Is it fair that PROM completion is tied to reimbursement? Patient demographics are associated with rates of PROM completion and potential health disparities

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INTRODUCTION:

Patient reported outcome measures (PROM) allow clinicians to understand a patient's perspective on their health outcomes, most notably from total joint arthroplasty (TJA). The Centers for Medicare and Medicaid Services (CMS) has made PROM measurement mandatory for inpatient TJA reimbursement. Despite PROM being a mandatory measure, there is lack of research identifying patient factors that are associated with PROM non-compliance. This study aims to identify which patients may be less likely to complete PROM surveys.

METHODS:

This retrospective study included patients who had elective TJA between January 1, 2022 and March 31, 2023 at a large community orthopaedic institute. Patient demographics, health characteristics and post-operative data were obtained from patient charts and compared between patients who completed and did not complete one-year postoperative PROM surveys to identify potential predictors to include in regression analysis. Continuous variables were compared using independent samples t-test or Mann Whitney U-test and categorical variables were compared using chi-square analysis or Fisher's exact test. Backward stepwise logistic regression was used to determine predictors of PROM non-compliance.

RESULTS:

The charts of 3,913 patients were included; 70.6% completed one-year PROM and 29.4% patients did not. Bivariate analysis results are presented in Table 1. Patients were more likely to fill out one-year PROM surveys if they did it pre-operatively and 3 months post-operatively. Non-white, non-English speaking, Medicare insurance, psychological history, higher comorbidities, discharge to a skilled nursing facility, and revision surgery within one year were significant predictors of one-year PROM non-compliance (Table 2).

DISCUSSION AND CONCLUSION:

Our results indicate that patients who were less likely to complete PROM surveys were non-white, non-English speaking, did not have commercial insurance, and/or had higher comorbidities. These groups also have less access to TJA. Therefore, using PROM as a reimbursement mandate may disincentive surgeons and further widen the health inequity gap. Orthopaedic programs should develop early post-procedure care plans with a goal to increase long-term follow-up adherence for populations that may be at higher risk for non-compliance. CMS and other insurers should consider risk stratification for high-risk non-compliance groups to adequately assess response rates.

Table 1. Patient characteristics and their association with post-operative one-year PROM non-compliance

Variable	PROM Non-Compliance (n=1,149)	PROM Compliance (n=2,764)	Total (N=3,913)	*P*
Demographics				
Age, years	**70.19±9.96**	**68.28±9.06**	**68.86±9.37**	**<.001**
Gender				.611
Female	669 (58.2)	1,633 (59.1)	2,302 (58.8)	
Male	480 (41.8)	1,130 (40.9)	1,610 (41.2)	
Marital Status				**.001**
Married	644 (56.0)	**1,729 (62.6)***	2,373 (60.6)	
Single	**472 (41.1)***	969 (35.1)	1,441 (36.8)	
Other	33 (2.9)	66 (2.4)	99 (2.5)	
Ethnicity				**<.001**
Hispanic or Latino	**75 (6.5)***	104 (3.8)	179 (4.6)	
Non-Hispanic or Latino	980 (85.3)	**2,475 (89.5)***	3,455 (88.3)	
Patient refused	62 (5.4)	144 (5.2)	206 (5.3)	
Unknown	32 (2.8)	41 (1.5)	73 (1.9)	
Race				**.002**
American Indian or Alaska Native	0 (0.0)	1 (0.0)	1 (0.0)	
Asian	5 (0.4)	11 (0.4)	16 (0.4)	
Black or African American	**84 (7.3)***	151 (5.5)	235 (6.0)	
Native Hawaiian/Other Pacific Islander	3 (0.3)	5 (0.2)	8 (0.2)	
White or Caucasian	901 (78.4)	**2,326 (84.2)***	3,227 (82.5)	
Other	**74 (6.4)***	110 (4.0)	184 (4.7)	
Patient refused	57 (5.0)	122 (4.4)	179 (4.6)	
Unknown	25 (2.2)	38 (1.4)	63 (1.6)	
Current smoker	98 (8.5)	184 (6.7)	282 (7.2)	.039
Psychiatric history	**421 (36.6)**	**805 (29.1)**	**1,226 (31.3)**	**<.001**
Insurance type				**<.001**
Commercial	320 (27.9)	**975 (35.3)**	1,296 (33.1)	
Connecticut Medicaid	43 (3.7)	76 (2.7)	119 (3.0)	
Medicare	**776 (67.5)**	1,682 (60.9)	2,458 (62.8)	
No insurance	1 (0.1)	0 (0.0)	1 (0.0)	
Worker's compensation	6 (0.5)	24 (0.9)	30 (0.8)	
Other	3 (0.3)	7 (0.3)	10 (0.3)	
English-speaking	**1,099 (95.6)**	**2,728 (98.7)**	**3,827 (97.8)**	**<.001**
Health Characteristics				
Body mass index, kg/m²	30.42±5.48	31.04±5.51	30.86±5.51	.001
CCI Score, 0-10 (median, IQR)	**1.0, 1.0**	**0.0, 1.0**	**1.0, 1.0**	**<0.001**
ASA class	*n*=1145	*n*=2757	*N*=3902	.039
0	0 (0.0)	9 (0.3)	9 (0.2)	
1	19 (1.7)	46 (1.7)	65 (1.7)	
2	524 (45.8)	**1,378 (50.0)***	1,902 (48.7)	
3	**593 (51.8)***	1,304 (47.3)	1,897 (48.6)	
4	9 (0.8)	20 (0.7)	29 (3.902)	
Post-operative Variables				
Discharge disposition				**<.001**
Home or self-care	**164 (14.3)**	480 (17.4)	644 (16.5)	
Home with healthcare services	900 (78.3)	2,233 (80.8)	3,133 (80.1)	
Inpatient rehabilitation facility	4 (0.3)	3 (0.1)	7 (0.2)	
Skilled nursing facility	**81 (7.0)**	48 (1.7)	129 (3.3)	
30-day hospital readmission	27 (2.3)	47 (1.7)	74 (1.9)	.174
30-day emergency department visit	70 (6.1)	111 (4.0)	181 (4.6)	.005
90-day pre-operative emergency department visit	45 (3.9)	60 (2.2)	105 (2.7)	.002
Revision within 1 year	**32 (2.8)**	**11 (0.4)**	**43 (1.1)**	**<.001**
Pre-operative PROM compliance	**868 (75.5)**	**2,651 (95.9)**	**3,519 (89.9)**	**<.001**
3-month PROM compliance	**953 (56.8)**	**2,650 (95.9)**	**3,303 (84.4)**	**<.001**

Abbreviations: CCI = Charlson Comorbidity Index; ASA class= American Society of Anesthesiologist Class; PROM = Patient-Reported Outcome Measure

Table 2. Significant predictors of one year post-operative PROM non-compliance

Variable	*P*	Odds Ratio	95% CI for Odds Ratio Lower	Upper
Non-White	<.001	.696	.579	.835
Non-English speaking	<.001	.330	.210	.517
Medicare insurance	<.001	.742	.638	.863
Discharged to skilled nursing facility	<.001	.281	.193	.408
Charlson Comorbidity Index score	.022	.932	.877	.990
Psychiatric history	<.001	.733	.629	.853
Revision surgery within one year	<.001	.140	.070	.280