No EQ-5D? Analysis of Alternative Utility Value Sources Used in NICE Appraisals for Oncology Indications

PCN201

R.C. Beale,[1] R.M. Wickstead,[1] G. Chen,[2] E. Walker,[1] M. Griffiths[1]

[1]Costello Medical, London, UK; [2]Costello Medical, Cambridge, UK

Objectives

- To systematically evaluate the health state utility values used in manufacturer economic evaluations submitted to NICE for oncology indications, with regards to:
  - The availability of EQ-5D data from the intervention clinical trial(s);
  - The views of the Evidence Review Groups and NICE committees on alternative approaches to sourcing health state utility values.
- To make recommendations on approaches manufacturers may take when EQ-5D data are not available from their intervention clinical trial(s) when submitting to NICE.

Background

- The NICE reference case states that the health state utility values (HSUVs) used in economic evaluations submitted by manufacturers should be based on health-related quality of life (HRQoL) data reported directly from patients and valued with public preferences, preferably using the EuroQol-5 Dimensions (EQ-5D) questionnaire.[1]
- In some cases, manufacturers may not have collected EQ-5D data in the clinical trial(s) for their intervention, and may therefore need to obtain HSUVs from an alternative source to inform their economic model.
- Economic models in oncology typically have well-defined and similar health state structures; this disease area therefore formed the focus of our research.

Methods

- Oncology technology appraisals (TAs) published between January 2015 and April 2017 on the NICE website were reviewed, and details of the drug, indication, availability of EQ-5D or HRQoL data from the intervention clinical trial(s), source of base case HSUVs, Evidence Review Group (ERG) and NICE committee comments on the HSUVs, and final recommendation were systematically extracted.[2]
- Multiple technology appraisals, Cancer Drugs Fund rapid reconsiderations, or appraisals where the manufacturer economic model had a notably more complex structure that deviated from a typical 3- or 4-health state design, were excluded.

Results

- Of the 30 manufacturer submissions reviewed, 17 had collected EQ-5D data in the intervention clinical trial(s) and in all cases these data informed at least one HSUV in the manufacturer's economic model.
- Of the 13 manufacturer submissions that had not collected EQ-5D data in the intervention clinical trial(s), 9 had collected alternative HRQoL data in the intervention clinical trial(s) and 4 had not. Consequently, several different approaches were used by manufacturers to source HSUVs to inform their economic model **(Figure 1)**.
- Three case studies of different approaches used by manufacturers to source HSUVs are provided in **Table 1**.
- A supplementary handout accompanying this poster provides full details of all approaches taken by manufacturers to source alternative HSUVs when EQ-5D data were not collected in their intervention clinical trial(s). Consideration of these approaches, and the views of the ERGs and NICE Committees across all of these appraisals informed the recommendations and conclusions of the research. Please contact R.C. Beale (rebecca.beale@costellomedical.com) for a digital copy of this handout.
- Based on these ERG and NICE Committee criticisms, recommendations to manufacturers with regards to sourcing HSUVs are presented in **Figure 2**.

