# Impact of Payer Type on PROM Threshold Achievement Following Anatomic and Reverse Total Shoulder Arthroplasty

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INTRODUCTION: Patient reported outcome measures (PROMs) carry increasing importance in shoulder arthroplasty for both payers and surgeons. Reimbursement and policy decisions are relying more heavily on these PROMs, and they also carry significant clinical implications for surgeons. This study sought to determine whether PROM threshold achievement differed among payer types within anatomical and reverse total shoulder arthroplasty (TSA). We hypothesized that differences would be modest if present.

METHODS: A retrospective query was conducted on all patients who underwent an anatomical TSA (aTSA) or reverse TSA (rTSA,) between July 2022 and April 2024, at a single site with a minimum follow-up of one year. Patient information, such as age, sex, and payer were collected, as well as patient-reported outcome measures (PROMs), in particular, the American Shoulder and Elbow Surgeons (ASES) Score at preoperative and one year postoperative. Payers were classified into two cohorts: Commercial and Medicare. Self-pay and other plans such as Tricare were excluded, as well as Medicaid for only having two patients. The ASES minimal clinically important difference (MCID) substantial clinical benefit (SCB), and patient acceptable symptom state (PASS) anchor-based thresholds were sourced from previous TSA research and were 14.9, 35.2, and 82.6, respectively for aTSA and 13.4, 31.5, and 77.5, respectively for rTSA. The ASES score was compared to the PASS, and the ASES score change (ΔASES). For categorical variables, a $\chi 2$ test was conducted; for continuous variables, a t-test was performed. Both tests were assessed as statistically significant if $P < .05$.

RESULTS: A total of 162 patients, with an average age of 69.03 ± 8.24 and 84 (51.85%) females were included in analysis. Payer utilization was as follows: 51 Commercial and 111 Medicare. Regarding implant, the cohort was comprised of 81 aTSA and 81 rTSA. The Commercial and Medicare MCID achievement rates were 90.63 and 87.76% (P=.6878), respectively, for aTSA and 100.0 and 82.26% (P=.1609), respectively, for rTSA. The aTSA SCB and PASS rates between Commercial and Medicare for aTSA were 68.75 v 63.27% (P=.6118), respectively for SCB and 62.50 v 61.22% (P=.9081), respectively for PASS achievement (Figure 1). In rTSA, comparisons between Commercial and Medicare for SCB were 89.47 v 61.29% (P=.0213), respectively, and PASS achievements were 89.47 v 46.77% (P=.0010), respectively (Figure 2). No differences were observed in average preoperative ASES scores between the payer groups, but at one year, rTSA Commercial patients reported a significantly higher ASES score than Medicare. This trend was not observed in aTSA. Both aTSA and rTSA patients were statistically different in age with respect to the payer type, with both procedures having older, Medicare patients and younger, Commercial patients (P<.0001).

DISCUSSION AND CONCLUSION: The hypothesis that differences, if any, would be modest was partially upheld by no statistical differences in aTSA; however, SCB and PASS achievement, as well as one year ASES scores were all significantly different within rTSA. In aTSA, despite significant age differences between the two payer groups, all assessed metrics were nondifferent. The rTSA patients may experience discrepant outcomes when Medicare is the payer type. Simovitch et al., calculated the MCID, SCB, and PASS thresholds from a population of 3,615 rTSAs for all indications, with an average age older than our population, thus it is likely that age and indication are not reliable indicators of SCB and PASS achievement. Future directions include analyzing the rTSA Medicare cohort to determine whether payer status reflects a surrogate for age or a broader range of surgical indications, which may help identify subgroups less likely to achieve meaningful clinical improvement.

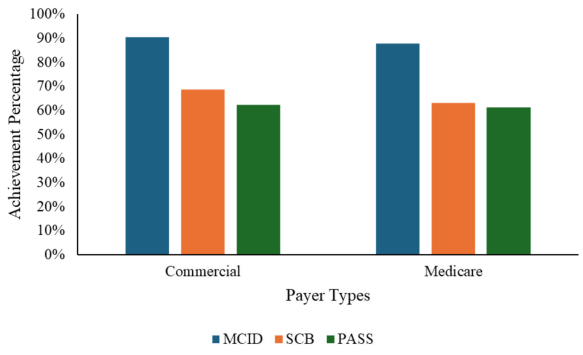


**Figure 1.** Rates of ASES MCID, SCB, and PASS achievement within aTSA.

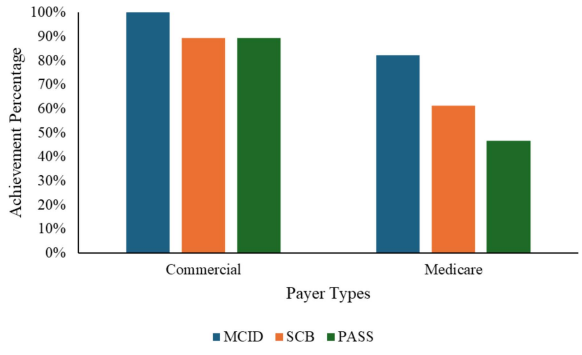


**Figure 2.** Rates of ASES MCID, SCB, and PASS Achievement within rTSA.