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Health Policy Analysis

Switching From EQ-5D-3L to EQ-5D-5L in England: The Impact in NICE Technology Appraisals

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ABSTRACT

Objectives: To estimate the impact of using EQ-5D 5-level (5L) in a sample of National Institute for Health and Care Excellence Technology Appraisals originally undertaken using the EQ-5D 3-level (3L).

Methods: For Technology Appraisals case studies published between 2016 and 2024, we extracted utility values used in the cost-effectiveness models and mapped them to 5L using the eq5dmap model with a new value set for UK. Results using 3L and mapped 5L values were compared for oncology, non-oncology with life extension, and non-oncology without life-extension interventions.

Results: We selected 39 appraisal decisions. In almost all cases, EQ-5D values increased after being mapped to 5L, with the magnitude of the increase being greater for more severe initial 3L health values. The impact of using mapped 5L values to model results differed according to the intervention group: absolute incremental quality-adjusted life-years increased (mean = 12.5%) and incremental cost-effectiveness ratios decreased (mean = 11.1%) in the oncology group (n = 17), whereas the opposite and larger effect was observed in the non-oncology without a survival gain group (n = 11, decrease in incremental quality-adjusted life-years = 37.5%, increase in incremental cost-effectiveness ratio = 61.4%). Results were mixed for the non-oncology interventions with a survival gain (n = 11).

Conclusions: Mapping from 3L to 5L increases utility values, with magnitude of change being greater for more severe health states. The impact on estimates of cost-effectiveness varies according to the extent of quality-of-life versus length-of-life improvement but can be very substantial.

Keywords: cost-effectiveness analysis, EQ-5D-5L, policy analysis.

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Highlights

- Moving from EuroQol 5-Dimension 3-Level (3L) to the new UK 5-Level (5L) value set[7] will impact cost-effectiveness estimates. Policy makers need to know the direction and magnitude of these impacts, which are assessed in this article.
- Moving from 3L to 5L shifts health state values higher and compresses them into a smaller range. This leads to differential and substantial impacts on the cost effectiveness of technologies that extend life (more cost-effective) versus those that improve quality of life (less cost-effective).
- The new UK 5L value set[7] has implications that favor some types of technologies (such as oncological pharmaceuticals) and disadvantages others (such as quality-of-life-improving therapies). Health Technology Assessment bodies, such as National Institute for Health and Care Excellence, need to consider how to deal with these implications.

Introduction

The National Institute for Health and Care Excellence (NICE) issues guidance to the National Health Service (NHS) in England on the use of new and existing medicines, products, and treatments.[1] It is one of the leading national Health Technology Assessment agencies worldwide, with significant influence on methods challenges faced internationally.

Cost-effectiveness analysis plays a prominent role in the formulation of NICE guidance with quality-adjusted life-years (QALYs) comprising the measure of health effect and EQ-5D as the preferred measure of health-related quality of life (HRQoL) in adults.[1] EQ-5D describes health impact on 5 domains: mobility, self-care, usual activities, pain/discomfort, and anxiety/ depression. There are 2 versions of EuroQol 5-Dimension (EQ-5D). EQ-5D-3L (3L) has 3 response levels: no problems, some problems, and extreme problems and a value set estimated from fieldwork undertaken in the UK population in 1993.[2] The EQ-5D 5-level (5L)[3] descriptive system was introduced in 2009 with the intention of improving sensitivity and reducing ceiling effects. A proposed value set for England was published in 2018.[4] Although the descriptive system has become widely adopted in clinical studies, NICE recommends the 3L value set be used following the mapping method of Hernandez et al[5] after concerns were raised about the 5L value set.[6]

A new 5L value set for the United Kingdom has been developed by Rowen et al.[7] Before this new value set can be adopted, it is imperative for policy makers to be aware of the likely impact. This was done for the previous proposed 5L value set first in a sample of economic evaluations conducted alongside clinical trials by Hernandez Alava et al,[8] and subsequently in model-based economic evaluations from NICE technology appraisals (TAs) by Pennington et al.[9] In this analysis, 20 TAs originally conducted using 3L estimates were reviewed and included a mix of different technologies and disease types and life-extending technologies or those that improved quality of life but without extending life. The study found that EQ-5D values increase using

5L compared with 3L in almost all cases; however, the difference between best and worst states decreased. The impact on incremental QALYs, and thus on cost effectiveness, varied depending on whether the new technology impacted life extension, improved quality of life, or both.

This study updates Pennington et al[9] to compare the projected impact of the new 5L value set for the UK[7] compared to 3L in a new sample of NICE TAs originally undertaken using the 3L. Decision makers, and the patients and manufacturers affected by their recommendations, need to know the likely impact of changes in the methods underpinning economic evaluation both at the aggregate level and for specific technology types. This study provides insights to these questions in the context of the English Health Technology Assessment system but is of relevance to other international settings where the EQ-5D plays a prominent role because there are similarities in the methods used to develop 5L value sets across countries.

Methods

Choice of Case Studies

We selected case studies from the NICE TA Program for which the final guidance was published between 2016 and 1st August 2024, in which a cost-effectiveness analysis was performed and health utility values were based on 3L at least for the main health states (either directly collected, mapped from other instruments to 3L, or from published literature). The sample spanned oncology, non-oncology and both length-of-life-extending and quality-of-life-improving technologies with sufficient numbers of cases in each of these categories to be able to draw meaningful conclusions. The oncology/non-oncology sample proportions were very closely aligned to those observed in the overall NICE TA Program. The group of cases selected included a mix of disease areas typically considered by the NICE TA Program.

