

Use of utilities in economic evaluations of treatments for eye diseases

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Conflict of interest: none

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- NICE guidance regarding utility weights and problems with vision loss
- Utility sources most used by NICE in technology appraisals of drugs for retinal diseases (Nov. 2011-)
- Examples of impact on ICER of using different utility sources in these TAs
- Conclusions

ALTERNATIVES TO EQ-5D FOR GENERATING
HEALTH STATE UTILITY VALUES

REPORT BY THE DECISION SUPPORT UNIT

March 2011

John Brazier, Donna Rowen

Support Guide (see TSD 10¹). Claims that EQ-5D is inappropriate for measuring the Health Related Quality of Life (HRQL) for a patient group or a specific treatment must be supported by evidence.

NICE guidance for alternative methods used to generate HSUVs can be summarised as:

- *Provide supporting argument and evidence* for the choice of alternative methods
- *The descriptions of health states* being valued should be based on validated patient reported measures of HRQL
- *Valuation methods* should be comparable to those used to value the EQ-5D
- *The impact of using alternative methods* on the results of the economic evaluation should be provided and compared to EQ-5D where possible

Alternative generic preference-based measures and condition-specific preference-based measures of HRQL (CSPBMs) derived from validated measures of HRQL can be used. The scoring should be based on UK general population values elicited using a choice-based technique, preferably using TTO with the same protocol as the UK EQ-5D valuation.

Future research is recommended to examine the use of ‘add-on’ dimensions to EQ-5D as an alternative to the use of CSPBMs and to the development of a set of measures acceptable to NICE where EQ-5D is not appropriate. Future research is also recommended to examine the comparability and performance of CSPBMs to EQ-5D.

RESEARCH ARTICLE

Open Access

Health state utilities in patients with diabetic retinopathy, diabetic macular oedema and age-related macular degeneration: a systematic review

Edith Poku^{1*}, John Brazier¹, Jill Carlton¹ and Alberto Ferreira²

- NICE specifies that Health State Utility Values should be derived from validated generic instruments (EQ-5D preferred) from the general public using a choice-based method (SG or TTO)

Table 1 Visual levels according to Brown 2002 [16]

| Description of vision | Visual acuity |
|-----------------------|----------------|
| Good reading vision | 20/20 – 20/25 |
| Legal driving vision | 20/30 – 20/40 |
| Moderate visual loss | 20/50 – 20/100 |
| Legal blindness | ≤ 20/200 |

This table displays the reported visual acuity classes by Brown et al. [16]. This classification was used because it was the most widely reported in the available literature and also provided meaningful interpretation of visual impairment.

In terms of instruments, the widely used EQ-5D does not reflect the problems associated with chronic eye conditions like AMD and DR, whereas HUI3, TTO and SG showed comparatively stronger associations with VA in the BSE. The use of a vision-specific instrument such as one based on the NEI-VFQ 25 may be a more appropriate measure of self-reported HRQoL in patients with visual disability. The QALY gains estimated in this way may better reflect the impact of the clinical intervention and the benefit observed by patients.

Visual acuity and health utility state values

Reporting of VA levels varied across studies. Visual impairment was based on VA in better-seeing eye (BSE) [16,20-24,27-34], worse-seeing eye (WSE) [20,22,26,30,31], binocular distance visual acuity [19,22] and weighted visual acuity (WVA) [20] defined as weighted average of VA in both eyes. HSUVs reported in included studies were EQ-5D, [20,22,24,28] SF-6D, [22,25] HUI-3, [22,24,26] TTO [16,20-22,27,29-34] and SG [20,23,29,30].

Overall, generic EQ-5D estimates were found to be largely unresponsive to differences in VA levels [22]. By contrast, TTO estimates generally displayed a more consistent reduction across VA levels. However, SG-based utility estimates tended to be higher than TTO estimates in the same patients and these in turn were higher than the values from generic instruments. Furthermore, shifts in utility estimates across VA levels did not always exhibit a definitive pattern across consecutive levels of visual impairment.

An interesting finding from the literature review was the limited evidence on the relationship between HSUVs and VA in the WSE. This has important implications for the cost effectiveness modelling since clinical practice is concerned with treating the person and not just an individual eye. It would seem that having problems in the weaker eye has little or no impact on HSUVs after controlling for VA in the BSE in patients with AMD or DR. However there are significant limitations in the literature regarding the relationship between VA in the WSE or overall VA and HSUVs and this requires significant work for the future.

