MAPPING TO ESTIMATE HEALTH STATE UTILITIES

updates and replaces TSD10

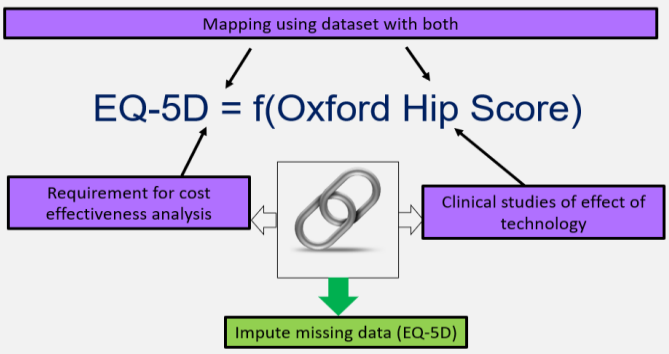
Recommendations from Technical Support Document 22

Mapping links clinical outcomes to health utility.

Mapping - How can we estimate what the health utility value for a health state relevant to a cost effectiveness model is when existing data may be limited in some way? Mapping offers one solution to this challenge by estimating the relationship between some set of variables, including one or more measures used to define the status of patients in the cost effectiveness model, and health utility (we focus on EQ-5D here).

Is mapping appropriate?

Consider the evidence gap the mapping is intended to bridge.
Assess overlap between clinical measure(s) and health utility



Data for Mapping

- External multi-instrument dataset that records a) clinical measure and b) utility measure
- No reason to be randomized
- Data need to span the relevant spectrum of disease severity is important to minimise extrapolation of modelled results.
- Where there is more than one dataset available, pooling will help reduce uncertainty.
- Validation in another dataset is not essential.

Statistical methods

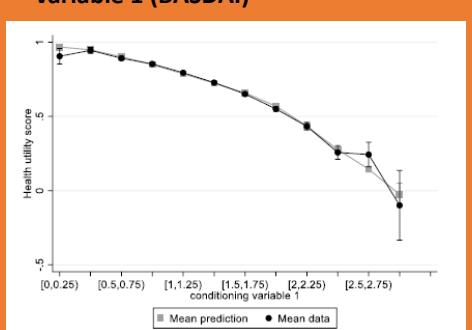
"Direct mapping" – one step models health utility directly.
EQ5D has a complex distribution. Standard statistical models do not work in this situation. Flexible modelling methods are required.

"Indirect mapping" – aka "response mapping".
Two step approach modelling a) the responses to the descriptive system of the utility instrument then b) applying relevant value set to expected responses
Ordered response models.

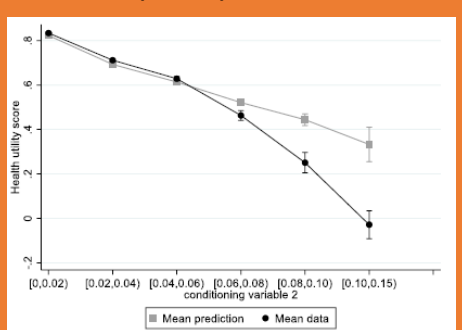
Model performance

Report summary measures of fit (e.g. AIC, BIC, Mean Absolute Error).
Fit over the distribution of disease severity is crucially important.
Plot predicted EQ5D vs observed group data means (see figures 1 and 2 for examples from axial spondyloarthitis).
Plots of the cumulative proportion of the data versus the data generated from the model are also recommended (see figure 3).
It is misleading to compare the distribution of the predicted values with the distribution of the actual data.

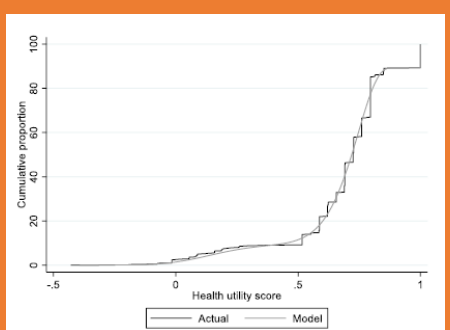
Mean observed and modelled health utility scores by conditioning variable 1 (BASDAI)



Mean observed and modelled health utility scores by conditioning variable 2 (ASDAS)



Cumulative proportions for sample data and predictions



For further information see: Technical Support Document 22

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