The final sample comprised 39 appraisal decisions from 37 TAs, with 17 appraisals in oncology (46% of total) and 20 (54%) in non-oncology disease areas, which included a range of conditions, eg, skin, infectious, endocrine, nutritional, or metabolic diseases; diseases of the immune, circulatory, respiratory, genitourinary, nervous, and digestive systems; diseases of the blood or blood-forming organs; and sleep-wake disorders. Thirty-two TAs corresponded to Single Technology Appraisals, 3 corresponded to Cancer Drugs Fund Reviews, and 2 were Multiple Technology Appraisals. The sample was considered sufficiently large to draw general conclusions.

We were provided with decision models and associated documentation for each of the TAs, which contained underlying confidential information, including prices and other model parameters. We did not have access to any individual patient data. All patient-access scheme and comparator's patient-access scheme discounted prices were removed before running the analyses reported here to avoid revealing any confidential information. Results are also reported at a level of aggregation that preserves confidentiality. Sensitivity analyses that used confidential prices were computed but cannot be reported here. We reproduced the NICE-appraisal-committee-preferred assumptions used to inform decision making in cases in which they were reported and possible. We defaulted to the closest scenario in the small number of cases in which this could not be achieved.

Analyses of the Impact of Switching from 3L to 5L on Model Results

We extracted all health state utility values used in the cost-effectiveness models, which corresponded to mean estimates for health states and other events (eg, AEs) and the sources for the general population utilities used for health state utility age adjustments or constraints, the population baseline characteristics, and main results: total and incremental QALYs and costs and incremental cost-effectiveness ratios (ICER).

We then mapped all utility values from 3L to 5L, including age and the proportion of males as covariates. This was done by updating the Hernandez et al[5] mapping to reflect the new 5L value set.[7] The mapping is based on a very large sample of respondents (n = 50 000) who completed both EQ-5D variants (3L and 5L) with the ordering randomized and substantial separation between the versions in the survey. This is a response mapping model: it models how individual responses to the 3L (5L) descriptive system translate to responses to the 5L (3L) instrument. Therefore, no changes to the underlying statistical model were required but simply an updating to the 5L value set the statistical model output links to. 5L predictions conditional on 3L are a combination of both the responses given to the descriptive systems of the 2 instruments and their associated value sets. An updated version of the eq5dmap Stata command[10] was used with bandwidth recommendations applied as per Hernandez et al[11]: 0.1 for 3L values $>$ 0.6, and 0.4 for values $\leq$ 0.6. The bandwidth is important because we are dealing with mean EQ-5D-3L estimates rather than the individual patient data responses to the 3L instrument. The bandwidth determines the range and relative weight of 3L responses that have contributed to the mean 3L score we observe. These bandwidth parameters were extensively tested to ensure that they produced results that were as highly correlated as possible with those obtained from an exact mapping of observed scores across multiple available data samples. All mapped 5L values were then directly applied in the cost-effectiveness models. All remaining model parameters remained unchanged.

We analyzed the resulting change in incremental QALYs and ICERs in terms of general tendencies for all case studies and for the following groups of cases: oncology interventions, non-oncology interventions with survival extension, and non-oncology interventions that did not extend survival.

