

# The Influence of Insurance Status on Achievement of Patient-Reported Outcome Thresholds in Anatomic and Reverse Shoulder Arthroplasty

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**INTRODUCTION:** Patient-Reported Outcome Measures (PROMs) for total shoulder arthroplasty (TSA) are commonly collected for both clinical and research utilization and have become increasingly of interest to policy and regulatory figures. With this heightened focus, we sought to assess whether payer status affects the achievement of PROM thresholds. We hypothesized that payer status would influence achievement of PROM thresholds.

**METHODS:** Patients who underwent either anatomic or reverse TSA (aTSA and RSA, respectively) between July 2022 and April 2024 and completed preoperative and one-year American Shoulder and Elbow Surgeons Scores (ASES) were collected. Self-pay and Medicaid status patients were excluded from analysis. Remaining patients were grouped by Commercial, Traditional Medicare, and Medicare Advantage status. The ASES aTSA thresholds were the Minimum Clinically Important Difference (MCID), Substantial Clinical Benefit (SCB), and the Patient Acceptable Symptom State (PASS) at 14.9, 35.2, and 82.6, respectively. For RSA, the MCID, SCB, and PASS thresholds were 13.4, 31.5, and 77.5, respectively. Descriptive analytical statistics and multivariate logistic regressions were conducted. This study was approved by the IRB committee.

**RESULTS:** In total, 81 aTSA and 81 RSA patients were included, with 84 females. No threshold achievement rate differences were observed in aTSA, but RSA PASS achievement was statistically higher in Commercial payers (89.47%) compared to Traditional Medicare and Medicare Advantage at 45.95 and 48.00%, respectively; P=.0044. Upon multivariate regression, Traditional Medicare was associated with a 79% less likelihood of achieving MCID (P=.0070) and a 76% less likelihood to achieve SCB (P=.0070; Table 1). Both Medicare Advantage and Traditional Medicare were statistically associated with decreased likelihood of achieving PASS (73 and 67% decreases; P=.0226 and .0272, respectively).

**DISCUSSION:** The achievement of clinically relevant PROM thresholds was dissimilar among payer types, with Traditional Medicare patients experiencing significant reductions in likelihood of achieving these important recovery milestones when controlling for potentially relevant factors such as age and gender. In the era of value-based care, disparities in the achievement of clinically meaningful PROMs across payer types highlight the need for further research and targeted intervention to ensure equitable recovery and outcome measurements for all patients.

**SIGNIFICANCE/CLINICAL RELEVANCE:** Value-based care has negative implications for patients obtaining equitable treatment due to the current model's potential to financially disincentivize surgeons treating patients with certain payer statuses.

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## TABLES:

**Table 1.** Multivariate Logistic Regression Results for Each ASES Score Threshold.

<u>Met ASES MCID</u>			
Parameter	Odds Ratio	95% CI	P value
Male vs. Female	1.42	0.53-3.80	.4893
Reverse vs. Anatomical	0.82	0.31-2.18	.6862
Medicare Advantage vs. Commercial	0.60	0.09-4.05	.5963
Traditional Medicare vs. Commercial	0.21	0.05-0.99	<b>.0491</b>
Age	1.03	0.96-1.11	.4460
<u>Met ASES SCB</u>			
Parameter	Odds Ratio	95% CI	P value
Male vs. Female	0.85	0.43-1.69	.6461
Reverse vs. Anatomical	1.20	0.60-2.40	.6007
Medicare Advantage vs. Commercial	0.46	0.14-1.56	.2148
Traditional Medicare vs. Commercial	0.24	0.09-0.68	<b>.0070</b>
Age	1.04	0.99-1.10	.1374
<u>Met ASES PASS</u>			
Parameter	Odds Ratio	95% CI	P value
Male vs. Female	2.38	1.22-4.67	<b>.0114</b>
Reverse vs. Anatomical	0.93	0.47-1.82	.8256
Medicare Advantage vs. Commercial	0.27	0.09-0.83	<b>.0226</b>
Traditional Medicare vs. Commercial	0.33	0.13-0.88	<b>.0272</b>
Age	1.04	0.99-1.10	.1072

**Abbreviations:** ASES=American Shoulder and Elbow Surgeons; CI=Confidence Interval; MCID=Minimum Clinically Important Difference; PASS=Patient Acceptable Symptom State; PRO=Patient Reported Outcome; SCB=Substantial Clinical Benefit.