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

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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.

EQ 5D Casemix Adjustment Model (Primary)			
Variable	**Definition**	**Variable name in PROMs/HES data set**	**Coefficient**
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

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	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.

EQ5D VAS Casemix Adjustment Model (Primary)

Variable	Definition	Variable name in PROMs/HES data set	Coefficient
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_arrangements2	takes value 1 if patient lives alone	q1_living_arrangements2	-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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Oxford Score Casemix Adjustment Model (Primary)

Variable	definition	variable name in PROMs/HES data set	Coefficient
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_arrangements2	-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.