

## How Should Medicare's "Surgical Hip and Femur Fracture Treatment" Bundled Payment Program be Risk-Adjusted?

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**Purpose:** Bundled payments for orthopaedic procedures are becoming more popular as a means to reduce costs and improve quality and care coordination. The latest Medicare bundling program covers Surgical Hip and Femur Fracture Treatment (SHFFT), without a finalized start date. Critics note that bundled payments without appropriate risk adjustment may be inequitable to providers and restrict access to care for certain patient populations. Still, the SHFFT program only includes plans for rudimentary risk stratification using Diagnosis-Related Group (DRG) codes. The goal of this study was to identify and quantify patient factors that could improve risk adjustment for SHFFT bundled payments. We hypothesize that the current proposal will insufficiently account for comorbidities, thereby underestimating appropriate reimbursement for certain patients.

**Methods:** A 5% random sample of Medicare patients spanning 2008-2012 was queried, and 27,898 patients were identified who met SHFFT inclusion criteria (DRG 480, 481, or 482). Reimbursement was determined for each patient over the bundle period (the surgical hospitalization and 90 days of post-discharge care). Multivariable regression was performed to test demographic factors, comorbidities, geography, and specific types of surgery for associations with reimbursement.

**Results:** Average reimbursement was  $\$23,632 \pm 17,586$ . Male gender was associated with  $\$1186 \pm 228$  higher reimbursement ( $P < 0.001$ ). Younger patients also tended to earn higher payments; eg, those aged 65-69 years were reimbursed  $\$2282 \pm 389$  more than those over age 85 ( $P < 0.005$ ). Most comorbidities were associated with higher reimbursement, but dementia was associated with  $\$2354 \pm 243$  lower payments ( $P < 0.005$ ). 22 procedure codes are included in the bundle, and patients undergoing the most common surgeries (nail or screw fixation) accounted for 98% of cases and were reimbursed similarly. However, other procedures varied enormously in average reimbursement (up to  $\$18,000$ ,  $P < 0.005$ ). DRG codes also showed significant differences in reimbursement ( $P < 0.005$ ); eg, DRG 482 was reimbursed  $\$10,421 \pm 543$  more than DRG 480. Payments varied significantly by state ( $P \leq 0.016$ ). Risk adjustment for individual comorbidities performed better than DRG alone (R squared = 0.22 vs 0.15).

**Conclusion:** Our results suggest that SHFFT bundled payments should use more robust risk-adjustment techniques to ensure providers and hospitals are reimbursed fairly and patients retain adequate access to care. At a minimum, payments should be adjusted for comorbidities, demographic factors, geography, and surgery type.