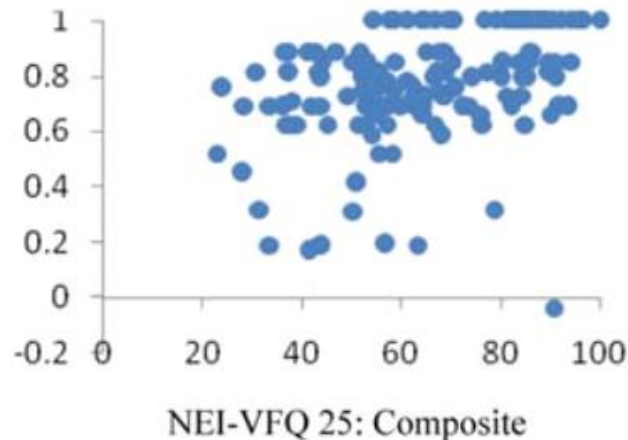
Table 4 Summary of reported multiple regression analyses in included studies

| STUDY | TYPE OF REGRESSION MODEL | RESULTS OF ANALYSIS | | | NOTES |
|--------------------------|--------------------------|---|--------------------|---------------|--|
| | | DEPENDENT VARIABLE | B-COEFFICIENT (SE) | P-VALUE | |
| PREDICTORS OF TTO VALUES | | | | | |
| Brown et al. [30] | OLS regression | VA (Snellen) in BSE | 0.37 | <0.0001 | The following equation was developed from the model: <i>Utility value = 0.37 (VA) + 0.514,</i> |
| Brown et al. [31] | OLS regression | VA (Snellen), 1 'good' eye | −0.0902 | 0.001 | Significant differences in reported utility values were noted when patients with two 'good' eyes (bilateral good vision) were compared with those with one 'good' eye (unilateral good vision). |
| Brown et al. [32] | OLS stepwise model | VA (Snellen), BSE | NR | <0.0001 | A significant relationship was demonstrated between decreasing vision in the BSE and decrements in utility values. This relationship was absent for VA in the WSE. |
| Espallargues et al. [22] | OLS Stepwise model | VA (Snellen), WSE Distant VA (logMAR), BSE | NR −0.04 (0.05) | 0.43 0.686 | An association was observed between distant VA in the BSE and TTO scores. Selection criteria for significant predictors were $p < 0.1$. Age and time since diagnosis were important for TTO values. |
| Sharma et al. [34] | OLS model | VA (logMAR), BSE | 0.176 | <0. 01 | VA levels in both the affected eye ($p < 0.01$) and unaffected eye ($p < 0.01$) were independently associated with reported utilities. Better vision was associated with higher scores. |

Predicting EQ-5D utility scores from the 25-item National Eye Institute Vision Function Questionnaire (NEI-VFQ 25) in patients with age-related macular degeneration

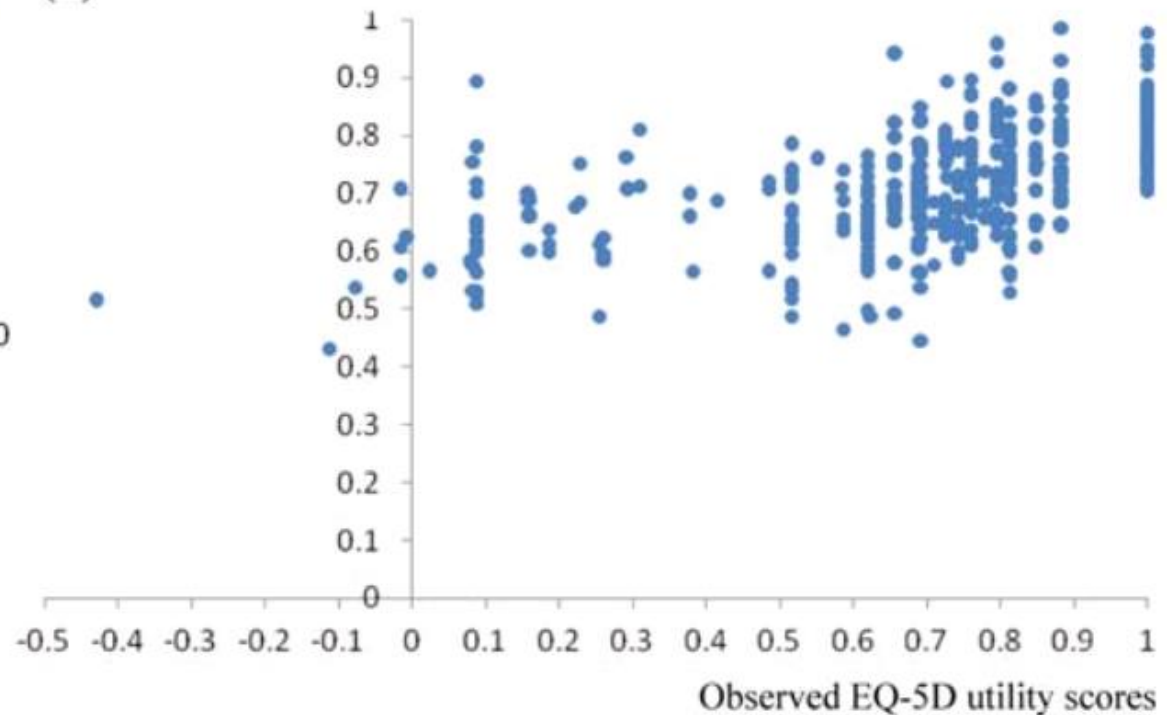
Nalin Payakachat · Kent H. Summers · Andreas M. Pleil ·
Matthew M. Murawski · Joseph Thomas III ·
Kristofer Jennings · James G. Anderson