Results

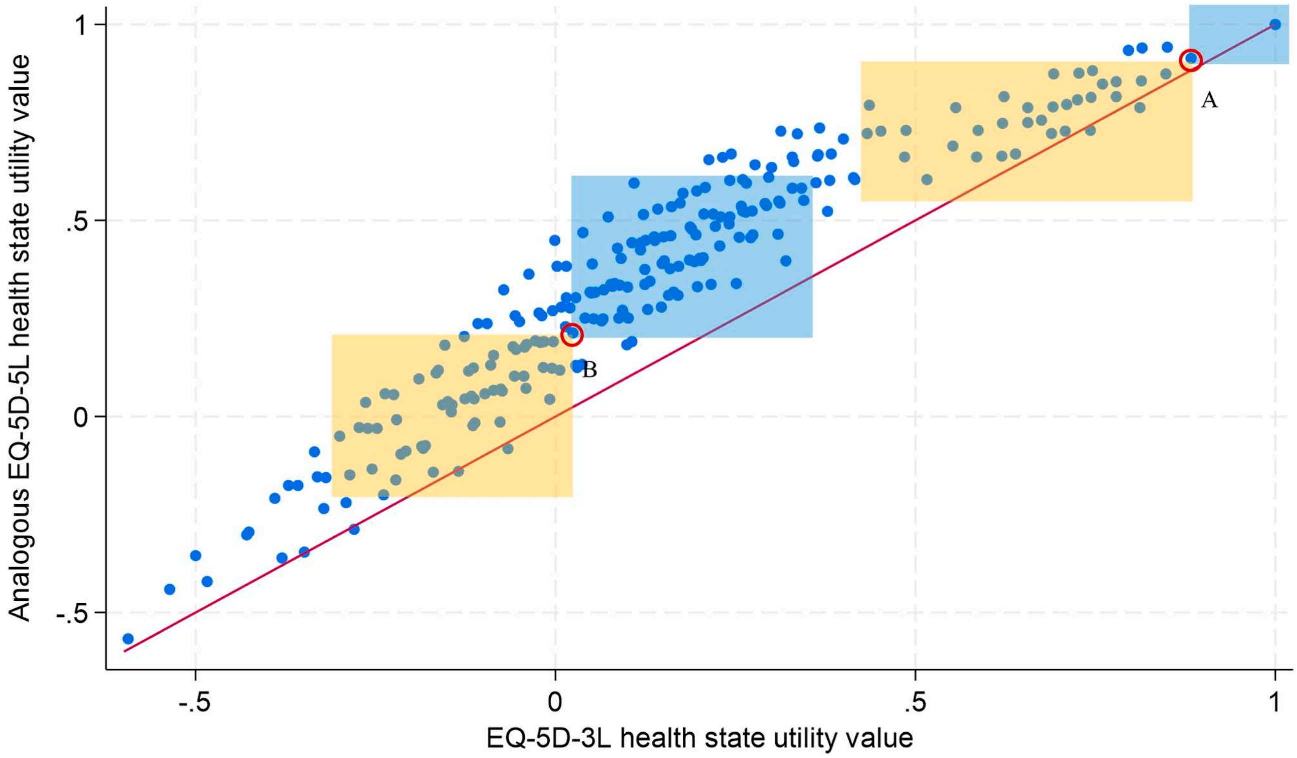
Comparing the 3L and 5L Value Sets

Table 1 summarizes the value sets.[2,7] Both value sets cover a similar range, but the 5L has a significantly higher mean and median. Because of the smaller number of health states in the 3L descriptive system (243 vs 3125), its utility value plot contains noticeable gaps, the largest being between 0.883 and 1. Importantly, the 5L plot is left-skewed, whereas the 3L is right-skewed. An important component of the 3L value set is the impact of the

Table 1. Summary of EQ-5D-3L and new EQ-5D-5L value sets for the UK.

	EQ-5D-3L	EQ-5D-5L
Number of health states	243	3125
Range	[−0.594, 1]	[−0.567, 1]
Average across health states	0.137	0.322
Median score	0.109	0.336
Variance across health states	0.097	0.084
Skewness across health states	0.437	−0.213
Kurtosis across health states	2.947	2.523

Figure 1. Scatter plot of all 243 EQ-5D-3L health states utility values against utility values of analogous EQ-5D-5L health states.



"*N3*" term: a reduction of 0.269 applied to any health state that has a level 3 ("extreme problems") for any domain, in addition to the reductions for each domain score. The *N3* term is included in 87% of all possible EQ-5D-3L health states (211 out of 243), and 210 of these 211 states have values below 0.5.

Because of differences in the characteristics of the sets of participants in the choice experiments used to construct the value sets, the valuation methodology, and the statistical modeling approaches used to generate the value sets, seemingly similar health states may be ranked and valued differently in the 2 EQ-5D variants. As a result, a move between 2 health states within 3L that increases (decreases) health utility may not lead to an increase (decrease) in 5L: the relationship between 3L and 5L is not monotonic. Figure 1 illustrates this, for all 243 3L health states and their 5L analogs (responses of "no problems," "moderate problems," or "extreme problems"). Points A and B are highlighted as 2 examples. Taking any point, such as A, as reference, points in the north-east and south-west quadrants relative to the reference point A (blue and yellow boxes, respectively) indicate health states that are valued higher (north-east quadrant) or lower (south-west quadrant) in both value sets. Points in the north-west and south-east quadrants highlight cases in which moving between health states generate utility values that move in opposite directions in the 3L and 5L value sets. There is considerable nonmonotonicity inherent in the different structures of the EQ-5D-3L and EQ-5D-5L value sets.

