patient-level state-transition model to evaluate the cost-effectiveness of risk-based screening for diabetic retinopathy in the UK. The model incorporated a recently developed risk calculation engine that predicts an individual's risk of disease onset, and allocated individuals to alternative screening recall periods according to this level of risk. Using the findings, we demonstrate a means of estimating: (i) a threshold level of risk, above which individuals should be invited to screening, and (ii) the optimum screening recall period for an individual, based on the expected cost-effectiveness of screening and treatment.

RESULTS:

The cost-effectiveness analysis demonstrated that standardized screening (current practice) is the least cost-effective program. Individualized screening can improve outcomes at a reduced cost. We found it feasible – though computationally expensive – to incorporate a risk calculation engine into a decision model in Microsoft Excel. In an optimized screening program, the majority or patients would be invited to attend screening at least two years after a negative screening result.

CONCLUSIONS:

Individualized risk-based screening is likely to be cost-effective in the context of diabetic eye disease in the UK. It is expected that risk calculation engines will be developed in other disease areas in the future, and used to allocate screening and treatment at the individual level. It is important that researchers develop robust methods for combining risk calculation engines into decision analytic models and health technology assessment more broadly.

OP61 Net Value Of Treating Hepatitis C With Newly Available Direct-Acting Antivirals

AUTHORS:

David E. Bloom, Alexander Khoury (akhoury@hsph.harvard.edu), V. Srinivasan

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