Discussion

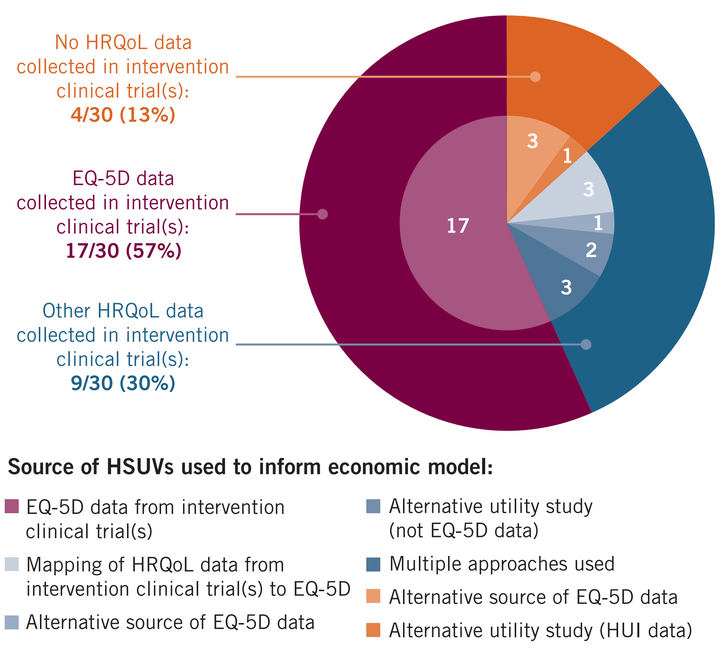
- Despite the longstanding preference by NICE for HSUVs to be derived from EQ-5D data, only 57% of the manufacturer submissions reviewed had collected EQ-5D data within the intervention clinical trial(s).
- In appraisals where EQ-5D data had not been collected in the intervention clinical trial(s), varying levels of criticism were attracted from the ERGs and NICE committees on the alternative approaches used to source HSUVs; however, a lack of EQ-5D data was observed for both recommended and rejected technologies.
- Nevertheless, the growing trend to seek health economist input in trial design and collect EQ-5D data where possible could reduce the number of appraisals attracting criticism on HSUV sources, in addition to the work required by the manufacturer to source appropriate alternative HSUVs in the future.
- As expected, where HSUVs were derived from alternative sources, this research highlighted the need to assess face validity and conduct appropriate sensitivity/scenario analyses.

Table 1 | Alternative methods used to source HSUVs: three case studies

	Case Study 1	Case Study 2	Case Study 3
TA	381[3]	360[4a]	343[5]
Intervention	Olaparib	Paclitaxel as albumin-bound nanoparticles in combination with gemcitabine	Obinutuzumab with chlorambucil
Indication	Maintenance treatment of relapsed, platinum-sensitive, BRCA mutation-positive ovarian, fallopian tube and peritoneal cancer after response to second-line or subsequent platinum-based chemotherapy	Previously untreated metastatic pancreatic cancer	Untreated chronic lymphocytic leukaemia
HRQoL Data	FACT-O	No HRQoL data collected in intervention clinical trial(s)	EORTC-QLQ-C30
Source of HSUVs Used by Manufacturer	Pre-progression HSUVs: • FACT-O data mapped to EQ-5D using published algorithm in patients with multiple cancer types Post-progression HSUVs: • HSUVs derived from relapsed advanced ovarian cancer trial data used in previous NICE TA	Pre- and post-progression HSUVs: • EQ-5D data from US study of different intervention in same indication • Manufacturer adjusted values to include treatment-related disutility due to AEs	Pre- and post-progression HSUVs: • Manufacturer claimed no validated algorithms existed for mapping EORTC-QLQ-C30 to EQ-5D • HSUVs sourced from vignettes utility study (TTO) conducted with 100 members of UK public
ERG and Committee Comments	• ERG did not consider population of mapping study to closely reflect that of pivotal trial and suggested mapping function should have been tested in sensitivity analysis • Committee disappointed no preference-based measures of HRQoL were collected from intervention pivotal clinical trial and felt some HSUVs lacked face validity	• ERG stated UK EQ-5D values are systematically lower than US values and provided adjusted values • Committee criticised failure to collect EQ-5D data and noted HRQoL values should come from representative UK population and use UK algorithm • Committee concluded ERG's adjusted HSUVs were most appropriate	• ERG claimed suitable mapping algorithms were available • ERG considered utility study to be low quality because HRQoL data not collected from patients and vignettes used rather than generic utilities questionnaire • Committee noted utility study performed in public and not patients and therefore an inappropriate source of HSUVs
Recommendation	Recommended	Not recommended	Recommended

