

# **Patient Reported Outcome Measures (PROMs) in England**

*Update to reporting and case-mix adjusting hip and knee procedure data*

*Annex 1: Coefficients for primary hip replacement models*

## Annex 1: Coefficients for primary hip replacement models

Tables 1a – 1c below give the variables that were statistically significant at the 95% level from the first stage of the estimation process and their coefficients for predicting post operative (Q2) scores for the three primary hip replacement indicators.

<b>EQ 5D Casemix Adjustment Model (Primary)</b>			
<b>Variable</b>	<b>Definition</b>	<b>Variable name in PROMs/HES data set</b>	<b>Coefficient</b>
Q1 Score	pre operative eq5d index score	q1_EQ-5D_index	0.153
Patient age	age at start of episode	startage	0.004
sex	female = 1 male = 0	dummy derived from 'sex'	-0.022
ethasian	takes value 1 if asian, 0 if not	dummy derived from 'ethnos'	-0.074
ethnotgiven	takes value 1 if ethnicity not given, 0 if not	dummy derived from 'ethnos'	0.014
deprivation	index of multiple deprivation 2010	imd04	-0.001
q1_assisted	takes value 1 if patient was assisted in filling in q1	q1_assisted	0.013
q2_assisted	takes value 1 if patient was assisted in filling in q2	q2_assisted	-0.110
q1_disability1	takes value 1 if patient has disability at Q1	q1_disability1	-0.073
heart_disease	takes value 1 if patient has ever had heart disease	derived from heart_disease	-0.025
high bp	" high blood pressure	" high blood pressure	-0.006
stroke	" stroke	" stroke	-0.038
circulation	" circulation problems	" circulation problems	-0.075
lung_disease	" lung disease	" lung disease	-0.032
diabetes	" diabetes	" diabetes	-0.023
nervous_system	" disease of nervous system	" disease of nervous system	-0.051
cancer	" cancer	" cancer	-0.012
depression	" depression	" depression	-0.128
q1_symptom_period 2	takes value 1 if patient has experienced symptoms for 2	derived from q1_symptom_period	-0.013

	years, 0 if not		
q1_symptom_period 3	takes value 1 if patient has experienced symptoms for 3 years, 0 if not	"	-0.026
q1_symptom_period 4	takes value 1 if patient has experienced symptoms for 4 years, 0 if not	"	-0.033
rheum_arthritis	takes value 1 if patient's primary diagnosis is rheumatoid arthritis, 0 if not	diag_01 = M059, M069	-0.147
malunion of fracture	takes value 1 if patient's primary diagnosis is malunion of fracture, 0 if not	diag_01=M840, M841	-0.149
_cons	constant	n/a	0.694

Table 1a: Descriptions and coefficients of variables included in the primary hip replacement EQ-5D index statistical prediction model for PROMs case-mix adjustment.

<b>EQ5D VAS Casemix Adjustment Model (Primary)</b>			
<b>Variable</b>	<b>Definition</b>	<b>Variable name in PROMs/HES data set</b>	<b>Coefficient</b>
q1 score	pre operative VAS score	q1_EQ-5D_health_scale	-0.062
q1 score squared	pre operative VAS score squared	Derived from q1_EQ-5D_health_scale	0.002
Patient age	age at start of episode	startage	0.233
agesq	age at start of episode squared	derived from 'startage'	-0.002
sex	female = 1 male = 0	dummy derived from 'sex'	-0.478
ethnotgiven	takes value 1 if ethnicity not given, 0 if not	dummy derived from 'ethnos'	1.606
deprivation	index of multiple deprivation 2010	imd04	-0.082
q2_assisted	takes value 1 if patient was assisted in filling in q2	q2_assisted	-7.549
q1_living_arrangements 2	takes value 1 if patient lives alone	q1_living_arrangements 2	-0.553
q1_disability1	takes value 1 if patient has disability at Q1	q1_disability1	-5.321
heart_disease	takes value 1 if patient has ever had heart disease	derived from 'heart_disease'	-3.287
high_bp	" high blood pressure	" high blood pressure	-1.234
stroke	" stroke	" stroke	-2.577
circulation	" circulation problems	" circulation problems	-4.851
lung_disease	" lung disease	" lung disease	-4.681
diabetes	" diabetes	" diabetes	-2.129
kidney_disease	" kidney disease	" kidney disease	-2.449
nervous_system	" disease of nervous system	" disease of nervous system	-7.252
cancer	" cancer	" cancer	-2.354
depression	" depression	" depression	-6.971
q1_symptom_period3	takes value 1 if patient has experienced symptoms for 3 years, 0 if not	derived from q1_symptom_period	-0.724
q1_symptom_period4	takes value 1 if patient has experienced symptoms for 4 years, 0 if not	"	-0.772
fracture	takes value 1 if patient's primary diagnosis is fracture	diag_01 = C795, S720	-11.623
rheum_arthritis	takes value 1 if patient's primary diagnosis is rheumatoid arthritis	diag_01 = M059, M069	-9.423
arthrosis	takes value 1 if patient's primary diagnosis is arthrosis	diag_01 = M150, M199	-2.934
malunion of fracture	takes value 1 if patient's primary diagnosis is malunion of fracture	diag_01=M840, M841	-8.206
_cons	constant	n/a	69.644

