

PAPER 45

Title: The Work Relative Value Unit System May Not Be the Optimal Measure of an Orthopaedic Oncologist's Productivity

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Abstract

Background: Work relative value units (wRVUs) are a physician reimbursement model based on the effort required in providing patient services. It is unknown which surgical procedures are most valuable to the orthopaedic oncologist's reimbursement and how an orthopaedic oncologist's effort is compensated. This study aims to determine if wRVUs generated within orthopaedic oncology adequately compensate one's effort.

Questions/Purposes: How does wRVU/min change with increasing procedural difficulty?

Patients and Methods: 4, 851 entries were queried from the American College of Surgeons National Surgical Quality Improvement (NISQIP) database between 2015 to 2019 using CPT codes for benign and malignant bone tumor removals as well as benign and malignant soft tissue tumor removals. The difficulty of each CPT code was ranked by one orthopaedic oncologist as Low (25136, 24076, 27048, 27327, 27618, 27619), Medium (23140, 23150, 23156, 24110, 24116, 24120, 25120, 27635, 27637, 27638, 24073, 25073, 27045, 27339, 27634, 27365, 24077, 27329), or High (23210, 23220, 24150, 24152, 25170, 27075, 27645). Median wRVU and operative time were calculated to determine the wRVU/min associated with each CPT code. Statistical analysis included Mann Whitney U tests.

Results: Across all CPT codes, benign tumor removals consisted of 80.8% and malignant tumor removals consisted of 19.2% of the procedures queried from the NISQIP database. Procedures classified as Low, Medium, and High made up 36.6%, 57.2%, and 6.2% of the population respectively. No malignant CPT codes were classified as Low and no benign CPT codes were classified as High. CPT codes categorized as Medium consisted of 77.3% benign tumor removals and 22.7% malignant tumor removals. Benign tumor removals had a median wRVU of 7.41, operative time of 42 minutes, and wRVU/min of 0.172. Malignant tumor removals had a median wRVU of 27.2, operative time of 143 minutes, and wRVU/min of 0.180. When considering benign tumor removal difficulty, procedures classified as Medium had no significant difference in operative time (52 vs 32, $p=0.087$), but had a lower wRVU/min compared to Low (0.169 vs 0.176, $p<0.001$). Malignant tumor removals classified as High had a higher operative time (168 vs 127, $p=0.011$) and lower wRVU/min compared to Medium (0.165 vs 0.192, $p<0.001$). There were no statistical differences between all other difficulty rankings across benign and malignant tumor removals.

Conclusions: Benign bone and soft tissue tumor removals comprise the most frequently encountered tumors within orthopaedic oncology. Our results show that the wRVU system devalues an orthopaedic oncologist's effort towards benign tumor removals when considering difficulty of the procedure. A similar trend was seen with increasingly difficult malignant bone and soft tissue tumor removals. Our study illuminates the inherent inadequacies of the appraisal of the orthopaedic oncologist's effort within the wRVU system. Orthopaedic

oncologists may use this information to better understand and allocate their time, negotiate their compensation, and ultimately, strategically develop their practice. Furthermore, it may be argued that the assignment of wRVUs should be increased or should be subject to a modifier that could fairly represent a particularly difficult and prolonged case. Further studies are required to determine if the wRVU system is the best fee-for-compensation model for orthopaedic oncologists.

Levels of Evidence: Level III