Patient Predictors for Achieving the Centers for Medicare and Medicaid Services (CMS) Defined Substantial Clinical Benefit Following Total Knee Arthroplasty (TKA) and Total Hip Arthroplasty (THA)

Alex Driessche¹, Phillip McKegg², Hamza Raja³, Wayne Trevor North, Michael A Charters⁴, Noah Hodson⁵

¹Henry Ford Health, ²R Adams Cowley Shock Trauma Center, ³University of Texas Medical Branch, ⁴Henry Ford Hospital K-12, ⁵Henry Ford Hospital

INTRODUCTION: The Centers for Medicare and Medicaid Services (CMS) begins a mandatory requirement to report patient-reported outcome measures (PROM) for inpatient hip and knee arthroplasty procedures on 7/1/2024, comprising of a 0-90 day preoperative score and a 300-425 day postoperative score. The CMS-defined threshold of "substantial clinical benefit" (SCB) is a 22-point increase in HOOS-JR, a PROM for THA, and a 20-point increase in KOOS-JR, a PROM for TKA. The objective of this study is to identify predictors to patients achieving SCB.

METHODS: Demographic and clinical data was collected for patients who underwent primary TKA or THA over a two-year period (2021-2022) at a multicenter academic hospital using the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) database. PROM data, including KOOS-JR and HOOS-JR scores, were extracted from the electronic medical record system. Patients were included if they had PROM data per the CMS criteria of 0-90 days preoperatively and 300-425 days postoperatively. Substantial clinical benefit (SCB) was defined as a 22-point increase in HOOS-JR, and a 20-point increase in KOOS-JR. Logistic regression analyses were used with statistical significance maintained at p < 0.05.

RESULTS: A total of 837 patients who underwent TKA and 486 patients who underwent THA met inclusion criteria. Of those who underwent TKA, 520 (62.1%) achieved the CMS-defined SCB, while 317 (37.9%) did not. Of those who underwent THA, 343 (70.6%) achieved the CMS-defined SCB, while 143 (29.4%) did not. On univariate analysis, participation in an interactive pre-operative surgery class prior to TKA (p=0.001) and a lower pre-op KOOS-JR score (42 points vs 47 points, p<0.001) was predictive of achieving SCB. Predictors of not achieving SCB after TKA include: a diagnosis of diabetes (p=0.016) and preoperative opioid use (p=0.044). On univariate analysis, patient factors predictive of achieving SCB after THA include: younger age (66 years vs. 68 years, p=0.029) and lower pre-operative HOOS score (43 points vs 50 points, p<0.001). On multivariate analysis, a lower pre-op PROM was associated with achieving the SCB for THA and TKA, respectively (THA: OR 0.96; p<0.001; TKA: OR 0.95; p<0.001).

DISCUSSION AND CONCLUSION: In this study, predictors of achieving the expected SCB included participation in an interactive preop surgery class for TKA and a younger age for THA. A lower preoperative PROM is predictive of achieving SCB in both procedures. These results allow orthopedic surgeons to gain insight into potential outcome scores for patients undergoing TJA.