The Impact of 5L in Cost-effectiveness Case Studies

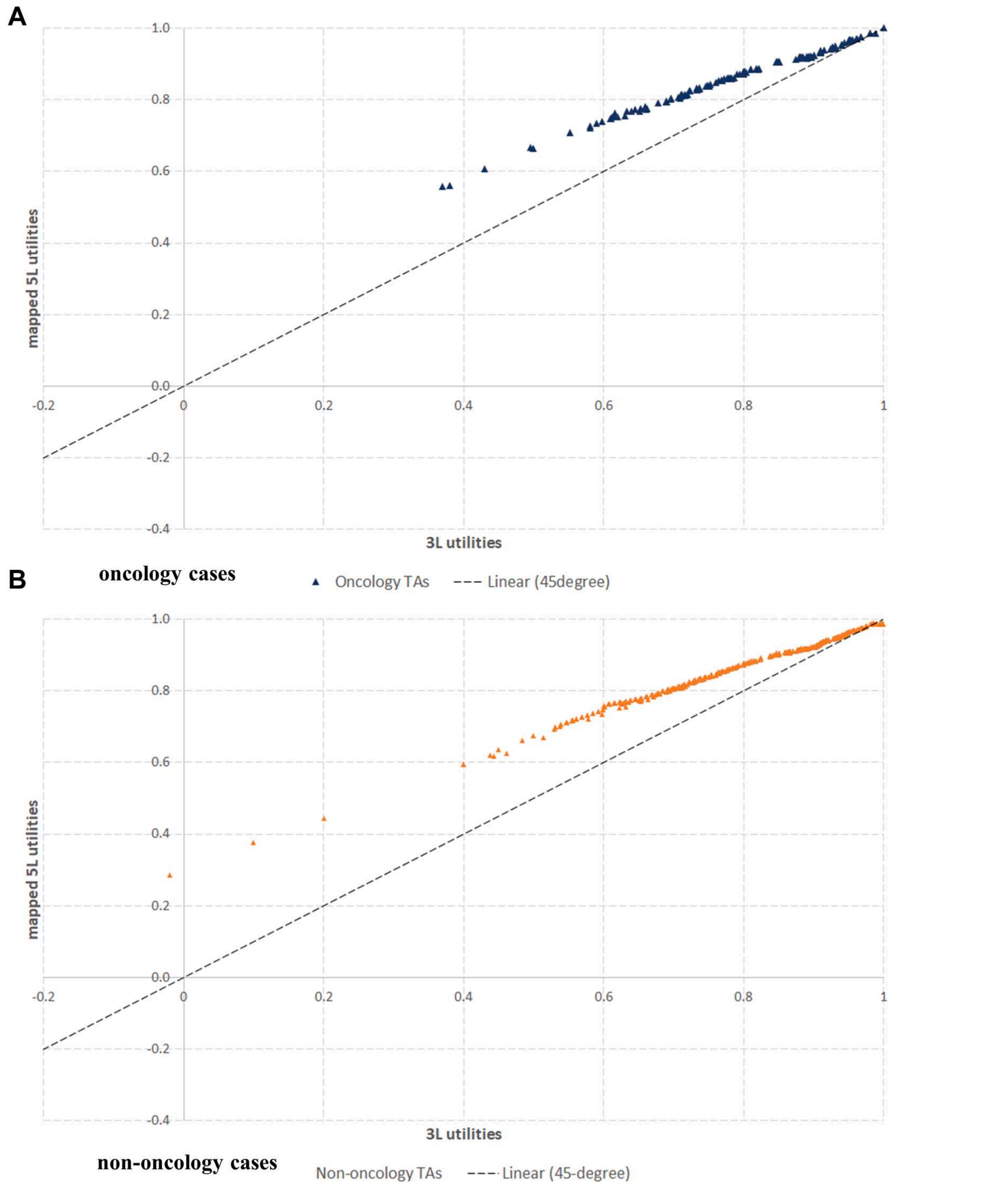
Mapping 3L health states to 5L predicts the joint impact of how individuals complete the descriptive systems and the value sets. The 39 appraisal decisions from 37 appraisals used a range of decision model types. Seventeen appraisal decisions were related to oncology therapies, 11 relate to non-oncology interventions, which generated both survival and quality-of-life gains, and the remaining 11 generated quality-of-life gains only. Almost all case studies (37/39, 94.8%) relate to chronic conditions with model time horizons between 10 years and lifetime (with the longest period being 80 years).

The main sources of 3L estimates in most models were directly collected in the pivotal clinical studies that informed the appraisal (or mapped from 5L administered in those studies), or from other nonpreference-based measures mapped to 3L using published mapping models (EORTC QLQ-30, SF-36, Migraine-Specific Quality-of-Life Questionnaire [MSQ] version 2.1, St. George's Respiratory Questionnaire [SGRQ]).[12-15] Most case-study models reported also using utility values from external sources (published literature or previous TAs, either exclusively or in addition to the data from the clinical studies). The approach used in the models for the utility values varied significantly, in particular for the non-oncology case studies.

Twenty-four models included the impact of adverse events (AEs) on HRQoL, whereas 11 models included additional disutilities associated with other events (eg, related to transplantation and its associated treatment and complications, acute exacerbations, nonfatal acute events and surgery), which were sourced from published studies. Twenty-eight models included adjustments for age- and sex-matched general population utilities or constraints.

Figure 2 presents the comparison of all original 3L and mapped 5L values used in the case-study models (divided by oncology and non-oncology cases). In most cases, EQ-5D values increased after being mapped to 5L, with the magnitude of the increase being dependent of the initial 3L value. There were a small number of exceptions when the original 3L was very high. The absolute change in EQ-5D is greater for lower, more severe, starting 3L values.

Figure 2. Scatterplot comparing original EQ-5D-3L and mapped EQ-5D-5L utility values in (A) oncology and (B) non-oncology study cases models (line shows 45-degree threshold).

