

Uncertainty Around HRQoL Values Is Under-Reported - And Can Be Improved

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WHY IS THIS TOPIC IMPORTANT?

- A key feature CEA in health care is the treatment of uncertainty, particularly in the context of probabilistic and stochastic sensitivity analysis.
- The focus of HRQoL valuation research has largely been on producing robust point estimates of the public's average preferences.
- There has been little development of methods for understanding, identifying and quantifying uncertainty around these health state values and for reporting uncertainty so that it can be routinely incorporated into sensitivity analysis in CEA. This is an important gap, because CEA is the principal use of HRQoL values.

OBJECTIVES



HRQoL 'value sets' To identify what methods have been explored to account for these sources of

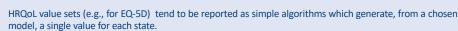
various sources of uncertainty affecting

To highlight gaps in methods and reporting, and implications for their use in generating evidence to inform decision making in health

METHODS

- Sources of uncertainty affecting HRQoL values were identified & categorised
- We undertook a scoping review (reported separately – Abangma et al.)1 to identify papers exploring methods for capturing uncertainty around modelled HRQoL value
- We looked at how HRQoL value sets are reported and what they say about uncertainty
- We identified a method for estimating standard errors around health state values and demonstrated that, using the data from the 1997 UK EQ-5D-3L value set.2,3

CURRENT PRACTICE?



- Variance around dimension/level coefficients is reported but users are given no guidance on how this information can used to generate estimates of variance around the values for states (i.e. a combination of dimensions/levels).
- The use of EQ-5D values is currently only subject to deterministic sensitivity analysis e.g. where alternative acceptable value sets exist and it is not clear which of them to use.4

Table 1. Sources of uncertainty around **HRQoL** values and current reporting

| Sources of uncertainty | Is corresponding |
|------------------------|------------------|
| | uncertainty |
| | around HRQoL |
| | values reported? |
| | |

| | 1 Choice of stated preference methods | Rarely |
|---|---------------------------------------|--------|
| ш | 2 Mode of administration | Rarely |

| 3 Respondent errors | Rarely |
|---------------------|---------------------|
| | |
| | 3 Respondent errors |

| inconsistencies | Raiely |
|--------------------|--------|
| 5 Random responses | Paroly |

| 6 Use of heuristics | Rarely |
|---------------------|--------|

| 7 Heterogeneity | Sometimes |
|-----------------|-----------|
|-----------------|-----------|

| 8 Different response styles | Rarely |
|-----------------------------|--------|

| 9 Fraud | Samotimos |
|---------|-----------|

|) | 10. What population's preferences are relevant | Rarely |
|---|--|--------|
| | 11. Choice of sample frame | Rarely |

| | , |
|----------------------------------|--------|
| 12. What sub-set of states/pairs | Rarely |

| 13. What measure of 'average' preference is used? | Rarely |
|---|--------|

| 14. Choice of modelling methods | Sometimes |
|---------------------------------|-----------|
|---------------------------------|-----------|

| 15. | Model misspecification | Rarely |
|-----|------------------------|--------|

16. Prior beliefs about desirable Rarely characteristics of values

CONCLUSIONS



- Despite 50 years of HRQoL research, uncertainty around preference weights has largely been ignored.
- This may convey a false sense of precision around reported HRQoL values - and means relevant information on uncertainty isn't taken into account in QALYs and ICERs.
- The few papers exploring methods for addressing uncertainty focus on statistical uncertainty in modelling value sets. None of those methods are currently in standard use in reporting value sets.
- We demonstrate (see 'take away tool' below) a standard method that can readily be used to report standard errors around modelled health state values. Reporting these should be standard practice in value set reporting.
- BUT that is just a starting point. The other sources of uncertainty in Table 1 remain largely unexplored and under-reported. This is an important research gap.

A TAKE-AWAY TOOL



Follow this OR code to see how standard errors around health state values in any value set can readily be produced using information from the covariance matrix

KEY MESSAGE



Given the importance of HRQoL values for CEA and health care decisions, researchers should do more to (a) report uncertainty around health state values in a way that can be taken into account in CEA; and (b) strengthen the use of HRQoL values in decision-making by ensuring users and decision makers are fully informed about relevant uncertainty.

Abangma G, Parkin D, Devlin N, et al (2023) Methods for capturing and reporting uncertainty around HRQoL values: a scoping review. Manuscript currently in preparation
MVH Group (1995) The Measurement and Valuation of Health. Final Report on the Modelling of Valuation Tariffs. Centre for Health Economics, University of York, UK.

Modelling approaches

eliciting stated preference

Numbers, A. L., S. Cubex C, Kind P, Dolan P. (1995). Health State Valuations from the British General Public, 1993. [data collection]. UK Data Service. SN: 3444, DOI: 10.5255/UKDA-SN-3444-1. Devlin N, Finch A, Parkin D (2022) Guidance to users of EQ-5D-5L value sets. Chapter 5 in: Devlin, Roudijk & Ludwig (eds) Value Sets for EQ-5D-5L. Springer.

nding: This project was funded by the EuroQol Research Foundation, grant 399-RA. View expressed in this paper are those of the authors and are not necessarily those of the EuroQol Research Foundation. daements: We are grateful for detailed input from Nigel Rice. Ben van Hout. Bas Janssen. Eleanor Pullenavegum. Bram Roudiik and Mark Sculpher, Our paper uses MVH health state valuation data, obtained from University of Essex UK Data Archive