Table 1b: Descriptions and coefficients of variables included in the primary hip replacement EQ-5D Visual Analogue Scale statistical prediction model for PROMs case-mix adjustment.

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<b>Oxford Score Casemix Adjustment Model (Primary)</b>			
<b>Variable</b>	<b>definition</b>	<b>variable name in PROMs/HES data set</b>	<b>Coefficient</b>
Q1 Score	pre-operative oxford hip score	hr_q1_score	0.543
Q1 Score squared	pre-operative oxford hip score squared	derived from 'hr_q1_score'	-0.008
Patient age	age at start of episode	startage	0.174
agesq	age at start of episode squared	derived from 'startage'	-0.002
sex	female = 1 male = 0	dummy derived from 'sex'	-0.999
ethasian	takes value 1 if asian, 0 if not	dummy derived from 'ethnos'	-3.939
ethblack	takes value 1 if black, 0 if not	dummy derived from 'ethnos'	-3.678
ethnotgiven	takes value 1 if ethnicity not given, 0 if not	dummy derived from 'ethnos'	0.697
deprivation	index of multiple deprivation 2010	imd04	-0.057
q1_assisted	takes value 1 if patient was assisted in filling in q1	q1_assisted	0.357
q2_assisted	takes value 1 if patient was assisted in filling in q2	q2_assisted	-2.927
q1_living_arrangements2	takes value 1 if patient lives alone	q1_living_arrangements 2	-0.241
q1_disability1	takes value 1 if patient has disability at Q1	q1_disability1	-2.319
heart_disease	takes value 1 if patient has ever had heart disease	derived from 'heart_disease'	-0.926
high_bp	" high blood pressure	" high blood pressure	-0.242
stroke	" stroke	" stroke	-1.139
circulation	" circulation problems	" circulation problems	-3.314
lung_disease	" lung disease	" lung disease	-0.849
diabetes	" diabetes	" diabetes	-1.164
nervous_system	" disease of nervous system	" disease of nervous system	-1.346
depression	" depression	" depression	-2.719
q1_symptom_period2	takes value 1 if patient has experienced symptoms for 2 years, 0 if not	derived from q1_symptom_period	-0.612

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q1_symptom_period3	takes value 1 if patient has experienced symptoms for 3 years, 0 if not	"	-1.176
q1_symptom_period4	takes value 1 if patient has experienced symptoms for 4 years, 0 if not	"	-1.468
fracture	takes value 1 if patient's primary diagnosis is fracture	diag_01 = C795, S720	-3.711
coxarthrosis	takes value 1 if patient's primary diagnosis is coxarthrosis	diag_01 = M160, M161, M162, M163, M165, M167, M169	0.965
unspecified joint disorder	takes value 1 if patient's primary diagnosis is unspec joint disorder	diag_01=M259	1.954
malunion of fracture	takes value 1 if patient's primary diagnosis is malunion of fracture	diag_01=M840, M841	-4.928
_cons	constant	n/a	30.970

Table 1c: Descriptions and coefficients of variables included in the primary hip replacement Oxford Score statistical prediction model for PROMs case-mix adjustment.