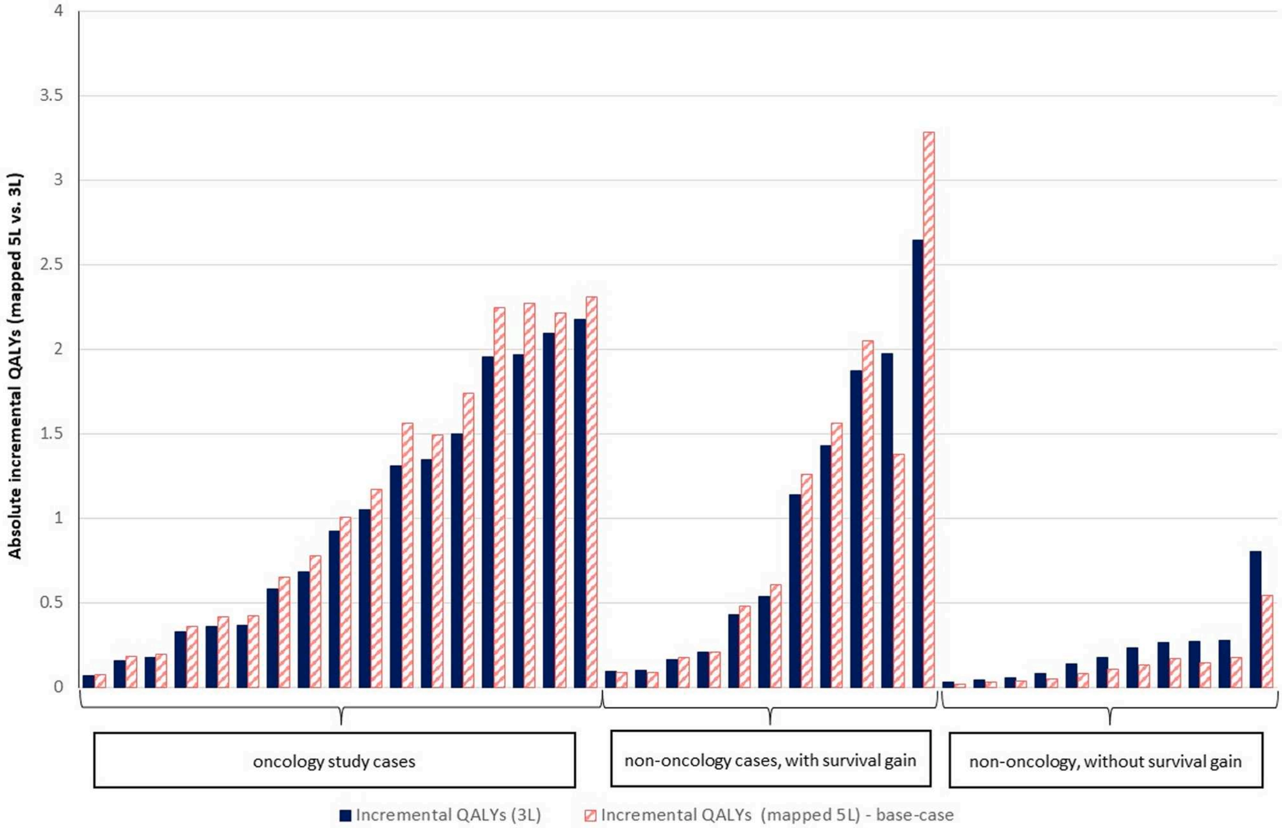


TA indicates technology appraisals.

The supplementary appendix (Appendix Figs. 1-5) presents comparisons between the original 3L and mapped 5L estimates by sex and age for each of the sources of general population utility estimates used in the sample models. Mapped 5L utilities were higher than 3L and followed a similar trajectory, although differences were smaller at higher utility scores corresponding to younger ages.

The impact of the use of mapped 5L values on the model results differed according to the case-study group. Figures 3 and 4 illustrate these impacts on incremental QALYs and ICERs, respectively. Please note that in 3 models, the results were in the southwest quadrant, in which the incremental QALYs were negative; therefore, we present all incremental QALYs in absolute terms. For all the 17 oncology case studies, the move to 5L led to

Figure 3. Model results in terms of incremental QALYs using EQ-5D-3L and mapped EQ-5D-5L, by individual case study.



QALY indicates quality-adjusted life years.

an increase in incremental QALYs (mean absolute change = 12.5%, median absolute change = 13.7%), whereas the estimated ICERs decreased (mean absolute change = 11.1%, median = 12.0%). In the non-oncology cases without a survival gain, the opposite effect was observed: incremental QALYs universally decreased (mean absolute change = 37.5%, median absolute change = 37.0%) with a corresponding increase in the ICERs (mean absolute change = 61.4%, median = 58.8%). In the non-oncology interventions with a survival gain, results were mixed. Incremental QALYs increased in 7 of 11 case studies in this category, whereas the ICER decreased in these cases. In the remaining 4 cases, the opposite effect was observed. The mean absolute change in incremental QALYs was 12.1% (median absolute change = 10.6%; mean = +3.1%; median = +9.6%), whereas the mean absolute change in ICERs was 12.5% (median absolute change = 9.6%; mean = −0.8%; median = −8.8%). The proportional change to incremental QALYs and ICERs as a result of the use of mapped 5L estimates for individual models are presented in Figure 5.

We explored the impact of the life extension versus QoL improvement on the model results. For each case study, we calculated the ratio of overall incremental 3L QALYs to the additional life-years gained. We plotted these ratios against the change in incremental QALYs caused by moving from 3L to 5L. When the ratio exceeded 1, incremental QALYs rose and ICERs decreased when moving to 5L in all except 1 case study.