EQ-5D utility scores



(a)

Predicted EQ-5D utility scores



Patient and Public Preferences for Health States Associated with AMD

- 58 AMD patients with VA <20/40

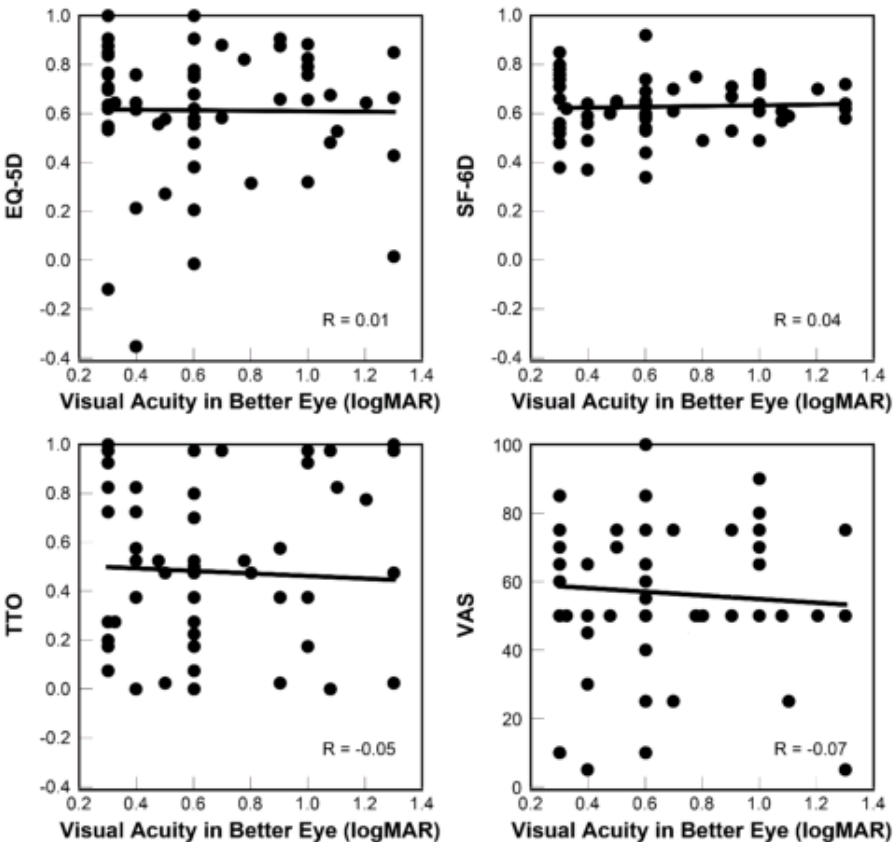
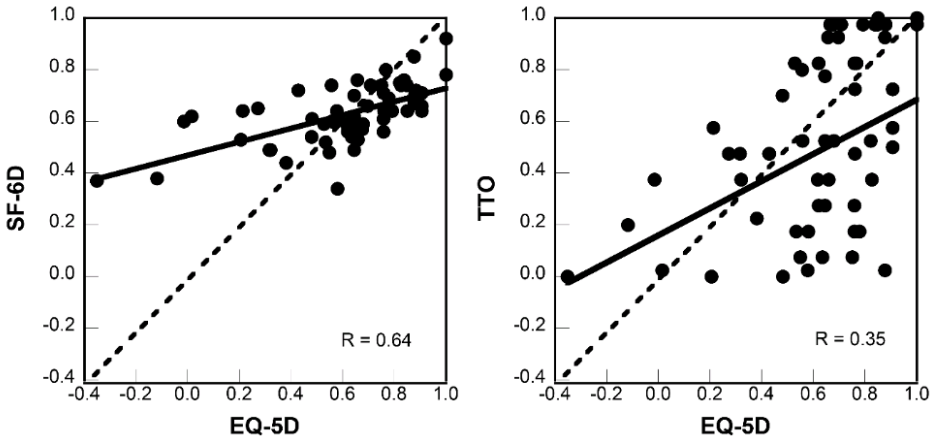
Thomas Butt*, Hannah M.P. Dunbar[†], Stephen Morris[‡], Shepley Orr[§], and Gary S. Rubin[‡]

