

## Supplementary Material

- **Severity Groups**
- **Exclusions**

### ***Severity Groups: Selecting blocks of health states by severity to be valued by groups of respondents (from n=169 health state descriptions)***

Kind [2009] recommends that the subsets of health states to be valued by groups of respondents should be constructed by stratifying the sample of health states into blocks according to the level of condition severity they represent, then to select health states randomly, without replacement, from each block. This ensures that each respondent values a set that is balanced across the full range from mild to severe health states [Brazier et al, 2007]. This approach has been used in several CSPBM studies [Brazier et al, 2005; Brazier et al, 2008; McKenna et al, 2008; Mulhern et al, 2012; Yang et al, 2009; Yang et al, 2011].

In the current study, the pits (WORST) state is valued by all respondents, therefore balanced blocks of five health states needed to be constructed from the remaining 168 states. As the remaining total of 168 health states is not divisible by five, the two health states from the sample that were most frequently observed in a large prospective observational dataset of people with MS, the SWIMS dataset (Zajicek et al, 2010), and which were neither the best nor the worst possible state (i.e. states 2,1,1,1,1,1,1,1 and 1,1,1,1,1,2,1,1) within the 168 states, were included twice in the list of selected health states. This created 170 states, including the two duplicates, which were then allocated across 34 blocks (x5) of health states.

Single item-level increments from condition-specific full health (MSIS-8D state 1,1,1,1,1,1,1,1) were summed to produce a total severity score for each health state in the sample, from zero (for state 1,1,1,1,1,1,1,1) to 24 (for state 4,4,4,4,4,4,4,4); with coding where 1=0, 2=1, 3=2, 4=3. A random number was allocated to each health state using Excel's RAND function; each incidence of the duplicate states was allocated its own number. All health states were sorted by their severity score then their random number. The first 34 states, with the lowest severity scores, were allocated to Severity Group 1, the second to Severity Group 2 and so on, creating five Severity Groups in total, each containing 34 states. Each Severity Group was then sorted by random number only, and the health states were labelled 1 to 34 in the order they appeared after this sort. All health states labelled 1 formed Block 1, all health states labelled 2 formed Block 2 and so on.

Thus each block included one state from each of the five severity groups, chosen at random, plus the pits state. Respondents were allocated a block of health states at random until the desired number of observations for each block was achieved.

<b>Severity Group</b>	<b>Range of severity scores</b>
Group 1	0 – 6
Group 2	6 – 10
Group 3	10 – 13
Group 4	13 - 17
Group 5	17 - 23

## References

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### **Exclusions: Number of respondents included and excluded**

	<b>Unlabelled</b>	<b>Labelled</b>
Number of respondents	1702	1788
Number of exclusions	126 (7.4%)	147 (8.2%)
Number of included respondents	1576	1641
<b>Reasons for exclusion:</b> <i>(not mutually exclusive)</i>		
Valued pits state highest	106	114
Valued all states equally	26	39
Valued best state lowest	18	33
Valued all states <=0	19	22
Three or more inconsistencies	6	0