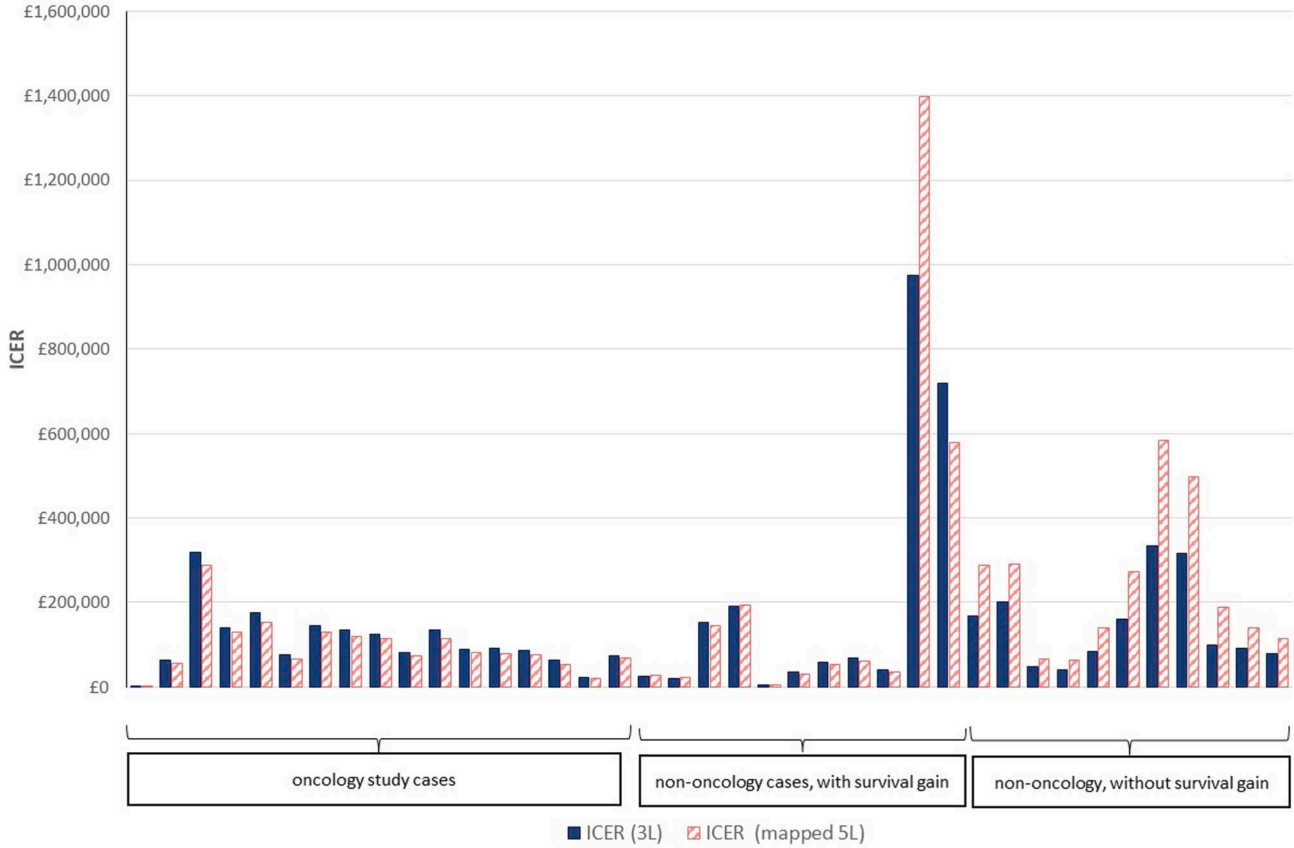
We ran a series of sensitivity analyses, in which health state utility values for AEs or other events were not mapped to 5L if there was any uncertainty about whether they were originally derived from 3L. No substantive changes to the results reported above were observed. The results of the sensitivity analyses that used confidential prices also showed no difference to the general trends observed in the primary analysis.

Discussion

Although the 5L descriptive system has been widely adopted in clinical studies, until now, there has been no accepted value set for the UK. Policy makers and stakeholders to the guidance issued to the NHS need to know the likely impact of significant methods changes, such as adopting the new 5L value set for the UK.[7] These methods change has significant implications not least to the pharmaceutical industry because drug pricing and strategic decisions may be influenced by these signals of how different components of health gain are valued.

This article estimates the likely impact in NICE TAs, using 39 decisions published between 2016 and 2024 and with access to the decision models used in those appraisals. The headline findings of this study align with those of the previously proposed 5L value set for England.[9,16] Compared with the 3L value set, the 5L shifts the distribution of values toward the upper end of the scale and compresses them into a smaller range generally. This is despite the fact that the theoretical range for the new 5L value set[7] extends further at the lower end of disease severity (−0.567) than the previous 5L value set (−0.285). This means that mapping values from 3L to 5L resulted in an increase in the EQ-5D values in almost all cases. The magnitude of this change was inversely related to the initial 3L value, with more substantial

Figure 4. Model results in terms of ICERs using EQ-5D-3L and mapped EQ-5D-5L, by individual case study.



ICER indicates incremental cost-effectiveness ratio.

increases being observed for lower initial 3L scores and vice versa. This pattern reflects the compression effect on the health utility scale.

The results show that, for oncology case studies in which, typically, survival extension is the primary component of health benefit, using the mapped 5L estimates leads to an increase in QALY gains associated with the new technology versus the comparator (mean change of 12.5%) and a decrease in the ICERs (11.1%). The magnitude of change in the incremental QALYs and ICERs was lower in this group compared with the non-oncology without survival extension cases, in which the opposite effects were observed, with decrease in QALY gains and increase in ICER estimates (mean change of 37.5% and 61.4%, respectively). Mixed results were observed in non-oncology cases with a survival gain, in which, overall, the models that had a stronger effect of survival over the QALY gains followed the same trends as the oncology group, and those in which a lower proportion of the QALY gains came from improved survival followed the trends for the group of non-oncology without survival gain cases. The mean absolute change in QALY gain and ICER in this group was 12.1% and 12.5%, respectively.

