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Table 2: Mapping algorithms used within model

Mapping algorithm number and name	Algorithm	Algorithm type
1 - BRAM	$EQ - 5D = 0.804 - 0.203 \times HAQ - 0.045 \times HAQ^2$	Linear regression – constant, HAQ and HAQ squared
2 – ADA and RTX submissions	$EQ - 5D = 0.82 - 0.11 \times HAQ - 0.07 \times HAQ^2$	
3 – ADA sensitivity analysis	$EQ - 5D = 0.89 - 0.28 \times HAQ$	Linear – regression constant and HAQ
4 – ETN submission	$EQ - 5D = 0.76 - 0.28 \times HAQ$	
5 - Hawthorne	$EQ - 5D = 0.86 - 0.20 \times HAQ$	
6 - Clark	$EQ - 5D = 0.915 - 0.296 \times HAQ$	
7 - Carreno	$EQ - 5D = 0.9567 - 0.309 \times HAQ$	
8 - Standfield	$EQ - 5D = 0.8711 - 0.2275 \times HAQ$	
9 - Tanno	$EQ - 5D = 0.74 - 0.17 \times HAQ$	
10 - Drummond	$EQ - 5D = 0.862 - 0.327 \times HAQ$	
11 - Adams	$EQ - 5D = 0.79 - 0.24 \times HAQ$	

12 - Marra	$EQ - 5D = 0.72 - 0.20 \times HAQ + 0.25 \times \frac{Age}{100}$		Linear regression – constant, HAQ and age												
13 - Konnopka	<table border="1" data-bbox="384 439 1110 813"> <thead> <tr> <th data-bbox="384 439 751 495">Health State</th> <th data-bbox="751 439 1110 495">EQ-5D</th> </tr> </thead> <tbody> <tr> <td data-bbox="384 495 751 562">HAQ < 0.5</td> <td data-bbox="751 495 1110 562">0.768</td> </tr> <tr> <td data-bbox="384 562 751 629">0.5 ≤ HAQ < 1.0</td> <td data-bbox="751 562 1110 629">0.645</td> </tr> <tr> <td data-bbox="384 629 751 696">1.0 ≤ HAQ < 1.5</td> <td data-bbox="751 629 1110 696">0.539</td> </tr> <tr> <td data-bbox="384 696 751 763">1.5 ≤ HAQ < 2.1</td> <td data-bbox="751 696 1110 763">0.488</td> </tr> <tr> <td data-bbox="384 763 751 813">2.1 ≤ HAQ</td> <td data-bbox="751 763 1110 813">0.239</td> </tr> </tbody> </table>		Health State	EQ-5D	HAQ < 0.5	0.768	0.5 ≤ HAQ < 1.0	0.645	1.0 ≤ HAQ < 1.5	0.539	1.5 ≤ HAQ < 2.1	0.488	2.1 ≤ HAQ	0.239	Health states
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14 – Kobelt 1	<table border="1" data-bbox="384 875 1110 1249"> <thead> <tr> <th data-bbox="384 875 751 931">Health State</th> <th data-bbox="751 875 1110 931">EQ-5D</th> </tr> </thead> <tbody> <tr> <td data-bbox="384 931 751 999">HAQ < 0.6</td> <td data-bbox="751 931 1110 999">0.770</td> </tr> <tr> <td data-bbox="384 999 751 1066">0.6 ≤ HAQ < 1.1</td> <td data-bbox="751 999 1110 1066">0.651</td> </tr> <tr> <td data-bbox="384 1066 751 1133">1.1 ≤ HAQ < 1.6</td> <td data-bbox="751 1066 1110 1133">0.539</td> </tr> <tr> <td data-bbox="384 1133 751 1200">1.6 ≤ HAQ < 2.1</td> <td data-bbox="751 1133 1110 1200">0.489</td> </tr> <tr> <td data-bbox="384 1200 751 1249">2.1 ≤ HAQ</td> <td data-bbox="751 1200 1110 1249">0.229</td> </tr> </tbody> </table>		Health State	EQ-5D	HAQ < 0.6	0.770	0.6 ≤ HAQ < 1.1	0.651	1.1 ≤ HAQ < 1.6	0.539	1.6 ≤ HAQ < 2.1	0.489	2.1 ≤ HAQ	0.229	
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16 – Kobelt 3 Sweden	<table border="1" data-bbox="384 1749 1110 2000"> <thead> <tr> <th data-bbox="384 1749 751 1805">Health State</th> <th data-bbox="751 1749 1110 1805">EQ-5D</th> </tr> </thead> <tbody> <tr> <td data-bbox="384 1805 751 1872">HAQ < 0.6</td> <td data-bbox="751 1805 1110 1872">0.7274</td> </tr> <tr> <td data-bbox="384 1872 751 1939">0.6 ≤ HAQ < 1.1</td> <td data-bbox="751 1872 1110 1939">0.6358</td> </tr> <tr> <td data-bbox="384 1939 751 2000">1.1 ≤ HAQ < 1.6</td> <td data-bbox="751 1939 1110 2000">0.6111</td> </tr> </tbody> </table>		Health State	EQ-5D	HAQ < 0.6	0.7274	0.6 ≤ HAQ < 1.1	0.6358	1.1 ≤ HAQ < 1.6	0.6111					
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	1.6 ≤ HAQ < 2.1	0.4223
	2.1 ≤ HAQ < 2.6	0.2370
	2.6 ≤ HAQ	0.2245
17 – Kobelt 3 UK	Health State	EQ-5D
	HAQ < 0.6	0.7459
	0.6 < HAQ < 1.1	0.6491
	1.1 < HAQ < 1.6	0.4692
	1.6 < HAQ < 2.1	0.4419
	2.1 < HAQ < 2.6	0.2556
	2.6 < HAQ	0.2538
18 – Vera- Llonch	HAQ category	EQ-5D
	HAQ < 0.25	0.857
	0.25 ≤ HAQ < 0.50	0.803
	0.50 ≤ HAQ < 0.75	0.762
	0.75 ≤ HAQ < 1.00	0.713
	1.00 ≤ HAQ < 1.25	0.657
	1.25 ≤ HAQ < 1.50	0.590
	1.50 ≤ HAQ < 1.75	0.511
	1.75 ≤ HAQ < 2.00	0.427
	2.00 ≤ HAQ < 2.25	0.333
	2.25 ≤ HAQ < 2.50	0.229
	2.50 ≤ HAQ < 2.75	0.120
	2.75 ≤ HAQ	0.034
19 - Hurst	Health State	EQ-5D
	HAQ < 0.25	0.86
	0.25 ≤ HAQ < 0.50	0.80