TABLE 1.
Health status questionnaires

| Instrument | Preferences | Valuation technique |
|---------------------|---|---|
| EQ-5D | UK public (EQ-5D-5L interim value set) | Time trade-off (preference based) |
| SF-6D | UK public (UK valuation of SF-36 US v1) | Standard gamble (preference based) |
| Time trade-off | Patients' own | Time trade-off (preference based) |
| Visual analog scale | Patients' own | Visual analog scale (nonpreference based) |

Patient and Public Preferences for Health States with AMD—Butt et al. 8

858 Patient and Public Preferences for Health States with AMD—Butt et al.



Rasch analysis in the development of a simplified version of the national eye institute visual-function questionnaire-25 for utility estimation

Jonathan W. Kowalski · Anne M. Rentz · John G. Walt · Andrew Lloyd · Jeff Lee · Tracey A. Young · Wen-Hung Chen · Neil M. Bressler · Paul Lee · John E. Brazier · Ron D. Hays · Dennis A. Revicki

- 6. See well up close^c
- 7. Finding things on a shelf
- 11. See people’s reaction to things I say^c
- 12. Picking clothes to wear
- 14. Going out for films, sports event^c
- 17. Accomplish less because of vision
- 18. Limited work time due to vision^c
- 20. Stay at home because of vision^c
- 25. Worry about doing things that may embarrass because of vision^c

^a Item location indicates where item is located (function)
^b Fit residual is the standardized mean square
^c Final 6 items

Table 8 An example of the health states: perfect vision

Because of my eye sight...

- I have no difficulty doing work or hobbies that require seeing well up close, such as cooking, sewing, fixing things around the house or using hand tools
- I have no difficulty at all seeing how people react to things I say
- I have no difficulty going out to see movies, plays or sports events
- I am not limited in how long I can work or do other activities
- I don’t have to stay at home
- I don’t worry about doing things that will embarrass me or others

Table 1 Data sets selected for item reduction analysis

| Data set | Total N | Type | Therapeutic area | Study type | Cite |
|----------|---------|------------------------|--|--------------------------------------|---|
| #1 | 377 | Central vision loss | Macular edema following retinal vein occlusion | Randomized controlled clinical trial | Allegan Inc. [46] |
| #2 | 114 | Central vision loss | Diabetic macular edema | Randomized controlled clinical trial | Allegan Inc. [47] |
| #3 | 432 | Central vision loss | Ocular histoplasmosis or idiopathic choroidal neovascularization | Randomized controlled clinical trial | Submacular Surgery Trials Research Group [35] |
| #4 | 36 | Central vision loss | Uveitis | Randomized controlled clinical trial | Schiffman et al. [48] |
| #5 | 9 | Central vision loss | Multiple eye diseases—including only participants with central vision loss | Epidemiological study | Globe et al. [49] |
| #6 | 2,251 | Peripheral vision loss | Glaucoma | Randomized controlled clinical trial | Allegan Inc. [50] |
| #7 | 200 | Peripheral vision loss | Glaucoma | Economic study | Muir et al. [51] |

- NICE guidance regarding utility weights and problems with vision loss
- Utility sources most used by NICE in technology appraisals of drugs for retinal diseases (Nov. 2011-)
- Examples of impact on ICER of using different utility sources in these TAs
- Conclusions

MELISSA M. BROWN, MN, MD, MBA, GARY C. BROWN, MD, MBA,
SANJAY SHARMA, MD, MSc(EPID), AND GAURAV SHAH, MD

- 95 diabetic patients with DR, 60% female, mean age 63y
- Better seeing eye VA: range 0.59 (CF-) to 0.85 (20/25+)

