AUSTRALIAN HEALTH UTILITY VALUE SET FOR MACNEW-7D HEART DISEASE-SPECIFIC MEASURE

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BACKGROUND

There are recent examples from National Institute for Health and Care Excellence (NICE), Pharmaceutical Benefits Advisory Committee (PBAC) and Medical Services Advisory Committee (MSAC) where Quality Adjusted Life Years played an essential role in measuring outcome in heart disease related resource allocations.

The generic measures such as the EQ-5D are found to underestimate heart disease related quality of life improvements. This can undervalue advancements of heart related interventions.

- We developed a heart disease specific classification system (MacNew-7D) using available heart disease specific quality of life instrument.
- This study presents the Australian utility value set for the MacNew-7D.

METHODS

Discrete choice experiment (DCE) was used to elicit preference of the respondents. Online national survey was conducted using panel respondents with quota sampling to achieve representativeness of the Australian population. There were 200 choice sets with 8 sets per respondent. An example choice set is given below:

	Health Scenario A	Health Scenario B	
Physical limitations	Extremely limited physically	Extremely limited physically	
Activities	Feel excluded from doing things with other people all the time	Do not feel excluded from doing things with other people	
Vitality	Feel worn out or low in energy some of the time	Feel worn out or low in energy some of the time	
Frustration	Feel frustrated, impatient or angry some of the time	Feel frustrated, impatient or angry all of the time	
Self-confidence	Unsure and lacking in self-confidence hardly any of the time	Unsure and lacking in self-confidence all of the time	
Shortness of breath (while doing your day-to-day physical activities	Some shortness of breath	Some shortness of breath	
Chest pain	Do not have chest pain	Chest pain all of the time	
Duration	1 year, then die	10 years, then die	

RESULTS

Table 1. Distribution of the quality of life according to MacNew-7D

Dimension	Level 1 n (%)	Level 2 n (%)	Level 3 n (%)	Level 4 n (%)	
Mac-New-7D					
Physical restriction	1192 (62.6)	476 (25.0)	158 (8.3)	77 (4.0)	
Excluded from doing things with other	1206 (63.4)	302 (15.9)	317 (16.7)	78 (4.1)	
people	, ,	, ,	, ,	, ,	
Worn out or low in energy	677 (35.6)	423 (22.2)	636 (33.4)	167 (8.8)	
Frustrated, impatient or angry	844 (44.4)	495 (26.0)	488 (25.6)	76 (4.0)	
Unsure and lacking in self-confidence	822 (43.2)	419 (22.0)	494 (26.0)	168 (8.8)	
Shortness of breath while doing your day-	1189 (62.5)	514 (27.0)	143 (7.5)	57 (3.0)	
to-day physical activities					
Chest pain	1523 (80.0)	226 (11.9)	120 (6.3)	34 (1.8)	

1903 people responded including the pilot survey. They were similar to the characteristics of Australian general population with age, sex and state residence. Mean age was 47, with 221 people having diabetes and 95 with coronary artery disease. The mean EQ-5D utility value was 0.8 indicating healthy sample. After considering number of models, the one presented in Table 2 was selected based on significant coefficients. This model collapsed level 3 and 4 of the "worn-out" attribute and level 1 and 2 of the "self-confidence" attributes.

To provide an example, utility value for health state 2221132 is = 1 - (0.1087+0.0972+0.0143+0.0000+0.0000+0.0751+0.0485) = 0.6562

Table 2. Estimated coefficients for the selected model

rable 2. Estimated coefficients for the select	Selected	Model	Anchored Values	
	Coefficient	SE	Utility Decrement	Coefficient 95% CI
Duration	0.4421	0.0149		
Physical restriction x duration				
2	-0.0480	0.0074	-0.1087	(-0.0774 to -0.1400)
3	-0.0544	0.0068	-0.1232	(-0.0938 to -0.1525)
4	-0.1589	0.0078	-0.3595	(-0.3259 to -0.3930)
Exclusion of activities x duration				
2	-0.0430	0.0076	-0.0972	(-0.0649 to -0.1295)
3	-0.0466	0.0069	-0.1055	(-0.0766 to -0.1344)
4	-0.0829	0.0082	-0.1875	(-0.1528 to -0.2222)
Worn out x duration				
2	-0.0063	0.0068	-0.0143	(0.0155 to -0.0440)
3	-0.0120	0.0059	-0.0272	(-0.0017 to -0.0528)
4	-0.0120	0.0059	-0.0272	(-0.0017 to -0.0528)
Frustration x duration				
2	-0.0149	0.0067	-0.0337	(-0.0045 to -0.0628)
3	-0.0255	0.0064	-0.0578	(-0.0296 to -0.0859)
4	-0.0764	0.0075	-0.1727	(-0.1405 to -0.2049)
Self-confidence x duration				
	0.0000		0000	
3	-0.0284	0.0060	-0.0642	(-0.0379 to -0.0904)
4	-0.0495	0.0055	-0.1119	(-0.0895 to -0.1343)
Shortness of breath x duration				
	-0.0134	0.0080	-0.0304	(0.0047 to -0.0654)
3	-0.0332	0.0078	-0.0751	(-0.0418 to -0.1084)
4	-0.1197	0.0078	-0.2707	(-0.2383 to -0.3031)
Chest pain x duration				(0 0 1 0 1 1 0 0 0 1 0)
	-0.0214	0.0084	-0.0485	(-0.0121 to -0.0849)
3	-0.0556	0.0069	-0.1257	(-0.0958 to -0.1555)
4	-0.1247	0.0081	-0.2821	(-0.2485 to -0.3157)
	0.500			
Log likelihood	-8582			
AIC	17205			
BIC	17371			

IMPLICATIONS OF THE DEVELOPMENT OF THE MACNEW-7D UTILITY VALUE SET

- These values can be used to estimate heart disease specific utility values and will be useful in CUAs of heart disease related health interventions.
- This utility set enables utility values to be directly estimated from the heart disease specific MacNew quality of life questionnaire.
- The MacNew-7D utility values have potential to be more sensitive for heart-related problems such as chest pain, fatigue and social issues exacerbated by a chronic debilitating disease. However, further investigation of the use of this instrument among people with heart disease will be beneficial for confirming or refuting the relative sensitivity of utility sets derived from the MacNew-7D in comparison to generic instruments for estimating utility.

CONCLUSION

Findings indicated that the MacNew-7D utility value set is likely to be suitable for estimating quality-adjusted life years derived from the MacNew heart disease health-related quality of life questionnaire.

LOOKING TO CONNECT?

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