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20 – Kobelt 4	<table border="1"> <thead> <tr> <th>HAQ category</th> <th>EQ-5D</th> </tr> </thead> <tbody> <tr> <td>0 - <0.1</td> <td>0.819</td> </tr> <tr> <td>0.1 - <1.0</td> <td>0.6682</td> </tr> <tr> <td>1.0 - <2.0</td> <td>0.454</td> </tr> <tr> <td>2.0 – 3.0</td> <td>0.192</td> </tr> </tbody> </table>	HAQ category	EQ-5D	0 - <0.1	0.819	0.1 - <1.0	0.6682	1.0 - <2.0	0.454	2.0 – 3.0	0.192											
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21 – Hernández Alava linear	$EQ - 5D = 0.941 - 0.084 \times HAQ - 0.045 \times HAQ^2 - 0.478$ $\times \frac{VASpain}{100} + 0.019 \times \frac{Age - 54.32}{10} + 0.005$ $\times \left(\frac{Age - 54.32}{10} \right)^2 - 0.046 \times male + 0.028$ $+ 0.010$	Linear regression – constant, HAQ, HAQ ² , age, age ² , gender, pain																				
22 - Hernández Alava Tobit	$EQ - 5D = \text{minimum} \{y, 1\}$ $\text{where } y = 1.013 - 0.165 \times HAQ - 0.022 \times HAQ^2 - 0.499$ $\times \frac{VASpain}{100} + 0.018 \times \frac{Age - 54.32}{10} + 0.007$ $\times \left(\frac{Age - 54.32}{10} \right)^2 - 0.047 \times male + 0.032$ $+ 0.012$	Tobit - constant, HAQ, HAQ ² , age, age ² , gender, pain																				

<p>23 - Hernández Alava adjusted censored</p>	$EQ - 5D = \begin{cases} 1 & \text{if } y > 0.883 \\ y & \text{otherwise} \end{cases}$ <p>where $y = 0.967 - 0.115 \times HAQ - 0.036 \times HAQ^2 - 0.484$</p> $\times \frac{VASpain}{100} + 0.019 \times \frac{Age - 54.32}{10} + 0.006$ $\times \left(\frac{Age - 54.32}{10} \right)^2 - 0.047 \times \text{male} + 0.030$ $+ 0.011$	<p>Adjusted censored - constant, HAQ, HAQ², age, age², gender, pain</p>
<p>24 - Hernández Alava adjusted censored mixture</p>	$EQ - 5D = \begin{cases} 1 & \text{if } y > 0.883 \\ y & \text{otherwise} \end{cases}$ <p>where $y = a \times \frac{j}{j+k+l} + b \times \frac{k}{j+k+l} + c \times \frac{l}{j+k+l}$</p> $a = 0.343 - 0.062 \times HAQ - 0.295 \times \frac{VASpain}{100} + 0.007$ $\times \frac{Age - 54.32}{10} + 0.004 \times \left(\frac{Age - 54.32}{10} \right)^2$ $- 0.012 \times \text{male} + 0.015 + 0.002$ $b = 0.990 - 0.245 \times HAQ - 0.068 \times HAQ^2 - 0.105$ $\times \frac{VASpain}{100} + 0.007 \times \frac{Age - 54.32}{10} + 0.004$ $\times \left(\frac{Age - 54.32}{10} \right)^2 - 0.012 \times \text{male} + 0.006$ $+ 0.002$ $c = 0.806 - 0.160 \times HAQ - 0.025 \times HAQ^2 - 0.056 \times \frac{VASpain}{100}$ $+ 0.007 \times \frac{Age - 54.32}{10} + 0.004$ $\times \left(\frac{Age - 54.32}{10} \right)^2 - 0.012 \times \text{male} + 0.003$ $+ 0.002$	<p>Adjusted censored mixture model - constant, HAQ, HAQ², age, age², gender, pain</p>

HAQ: Health assessment questionnaire, BRAM: Birmingham Rheumatoid Arthritis Model, ADA: adalimumab, ETN: etanercept, RTX: rituximab, EQ-5D: EuroQol Five Dimension.