TABLE 1. Summary of Utility Values for the Total Group (n = 95) and Five Subgroups With Diabetic Retinopathy Classified According to Best-corrected Visual Acuity in the Better Seeing Eye

| Group | VA Range | TTO Utility | SG Utility | P Value* |
|---------|---------------|----------------------|----------------------|----------|
| Overall | 20/20–HM | 0.77 (CI, 0.73–0.81) | 0.88 (CI, 0.84–0.92) | .28 |
| Group 1 | 20/20–20/25 | 0.85 (CI, 0.75–0.95) | 0.90 (CI, 0.83–0.97) | .23 |
| Group 2 | 20/30–20/50 | 0.78 (CI, 0.72–0.84) | 0.92 (CI, 0.88–0.96) | .000008 |
| Group 3 | 20/60–20/100 | 0.78 (CI, 0.70–0.86) | 0.84 (CI, 0.72–0.96) | .26 |
| Group 4 | 20/200–20/400 | 0.64 (CI, 0.53–0.75) | 0.71 (CI, 0.58–0.84) | .09 |
| Group 5 | CF–HM | 0.59 (CI, 0.23–0.95) | 0.70 (CI, 0.29–1.11) | .30 |

CF = counting fingers; CI = 95% confidence interval; HM = hand motions; SG = standard gamble method; TTO = time trade-off method; VA Range = visual acuity range in best eye.

*P value = difference between the means of the TTO and SG utility values for the five groups using the paired, two-tailed, Student t test.

VISION AND QUALITY-OF-LIFE*

BROWN 2000

BY Gary C. Brown, MD, MBA

- 325 patients with AMD (33%), DR (33%), retinal detachment (7%), RVO (7%), 63% female, mean age 70y -> eq $0.37 \cdot VA + 0.514$
- Better & worse seeing eye VA

TABLE V: UTILITY VALUES ASSOCIATED WITH VISUAL ACUITY IN THE BETTER-SEEING EYE

| VISUAL ACUITY | TIME TRADE-OFF | STANDARD GAMBLE | P |
|--------------------|---------------------------------|---------------------------------|--------|
| 20/20 (n=32) | .92 (CI, .87-.97) (SD = .13) | .96 (CI, .94-.98) (SD = .06) | .02 |
| 20/25 (n=50) | .87 (CI, .82-.92) (SD = .19) | .92 (CI, .88-.96) (SD = .15) | .01 |
| 20/30 (n=44) | .84 (CI, .79-.89) (SD = .19) | .91 (CI, .86-.96) (SD = .18) | .03 |
| 20/40 (n=54) | .80 (CI, .74-.86) (SD = .22) | .89 (CI, .84-.94) (SD = .17) | .003 |
| 20/50 (n=31) | .77 (CI, .70-.84) (SD = .20) | .83 (CI, .75-.91) (SD = .15) | .15 |
| 20/70 (n=40) | .74 (CI, .67-.81) (SD = .21) | .80 (CI, .72-.88) (SD = .25) | .12 |
| 20/100 (n=18) | .67 (CI, .57-.77) (SD = .21) | .82 (CI, .72-.82) (SD = .22) | .002 |
| 20/200 (n=16) | .66 (CI, .55-.77) (SD = .23) | .80 (CI, .70-.90) (SD = .21) | .004 |
| 20/300 (n=13) | .63 (CI, .54-.72) (SD = .16) | .78 (CI, .67-.89) (SD = .21) | .01 |
| 20/400 (n=9) | .54 (CI, .43-.65) (SD = .17) | .59 (CI, .47-.71) (SD = .19) | .40 |
| CF (n=12) | .52 (CI, .36-.68) (SD = .29) | .65 (CI, .50-.80) (SD = .26) | .02 |
| HM-NLP (n=6) | .35 (CI, .10-.60) (SD = .29) | .49 (CI, .17-.81) (SD = .37) | .43 |
| Overall (n=325) | .77 (CI, .75-.79) (SD = .23) | .85 (CI, .83-.87) (SD = .21) | < .001 |

TABLE X: TIME TRADE-OFF UTILITY VALUES AND LENGTH OF TIME OF DECREASED VISION

| TIME OF VISUAL LOSS | UTILITY* | SD | 95% CI |
|---------------------|----------|-----|-----------|
| ≤ 1 year (n=139) | .76 | .24 | .72 - .80 |
| > 1 year (n=186) | .78 | .22 | .75 - .81 |
| > 5 years (n=60) | .80 | .19 | .75 - .85 |

