

Does Neighborhood Deprivation Impact Readmission and Associated Costs After Hip Fracture Surgery?

Mikhail A. Bethell, MS; Hannah R. Mahoney; Lulla Kiwinda, BS; Adam A. Sassoon, MD; Milton TM Little, MD; Amy G. Clark; Bradley G. Hammill; Malcolm R. DeBaun, MD; Christian A. Pean, MD

Purpose: In the context of value-based care, the influence of racial and socioeconomic factors on hip fracture outcomes remains underexplored. This study aims to investigate the impact of the area deprivation index (ADI) on readmission rates and associated costs following hip fracture surgery, a critical quality measure in the US Centers for Medicare & Medicaid Services Hospital Readmissions Reduction Program.

Methods: We conducted an analysis using US Medicare fee-for-service claims from 2019 to 2021, identifying patients hospitalized for hip fracture surgery based on Diagnosis Related Groups criteria. Our primary outcomes were 90-day unplanned readmissions and post-discharge readmission costs. ADI was our primary exposure of interest, calculated at the census block level. The analysis adjusted for multiple factors including patient demographics, 29 Elixhauser comorbid conditions, Medicaid-dual eligibility, end-stage renal disease status, discharge date, health-care access, and hospital characteristics, using logistic regression models.

Results: The study included 295,374 patients with an average age of 82.3 years and 73.4% were female. We noted a 20.6% rate of 90-day unplanned readmissions. Septicemia or severe sepsis was the leading diagnosis at readmission (14.4%). Adjusted findings showed a modest, independent association between readmission and neighborhood deprivation, especially in the most deprived groups (odds ratio [OR]: 1.15 [95% confidence interval (CI) 1.10, 1.19]). Black race had a modest association with unplanned 90-day readmissions (OR: 1.06 [95% CI 1.00, 1.12]) than White race. Males had a stronger association with readmission (OR: 1.27 [95% CI 1.24, 1.30]) and costs (OR: 1.07 [95% CI 1.06, 1.07]) compared to females.

Conclusion: This study highlights the significance of socioeconomic status in post-hip fracture surgery outcomes. There is an association between neighborhood deprivation and hospital readmission that persists even when controlling for demographic factors, access to care, and treating hospital characteristics. In addition, Black and male patients had an increase likelihood of unplanned 90-day readmissions. These findings underscore the importance of addressing health-care disparities and integrating social determinants into value-based payment reform, health-care policy, and clinical practice.