# Shoulder and Elbow Procedures are Significantly More Cost Effective in Ambulatory Surgery Centers Compared to Hospital Outpatient Departments

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INTRODUCTION: Recent literature has shown the advantages of outpatient surgery for many shoulder and elbow procedures, including cost savings with high quality care when appropriate patient selection is performed. At this time, little data exists comparing the costs to Medicare recipients for outpatient surgery performed in either ambulatory surgery centers (ASCs) or hospital outpatient departments (HOPDs).

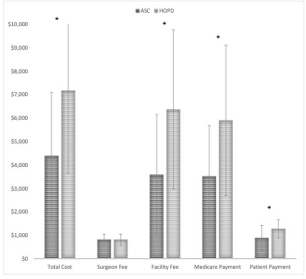
METHODS: Publicly available data from The Centers for Medicare & Medicaid Services (CMS) was accessed via the Medicare Procedure Price Lookup Tool. Current Procedural Terminology (CPT) codes were used to identify shoulder and elbow procedures approved for the outpatient setting by CMS. Procedures were grouped into arthroscopy, fracture, or miscellaneous. Facility fees, surgeon fees, total costs, Medicare payment, and patient payment (costs not covered by Medicare) were extracted. Descriptive statistics were used to calculate means and standard deviations. Cost differences were analyzed using Mann Whitney U tests.

RESULTS:

Fifty-seven CPT codes were identified. Arthroscopy procedures (n=16) at ASCs had lower total costs (2,667±989 vs. 4,899±1,917; p=0.009), facility fees (1,974±819 vs. 4,206±1,753; p=0.008), Medicare payments (2,133±791 vs. 3,919±1,534 p=0.009), and patient payments (533±198 vs. 979±383; p=0.009) compared to HOPDs. Fracture procedures (n=10) at ASCs had lower total costs (7,680±3,123 vs. 11,335±3,830; p=0.049), facility fees (6,851±3,033 vs. 10,507±3,733; p=0.047), and Medicare payments (6,143±2,499 vs. 9,724±3,676; p=0.049) compared to HOPDs, although patient payments were not significantly different (1,535±625 vs. 1,610±160; p=0.449). Miscellaneous procedures (n=31) at ASCs had lower total costs (4,202±2,234 vs. 6,985±2,917; p<0.001), facility fees (3,348±2,059 vs. 6,132±2,736; p<0.001), Medicare payments (3,361±1,787 vs. 5,675±2,635; p<0.001), and patient payments (840±447 vs. 1,309±350; p<0.001) compared to HOPDs. The combined cohort (n=57) at ASCs had lower total cost (4,381±2,703 vs. 7,163±3,534; p<0.001), facility fees (3,577±2,570 vs. 6,539.1±3,391; p<0.001), Medicare payments (3,504±2,162 vs. 5,892±3,206; p<0.001), and patient payments (875±540 vs. 1,269±393; p<0.001) compared to HOPDs.

DISCUSSION AND CONCLUSION: Shoulder and elbow procedures performed at ASCs for Medicare recipients were found to have overall average total cost savings of 39% compared to those performed at HOPDs (46% savings for arthroscopy, 32% for fracture, and 40% for miscellaneous). ASC use conferred lower facility fees, patient payments, and Medicare payments.

**Figure 1**. cost breakdown for the combined shoulder & elbow cohort (arthroscopy, fracture, miscellaneous), comparing ambulatory surgery centers and hospital outpatient departments.




ASC = ambulatory surgery center, HOPD = hospital outpatient department
* = p<0.05

**Table 2**. Mean and standard deviation of costs associated with ambulatory surgical centers and hospital outpatient departments for arthroscopy, fracture, miscellaneous, and combined cohorts.

| | **ASC** (Mean ± SD) | **HOPD** (Mean ± SD) | *p-value |
|---|---|---|---|
| **Arthroscopy** | | | |
| Total Cost | 2,667 ± 989 | 4,899 ± 1,917 | **0.009** |
| Doctor Fee | 692 ± 220 | 692 ± 220 | 1.000 |
| Facility Fee | 1,974 ± 819 | 4,206 ± 1,753 | **0.008** |
| Medicare Payment | 2,133 ± 791 | 3,919 ± 1,534 | **0.009** |
| Patient Payment | 533 ± 198 | 979 ± 383 | **0.009** |
| **Fracture** | | | |
| Total Cost | 7,680 ± 3,123 | 11,335 ± 3,830 | **0.049** |
| Doctor Fee | 828 ± 129 | 828 ± 129 | 1.000 |
| Facility Fee | 6,851 ± 3,033 | 10,507 ± 3,733 | **0.047** |
| Medicare Payment | 6,143 ± 2,499 | 9,724 ± 3,676 | **0.049** |
| Patient Payment | 1,535 ± 625 | 1,610 ± 160 | 0.449 |
| **Miscellaneous** | | | |
| Total Cost | 4,202 ± 2,234 | 6,985 ± 2,917 | **<0.001** |
| Doctor Fee | 854 ± 261 | 854 ± 261 | 1.000 |
| Facility Fee | 3,348 ± 2,059 | 6,132 ± 2,736 | **<0.001** |
| Medicare Payment | 3,361 ± 1,787 | 5,675 ± 2,635 | **<0.001** |
| Patient Payment | 840 ± 447 | 1,309 ± 350 | **<0.001** |
| **Combined** | | | |
| Total Cost | 4,381 ± 2,703 | 7,163 ± 3,534 | **<0.001** |
| Doctor Fee | 804 ± 239 | 804 ± 239 | 1.000 |
| Facility Fee | 3,577 ± 2,570 | 6,539.1 ± 3,391 | **<0.001** |
| Medicare Payment | 3,504 ± 2,162 | 5,892 ± 3,206 | **<0.001** |
| Patient Payment | 875 ± 540 | 1,269 ± 393 | **<0.001** |

ASC = ambulatory surgical center; HOPD = hospital outpatient department; SD = standard deviation

*p-value calculated using Mann-Whitney U tests. **Bolding** indicates significance (p<0.05).