TABLE IV: UTILITY VALUES ASSOCIATED WITH VISUAL ACUITY IN THE WORST

| VISUAL ACUITY | TIME TRADE-OFF | STANDARD GAMBLE |
|-------------------------|----------------------------------|---------------------------------|
| 20/40-20/50 (n=18) | .86 (CI, .78-.94) (SD = .18) | .93 (CI, .88-.98) (SD = .15) |
| 20/70-20/100 (n=12) | .90 (CI, .83-.97) (SD = .16) | .96 (CI, .91-.99) (SD = .14) |
| 20/200-20/400 (n=13) | .95 (CI, .88-1.00) (SD = .12) | .94 (CI, .89-.99) (SD = .11) |
| CF- LP (n=28) | .88 (CI, .81-.95) (SD = .18) | .92 (CI, .87-.97) (SD = .15) |
| NLP (n=7) | .81 (CI, .67-.95) (SD = .19) | .95 (CI, .89-.99) (SD = .14) |

Carolyn Czoski-Murray, MA, RGN, MSc, Jill Carlton, MMedSci, BMedSci, John Brazier, BA, MSc, PhD,
Tracey Young, BA, MSc, CStat, PhD, Natalie L. Papo, BA, MA, MSc, Hyong Kwon Kang, MB, BS, BSc(Med)

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- Visual loss by means of contact lenses (better seeing eye)
- AMD simulated using lenses with central opacity
- 104 visually healthy participants mean age 32y

Table 5 Comparison of adjusted TTO values for ARMD simulated states compared to patient TTO, HUI3 and EQ-5D values by VA group (best seeing eye) with 95% CI

| VA LogMAR group | TTO values for ARMD simulated states | TTO from ARMD patients [§] | HUI3 from ARMD patients [§] | EQ-5D from ARMD patients [§] |
|--------------------------------|--------------------------------------|--|--|--|
| ≥1.31 (≤20/400) | N = 56 0.314 (0.217 to 0.410) | N = 74 0.613 [‡] (0.542 to 0.680) | N = 76 0.233 (0.180 to 0.287) | N = 75 0.695 [‡] (0.647 to 0.743) |
| 0.61 to 1.30 (20/80 to 20/400) | N = 125 0.511 (0.449 to 0.573) | N = 58 0.665 [†] (0.588 to 0.741) | N = 58 0.355 [†] (0.289 to 0.420) | N = 58 0.746 [‡] (0.693 to 0.799) |
| 0.31 to 0.60 (20/40 to 20/80) | N = 89 0.681 (0.623 to 0.740) | N = 39 0.688 (0.573 to 0.763) | N = 40 0.251 [‡] (0.298 to 0.457) | N = 41 0.697 (0.635 to 0.759) |
| ≤0.30 (≥20/40) | N = 41 0.706 (0.606 to 0.805) | N = 32 0.757 (0.655 to 0.858) | N = 32 0.498 [‡] (0.376 to 0.620) | N = 33 0.746 (0.6528 to 0.839) |
| Total | N = 311 0.55 (0.511 to 0.589) | N = 203 0.665 (0.623 to 0.707) | N = 206 0.337 (0.298 to 0.375) | N = 207 0.718 (0.688 to 0.748) |

Note: Significance of difference with TTO values for simulated ARMD states: * at 0.05 level, † at 0.01 and ‡ at 0.001.

[§]Source: Espallargues et al. 2005 [12].

ARMD, age-related macular degeneration; CI, confidence interval; EQ-5D, EUROQOL 5 Dimensions; HUI3, Health Utilities Index 3; LogMAR, logarithm as the minimal angle of resolution; TTO, time trade-off; VA, visual acuity.

Valuing Condition-Specific Health States Using Simulation Contact Lenses

Czoski-Murray 2009

Carolyn Czoski-Murray, MA, RGN, MSc, Jill Carlton, MMedSci, BMedSci, John Brazier, BA, MSc, PhD,
Tracey Young, BA, MSc, CStat, PhD, Natalie L. Papo, BA, MA, MSc, Hyong Kwon Kang, MB, BS, BSc(Med)
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Table 6 Estimated relationship between VA LogMAR (best-seeing eye) and measures of health state values fitted using OLS regression models with (Model 2) and without (Model 1) adjustments for age