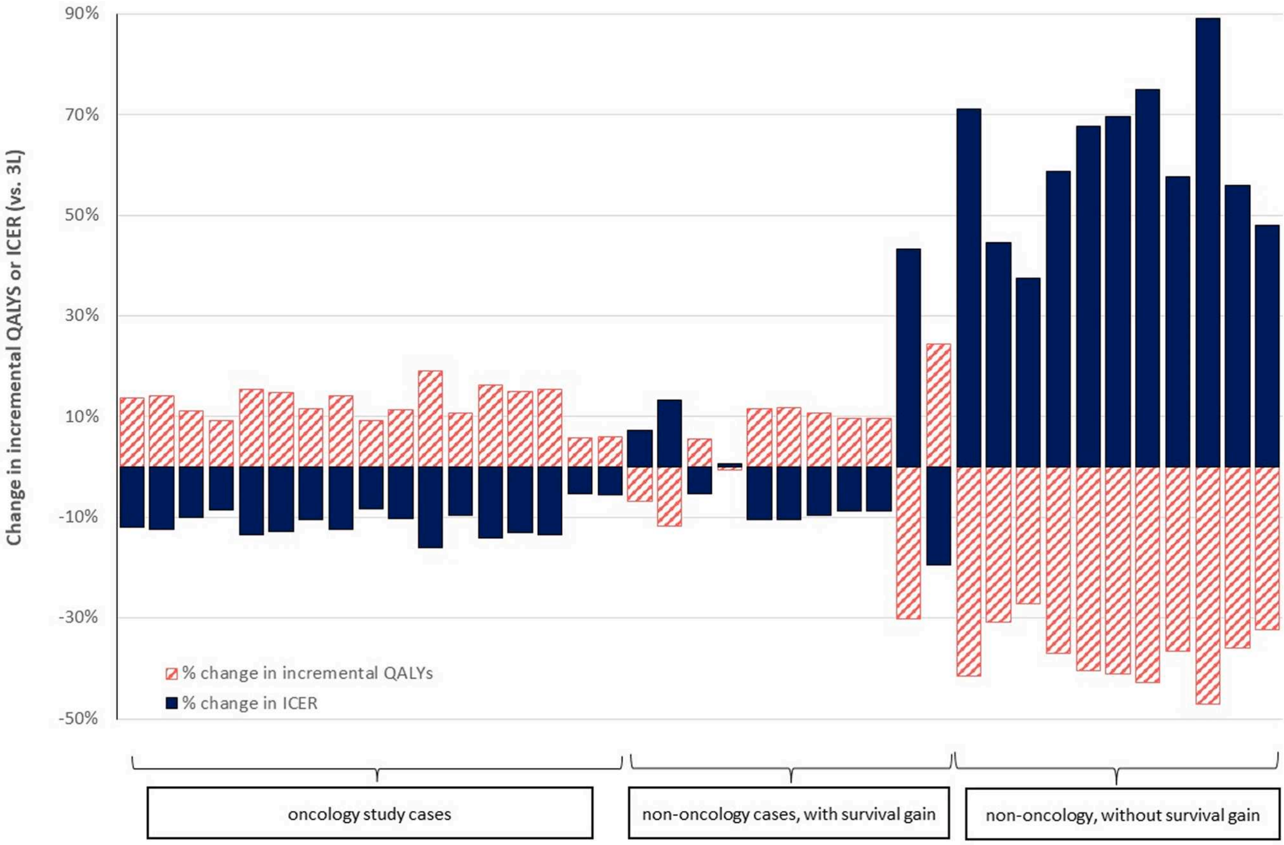
Extending survival is valued more highly using 5L than 3L. Quality-of-life improvement has a lower value using 5L than 3L; therefore, it is the balance between these 2 effects that determines whether any individual technology will be more or less cost-effective under 5L.

These findings need to be interpreted in the light of potential study limitations. The selection of case studies from the NICE Technology Appraisal Program was pragmatic and intended to ensure sufficient sample sizes of both life-extending and quality-of-life-improving health technologies. The case studies are not necessarily representative of the program as a whole; therefore, extrapolating to draw conclusions about the aggregate effect, such as the potential cost impact on NHS budgets, must bear this in mind. We are confident that our general findings extrapolate to other technology types not included in the NICE TAs Program or, in our sample, because they stem logically from the features of the 3L and 5L value sets. We did not assess the impact on the severity modifier used by NICE. Ongoing work includes this extension.

We reported ICERs based on nonconfidential prices to avoid inadvertently revealing sensitive information. We also ran a sensitivity analysis using discounted prices, which showed that the overall key findings are unaffected. We included the assumption for our base case that all utility inputs were from 3L or assumed 3L and included all values to 5L, including utility decrements associated with AEs and other events. This assumption differs to the approach taken in the previous analysis,[16] in which most utility decrements were left unchanged. Nonetheless, we have conducted sensitivity analyses in which we explored changing this assumption, and the results showed a very minor impact compared with the corresponding base-case results.

All of these results are based on mapping between 3L and 5L. Given the nature of the research and policy question, there is no feasible alternative. The mapping model used in this study is based on an innovative randomized design, an exceptionally large

Figure 5. Proportional change (%) in incremental QALYs and in ICERs because of the use of mapped EQ-5D-5L values, by case study.



