

## 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.

EQ 5D Casemix Adjustment Model (Primary)			
		Variable name in	
Variable	Definition	PROMs/HES data set	Coefficient
	pre operative		
Q1 Score	eq5d index score	q1_EQ-5D_index	0.153
	age at start of		
Patient age	episode	startage	0.004
	female = 1 male =		
sex	0	dummy derived from 'sex'	-0.022
	takes value 1 if	dummy derived from	
ethasian	asian, 0 if not	'ethnos'	-0.074
	takes value 1 if		
	ethnicity not	dummy derived from	
ethnotgiven	given, 0 if not	'ethnos'	0.014
	index of multiple		0.004
deprivation	deprivation 2010	imd04	-0.001
	takes value 1 if		
	patient was		
q1_assisted	assisted in filling in	q1 assisted	0.013
q1_assisted	q1 takes value 1 if	q1_assisted	0.015
	patient was		
	assisted in filling in		
q2 assisted	q2	q2 assisted	-0.110
<u>q=_assistea</u>	takes value 1 if	<u>q</u>	0.110
	patient has		
q1_disability1	disability at Q1	q1_disability1	-0.073
_ ' _ '	takes value 1 if	, , ,	
	patient has ever		
heart_disease	had heart disease	derived from heart_disease	-0.025
	" high blood		
high bp	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
	" disease of		
nervous_system	nervous system	" disease of nervous system	-0.051
cancer	" cancer	" cancer	-0.012
depression	" depression	" depression	-0.128
p	takes value 1 if		
	patient has		
q1_symptom_period	experienced	derived from	
2	symptoms for 2	q1_symptom_period	-0.013

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	years, 0 if not		
	takes value 1 if		
	patient has		
	experienced		
q1_symptom_period	symptoms for 3		
3	years, 0 if not	11	-0.026
	takes value 1 if		
	patient has		
	experienced		
q1_symptom_period	symptoms for 4		
4	years, 0 if not	11	-0.033
	takes value 1 if		
	patient's primary		
	diagnosis is		
	rheumatoid		
rheum_arthritis	arthritis, 0 if not	diag_01 = M059, M069	-0.147
	takes value 1 if		
	patient's primary		
	diagnosis is		
	malunion of		
malunion of fracture	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.

		Variable name in	
Variable	Definition	PROMs/HES data set	Coefficient
q1 score	pre operative VAS score	q1_EQ-5D_health_scale	-0.062
	pre operative VAS score	Derived from q1_EQ-	
q1 score squared	squared	5D_health_scale	0.002
Patient age	age at start of episode	startage	0.233
	age at start of episode		
agesq	squared	derived from 'startage'	-0.002
		dummy derived from	
sex	female = 1 male = 0	'sex'	-0.478
and a start start	takes value 1 if ethnicity not	dummy derived from	1.000
ethnotgiven	given, 0 if not	'ethnos'	1.606
deprivation	index of multiple deprivation 2010	imd04	0.093
deprivation	takes value 1 if patient was	imd04	-0.082
q2_assisted	assisted in filling in q2	q2_assisted	-7.549
q1 living arrangements	takes value 1 if patient lives	q1_living_arrangements	-7.545
2	alone	2	-0.553
L	takes value 1 if patient has		0.555
q1_disability1	disability at Q1	q1_disability1	-5.321
	takes value 1 if patient has	derived from	
heart_disease	ever had heart disease	'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
		" disease of nervous	
nervous_system	" disease of nervous system	system	-7.252
cancer	" cancer	" cancer	-2.354
depression	" depression	" depression	-6.971
	takes value 1 if patient has		
	experienced symptoms for 3	derived from	
q1_symptom_period3	years, 0 if not	q1_symptom_period	-0.724
	takes value 1 if patient has		
	experienced symptoms for 4		
q1_symptom_period4	years, 0 if not	11	-0.772
	takes value 1 if patient's	diag_01 = C795, S720	
fracture	primary diagnosis is fracture		-11.623
	takes value 1 if patient's		
ale a come a set la 2015	primary diagnosis is		0.400
rheum_arthritis	rheumatoid arthritis	diag_01 = M059, M069	-9.423
arthrocic	takes value 1 if patient's	diag $01 - M1E0$ M100	2.024
arthrosis	primary diagnosis is arthrosis takes value 1 if patient's	diag_01 = M150, M199	-2.934
	primary diagnosis is		
malunion of fracture	malunion of fracture	diag_01=M840, M841	-8.206
	matumon or macture	alug_01=101040, 101041	-0.200

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.

		variable name in	
Variable	definition	PROMs/HES data set	Coefficient
	pre-operative oxford		
Q1 Score	hip score	hr_q1_score	0.543
	pre-operative oxford	derived from	
Q1 Score squared	hip score squared	'hr_q1_score'	-0.008
	age at start of		
Patient age	episode	startage	0.174
	age at start of		
agesq	episode squared	derived from 'startage'	-0.002
	formale 1 male 0	dummy derived from	0.000
sex	female = 1 male = 0	'sex'	-0.999
ethasian	takes value 1 if asian, 0 if not	dummy derived from 'ethnos'	2 0 2 0
ethasian	takes value 1 if black,	dummy derived from	-3.939
ethblack	0 if not	'ethnos'	-3.678
etiblack	takes value 1 if	etinos	-3.078
	ethnicity not given, 0	dummy derived from	
ethnotgiven	if not	'ethnos'	0.697
	index of multiple		0.037
deprivation	deprivation 2010	imd04	-0.057
	takes value 1 if		
	patient was assisted		
q1_assisted	in filling in q1	q1 assisted	0.357
• =	takes value 1 if	· -	
	patient was assisted		
q2_assisted	in filling in q2	q2_assisted	-2.927
	takes value 1 if	q1_living_arrangements	
q1_living_arrangements2	patient lives alone	2	-0.241
	takes value 1 if		
	patient has disability		
q1_disability1	at Q1	q1_disability1	-2.319
	takes value 1 if		
	patient has ever had	derived from	
heart_disease	heart disease	'heart_disease'	-0.926
1.5. K. K	" high blood		0.242
high_bp	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
	" disease of nervous	" disease of nervous	
nervous_system	system	system	-1.346
depression	" depression	" depression	-2.719
· · ·	takes value 1 if		
	patient has		
	experienced		
	symptoms for 2	derived from	
q1_symptom_period2	years, 0 if not	q1_symptom_period	-0.612

q1_symptom_period3	takes value 1 if	н	-1.176
	patient has		
	experienced		
	symptoms for 3		
	years, 0 if not		
	takes value 1 if		
	patient has		
	experienced		
	symptoms for 4		
q1_symptom_period4	years, 0 if not	п	-1.468
	takes value 1 if		
	patient's primary	diag_01 = C795, S720	
fracture	diagnosis is fracture		-3.711
	takes value 1 if		
	patient's primary	diag_01 = M160, M161,	
	diagnosis is	M162, M163, M165,	
coxarthrosis	coxarthrosis	M167, M169	0.965
	takes value 1 if		
	patient's primary		
	diagnosis is unspec		
unspecified joint disorder	joint disorder	diag_01=M259	1.954
	takes value 1 if		
	patient's primary		
	diagnosis is malunion		
malunion of fracture	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.