| | TTO values for simulated states Regression coefficient (SE) | TTO from ARMD patients Regression coefficient (SE) | HUI3 from ARMD patients Regression coefficient (SE) | EQ-5D from ARMD patients Regression coefficient (SE) |
|----------------|--|---|--|---|
| Model 1 | | | | |
| Constant | 0.828 (0.039) | 0.753 (0.038) | 0.479 (0.033) | 0.745 (0.027) |
| VA LogMAR | -0.359 (0.045) | -0.087 (0.031) | -0.140 (0.027) | -0.027 (0.023) |
| Adjusted R^2 | 0.171 | 0.032 | 0.110 | 0.002 |
| Model 2 | | | | |
| Constant | 0.860 (0.068) | 1.737 (0.217) | 1.078 (0.198) | 0.753 (0.164) |
| VA LogMAR | -0.368 (0.046) | -0.036 (0.032) | -0.109 (0.028) | -0.027 (0.024) |
| Age | -0.001 (0.002) | -0.013 (0.013) | -0.008 (0.003) | 0.000 (0.002) |
| Adjusted R^2 | 0.172 | 0.121 | 0.147 | 0.003 |

Estimates shown in bold are significant at $P < 0.01$.

ARMD, age-related macular degeneration; EQ-5D, EUROQOL 5 Dimensions; HUI3, Health Utilities Index 3; LogMAR, logarithm as the minimal angle of resolution; OLS, ordinary least squares; SE, standard error; TTO, time trade-off; VA, visual acuity.

Health utility values associated with diabetic retinopathy

A. Lloyd, B. Nafees, S. Gavriel, M. D. Rousculp*, K. S. Boyet† and A. Ahmad‡

Oxford Outcomes Ltd., Oxford, UK, *Former employee of Eli Lilly, †Eli Lilly, Indianapolis, IN, USA and ‡Royal Liverpool University Hospital, Liverpool, UK

- 171 diabetic patients (122 with DR) and 150 general population
- Age 62 to 44 y, female 34% to 65%
- 5 DR-related health states, Standard Gamble interview
- Better seeing eye VA categories

Table 2 Participants' mean standard gamble rating of health states and estimated values for group overall

| Health state | Diabetic retinopathy (N = 48) mean ± SD | Diabetes without retinopathy (N = 47) mean ± SD | General public (N = 150) mean ± SD | Estimated means (SE)* |
|------------------------------|---|---|------------------------------------|-----------------------|
| 6/6–6/9 | 0.81 ± 0.20 | 0.77 ± 0.28 | 0.83 ± 0.16 | 0.814 (0.016) |
| 6/12–6/18 | 0.69 ± 0.27 | 0.66 ± 0.28 | 0.75 ± 0.20 | 0.728 (0.018) |
| 6/24–6/36 | 0.70 ± 0.26 | 0.61 ± 0.30 | 0.68 ± 0.23 | 0.674 (0.019) |
| 6/60–6/120 | 0.67 ± 0.26 | 0.57 ± 0.32 | 0.63 ± 0.23 | 0.629 (0.019) |
| Counting fingers–hand motion | 0.58 ± 0.31 | 0.53 ± 0.32 | 0.58 ± 0.26 | 0.570 (0.021) |
| Neuropathy | 0.71 ± 0.24 | 0.63 ± 0.28 | 0.71 ± 0.21 | 0.725 (0.017) |
| Nephropathy | 0.71 ± 0.26 | 0.64 ± 0.27 | 0.75 ± 0.19 | 0.698 (0.018) |

SD, standard deviation; SE, standard error.

*Estimated from the mixed model.

- NICE requirements for utility weighting and problems with vision loss
- Utility sources most used by NICE in technology appraisals of drugs for retinal diseases (Nov. 2011-)
- **Examples of impact on ICER of using different utility sources in these TAs**
- Conclusions

Ranibizumab for the treatment of diabetic macular oedema

Issued: November 2011

NICE technology appraisal guidance 237

www.nice.org.uk/ta237

- Manufacturer submission: EQ-5D in RESTORE (revised £30,277)
- Scenarios: Sharma £12,312-12,610; Czoski-Murray 2009 £23,664; Lloyd 2008 £24,779
- ERG revised: EQ-5D covariate-adjusted (£33,857)

Ranibizumab for treating visual impairment caused by macular oedema secondary to retinal vein occlusion

Issued: May 2013

NICE technology appraisal guidance 283
guidance.nice.org.uk/ta283

- **Manufacturer submission: Brown 1999, better seeing eye** (reasons: 7% patients with RVO): ICER £20,494 (BVO, vs. laser) and £8,643 (CVO, vs. supportive care).
- ERG revised: regression equation from **Czoski-Murray 2009**
- **Manufacturer revised: 10% better-seeing eyes, gain treatment of worse-seeing eye 0.3**