ICER indicates incremental cost-effectiveness ratio; QALY, quality-adjusted life years.

sample, and state of the art analysis methods that reduce the degree of uncertainty inherent with any statistical model. It is based on the English wording of both 3L and 5L and UK respondents. Different relationships between the descriptive systems are feasible for other languages, and because many trials are multinational, this would be relevant to UK drug assessments. Mapping from mean 3L values requires additional assumptions about the distribution of underlying 3L responses. The bandwidth parameters used were extensively tested to ensure they produced results that were as highly correlated as possible with those obtained from an exact mapping of observed scores across multiple available data samples.

Despite this limitation, a logical next step would be to examine the extent to which the change from 3L to 5L using tariffs for other countries exhibit similar changes to those observed here for the United Kingdom. It is worth noting that the Stata program[10] which automates the implementation of the mapping model used here, now includes an update that permits mapping between international tariffs.

Conclusions

The new 5L value set for the United Kingdom[7] shifts the distribution of health values toward the upper end of the scale and compresses them into a smaller range generally compared with the currently used 3L. Mapping from 3L to 5L states leads to an increase in utility values, and the absolute magnitude of change is greater for more severe health states.

This means that health interventions that improve quality of life but do not affect survival are less cost-effective if using 5L. Extension of life is valued more highly when using 5L. Therefore, health technologies that have significant extension of life compared with quality-of-life improvement, as is typically the case for new drugs in the oncology domain, appear more cost-effective.

Decision makers in England, including NICE, will need to take this information into account, among many other factors, when determining how the new 5L value set for the UK is to be used.

Author Disclosures

Author disclosure forms can be accessed below in the Supplemental Material section. Dr Wailoo is an editor for *Value in Health* and had no role in the peer-review process of this article.

Supplemental Material

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REFERENCES

1. National Institute for Health and Care Excellence (NICE). NICE Health Technology Evaluations: The Manual; 2022. https://www.nice.org.uk/process/pmg36. Accessed January 5, 2026.
2. Dolan P. Modeling valuations for EuroQol health states. *Med Care*. 1997;35(11):1095–1108.
3. EUROQOL Group. EQ-5D-5L; 2024. https://euroqol.org/information-and-support/euroqol-instruments/eq-5d-5l/. Accessed August 6, 2024.
4. Devlin NJ, Shah KK, Feng Y, Mulhern B, van Hout B. Valuing health-related quality of life: an EQ-5D-5L value set for England. *Health Econ*. 2018;27(1):7–22.
5. Hernández Alava M, Pudney S, Wailoo A. Estimating the relationship between EQ-5D-5L and EQ-5D-3L: results from a UK population study. *Pharmacoeconomics*. 2023;41(2):199–207, 2023/02/01.
6. Hernandez Alava M, Pudney S, Wailoo A. The EQ-5D-5L value set for England: findings of a quality assurance program. *Value Health*. 2020;23(5):642–648.
7. Rowen D, Mukuria C, Bray N, et al. A UK value set for the EQ-5D-5L. *Value Health*. 2026;29(5):858–869. https://doi.org/10.1016/j.jval.2026.03.008.
8. Hernandez Alava M, Wailoo A, Grimm S, et al. EQ-5D-5L versus EQ-5D-3L: the Impact on Cost Effectiveness in the United Kingdom. *Value Health*. 2018;21(1):49–56.
9. Pennington B, Hernandez-Alava M, Pudney S, Wailoo A. The impact of moving from EQ-5D-3L to −5L in NICE technology appraisals. *Pharmacoeconomics*. 2019;37(1):75–84.
10. Hernández Alava M, Pudney S. Eq5Dmap: a command for mapping between EQ-5D-3L and EQ-5D-5L. *STATA J*. 2018;18(2):395–415.
11. Hernández Alava M, Pudney S, Wailoo A. *Bandwidth Recommendations for Mapping Mean Utilities. Mapping EQ-5D-5L From an Average EQ-5D-3L Using the EEPRU Reference Case Mapping [EEPRU report]*; 2026. https://doi.org/10.15131/shef.data.31852345. Accessed April 22, 2026.
12. van Hout B, Janssen MF, Feng Y-S, et al. Interim scoring for the EQ-5D-5L: mapping the EQ-5D-5L to EQ-5D-3L value sets. *Value Health*. 2012;15(5):708–715.
13. Rowen D, Brazier J, Roberts J. Mapping SF-36 onto the EQ-5D index: how reliable is the relationship? *Health Qual Life Outcomes*. 2009;7(1):27.
14. Young TA, Mukuria C, Rowen D, Brazier JE, Longworth L. Mapping functions in health-related quality of life: mapping from two cancer-specific health-related quality-of-life instruments to EQ-5D-3L. *Med Decis Mak*. 2015;35(7):912–926.
15. Kontodimopoulos N, Aletras VH, Paliouras D, Niakas D. Mapping the cancer-specific EORTC QLQ-C30 to the preference-based EQ-5D, SF-6D, and 15D instruments. *Value Health*. 2009;12(8):1151–1157.
16. Pennington B, Hernandez-Alava M, Pudney S, Wailoo A. *Comparing the EQ-5D-3L and 5L Versions. What Are the Implications for Model-Based Cost-Effectiveness Estimates?* Sheffield: University of Sheffield; 2018:54.