

Race and Government-Funded Insurance Are Independent Predictors of Return to the Emergency Department After Orthopaedic Trauma Surgery Within the Global Period

Bruno N Valan, MS; *Emily Mae Peairs, BS; Aaron Daniel Therien, MS; Jay Swayambunathan, BS; Harvey Allen; Tristan Albers Chari, BA; Steven A Olson, MD; Rachel M Reilly, MD; Christian Alexander Pean, MD; Malcolm DeBaun, MD*

Purpose: Investigating health-care disparities, particularly in hospital return and readmission rates after orthopaedic trauma surgery, is critical for improving outcomes and achieving equity in care. This study examined the influence of factors predicting return to the emergency department (ED) and readmission throughout time points within the global period after orthopaedic trauma surgery.

Methods: In this retrospective study of a prospectively collected database, we analyzed adult patients after orthopaedic trauma surgery at a Level I academic hospital system. Primary outcomes were return to the ED and readmission to the hospital within 7, 30, and 90 days post-surgery. Multivariable regressions were used to investigate the impact of race and insurance status on these outcomes, controlling for comorbidities, demographics, patient-hospital distance, and procedure complexity (work relative value units [wRVUs]). Odds ratios (ORs) were derived from regression coefficients, with statistical significance set at $\alpha = 0.05$.

Results: The analysis included 10,637 patients. Black patients exhibited higher rates of hospital return at all time points (OR = 1.42, P = 0.002; OR = 1.33, P<0.001; OR = 1.3, P<0.001 for 7, 30, and 90 days, respectively) when compared to White patients, but no significant difference in readmission rates at the same time points (OR = 1.1, P = 0.6; OR = 1.1, P = 0.4; OR = 1.06, P = 0.4). Conversely, patients with Medicare or Medicaid insurance exhibited higher rates of return rates (OR = 2.15, P<0.001; OR = 2.31, P<0.001; OR = 2.44, P<0.001) and readmission rates (OR = 1.42, P<0.001; OR = 1.33, P<0.001; OR = 1.3, P<0.001).

Conclusion: This study suggest that Black patients may face unique challenges after orthopaedic trauma surgery, leading to increased rates of return to the ED without readmission. These challenges could include insufficient primary care access and barriers to follow-up care, possibly exacerbated by a lack of culturally competent discharge practices. Moreover, government-funded insurance status independently predicted both return to the ED and readmission compared to privately insured patients. Future research should investigate these risk factors and test interventions designed to promote equity after orthopaedic trauma surgery.