ERG revised

| Utility gain treat in worse eye | BVO laser | BVO dexa | CVO best care |
|---------------------------------|-----------|----------|---------------|
| 0.3 | £23,073 | £2370 | £13,851 |
| 0.2 | £30,778 | £3029 | £18,332 |
| 0.1 | £44,713 | £4092 | £26,263 |

- **Manufacturer submission: Brown 2000**, utilities for better-seeing eye, a **25% bilateral treatment QALY uplift** for patients who received treatment in **both eyes**
- Scenarios: Heintz 2012 (worse and better seeing eyes small difference)
- ERG revised: 20% of patients were treated in their best-seeing eye, 40% in their **worse-seeing eye** and 40% of patients were treated in both eyes
- Scenarios for all chronic DMO: **Brown 1999 £63,500, Czoski-Murray 2009 £42,700, Brown 2000 £37,600**

ERG comments and reasons for utility source choice

- Utilities from **Brown et al. (1999)** may be preferable to those from **Brown et al. (2000)** because Brown et al. (1999) included more patients; one-third of patients in Brown et al. (1999) had diabetes compared with none in Brown et al. (2000).
- **Heintz et al. (2012)** found very slight differences between utilities for the loss of better-seeing eye vision relative to worse-seeing eye vision lacked face validity
- Patients included in **Czoski-Murray et al. (2009)** used contact lenses to simulate different degrees of visual loss. It also noted that the duration of the simulated visual impairment was short, and so the utility values may not apply to patients with longer duration of visual loss.

Aflibercept solution for injection for treating wet age-related macular degeneration

Issued: July 2013

NICE technology appraisal guidance 294
guidance.nice.org.uk/ta294

Aflibercept for treating visual impairment caused by macular oedema secondary to central retinal vein occlusion

Issued: February 2014

NICE technology appraisal guidance 305
guidance.nice.org.uk/ta305

- Manufacturer submission: EQ-5D data from RCTs
- Scenarios: Czoski-Murray 2009
- ERG revised: ICER **depended mostly on discount** for aflibercept and ranibizumab

Ranibizumab for treating choroidal neovascularisation associated with pathological myopia

Issued: November 2013

NICE technology appraisal guidance 298

guidance.nice.org.uk/ta298

- Manufacturer submission: Czoski-Murray 2009 (EQ-5D data from RADIANCE not used); **ranibizumab dominated vPDT**: more QALYs (13.18 compared with 12.75), lower costs (£9694 compared with £12,455).
- Scenarios: ERG revised: Brown et al. (1999) and Czoski-Murray et al. (2009) still produced more QALYs with ranibizumab vs PDT

Ocriplasmin for treating vitreomacular traction

Issued: October 2013

NICE technology appraisal guidance 297

guidance.nice.org.uk/ta297

- Manufacturer submission: **Czoski-Murray 2009**
- **Model structure** and choice of **utilities associated with outcome of alternative surgical interventions** and **adverse events** was most critical

- NICE guidance regarding utility weights and problems with vision loss
- Utility sources most used by NICE in technology appraisals of drugs for retinal diseases (Nov. 2011-)
- Examples of impact on ICER of using different utility sources in these TAs
- **Conclusions**

Conclusions -1 : choice of utility sources in NICE TAs of drugs to treat retinal conditions

- **Heterogenous choices of utility source** in NICE's TAs of pharmacological treatments for retinal disease during the last three years
- EQ-5D rarely used; **Czoski-Murray 2009** deriving utilities from simulated vision loss and AMD in general UK population preferred

Conclusions - 2 : choice of utility sources in NICE TAs of drugs to treat retinal conditions

Thomas Butt [personal communication, study in press]:

- A contact lens with central opacity reduces retinal illumination across the macula which reduces visual acuity and contrast sensitivity.
- It causes a general reduction in retinal sensitivity and increases retinal blur but importantly does not create any area of absolute scotoma [and] does not accurately simulate the effects of advanced AMD

Conclusions - 3: choice of utility sources in NICE TAs of drugs to treat retinal conditions

- **Large impact of utility source** selection on ICER when alternative scenarios presented, although a detailed discussion of reasons for selecting an alternative sources was not available in final report.
- This is **consistent with a recent systematic review showing large variability among sources of utility weights vs.VA classes**, as well as in regression-based formulas using VA to compute utility
- How to value the impact of treatment of the **worse-seeing eye** is critical