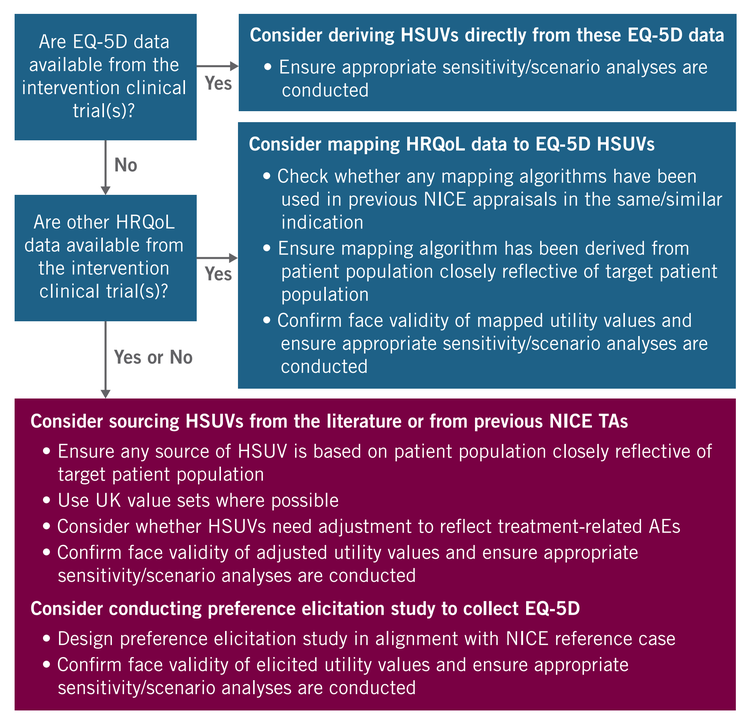
[a]Note that since this research was conducted, the guidance for TA360 has been updated and replaced by NICE TA guidance 476. AE: adverse event; EORTC-QLQ-C30: European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire; EQ-5D: EuroQol-5 Dimensions; ERG: Evidence Review Group; FACT-O: The Functional Assessment of Cancer Therapy – Ovarian Cancer; HRQoL: health-related quality of life; HSUVs: health-state utility values; NICE: National Institute for Health and Care Excellence; TA: technology appraisal; TTO: time trade-off; UK: United Kingdom; US: United States.

Figure 1 | Sources of HSUVs in NICE oncology appraisals over the last 2 years



EQ-5D: EuroQol 5-Dimensions; HRQoL: health-related quality of life; HSUVs: health-state utility values; HUI: Health Utilities Index.

Figure 2 | Recommendations to manufacturers who have not collected EQ-5D data in their intervention clinical trial(s)



Conclusions

- Despite representing NICE's preferred source of HSUVs for economic evaluations, only just over half of the manufacturer submissions in oncology indications over the last two years had EQ-5D data collected from the intervention clinical trial(s).
- Whilst HSUV sources deviating from the NICE reference case attracted criticism from ERGs, there are measures that manufacturers may take to mitigate such feedback, and NICE committees appear willing to accept a range of alternative approaches to sourcing HSUVs.

References

1. National Institute for Health and Care Excellence (2013). Guide to the methods of technology appraisal. Available at: https://www.nice.org.uk/guidance/pmg9/resources/guide-to-the-methods-of-technology-appraisal-2013-pdf-2007975843781 [Last accessed 11.10.17]; **2.** National Institute for Health and Care Excellence (2017). Guidance and advice list. Available at: https://www.nice.org.uk/guidance/published?type=ta [Last accessed 11.10.17]; **3.** NICE TA381: Olaparib for maintenance treatment of relapsed, platinum-sensitive, BRCA mutation-positive ovarian, fallopian tube and peritoneal cancer after response to second-line or subsequent platinum-based chemotherapy (January 2016); **4.** NICE TA360: Paclitaxel as albumin-bound nanoparticles in combination with gemcitabine for previously untreated metastatic pancreatic cancer (October 2015); **5.** NICE TA343: Obinutuzumab in combination with chlorambucil for untreated chronic lymphocytic leukaemia (June 2015).

Acknowledgements

The authors thank Charlotte Bright, Costello Medical, for graphic design assistance.

Presented at the ISPOR 20th Annual European Congress | Glasgow, UK | 4–8 November 2017