

# Orthopaedic Surgery Outcomes in Native Hawaiian and Pacific Islander Populations Compared to Other Racial/Ethnic Groups in California

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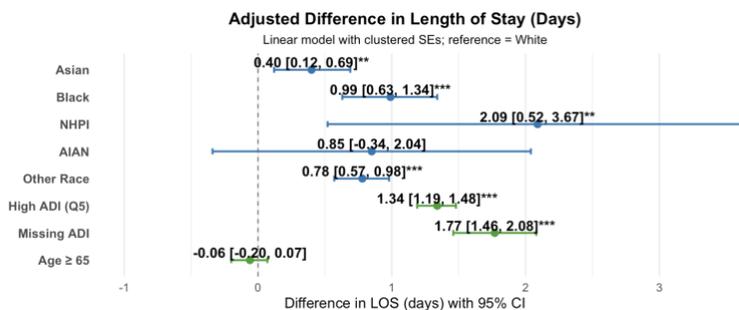
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**INTRODUCTION:** Prior research has shown that minority racial and ethnic groups in the United States experience worse orthopaedic surgical outcomes compared to white patients. One group that has been understudied in this area is the Native Hawaiian and Pacific Islander (NHPI) population. Historically, NHPI patients have been aggregated with Asian populations, which has masked disparities unique to the NHPI community. Limited existing data suggest that NHPI patients may experience higher rates of postoperative complications and longer hospital stays, but comprehensive studies on this topic are lacking. This study analyzes disparities in orthopaedic surgery outcomes among NHPI, Asian, white, black, and American Indian and Alaska Native (AIAN) patients using data from the UC Health system. By identifying disparities in orthopaedic surgery outcomes, this project provides critical insights into healthcare inequities affecting NHPI patients.

**METHODS:** We conducted a retrospective cohort study using UC Health inpatient data from 2012–2024 (n = 97,343; adults n = 59,393). Major orthopaedic procedures analyzed included spinal fusion (n = 54,231), hip fracture repair (n = 16,635), and total hip/knee arthroplasty (n = 26,477). Race/ethnicity was self-reported as White, Black, NHPI, Asian, or AIAN. Patients could appear more than once if they underwent multiple procedures, and all models used patient-clustered standard errors to account for repeated surgeries. Outcomes included length of stay, discharge disposition, 30-day readmission, 30-day ED visits, and 90-day complications (overall and subtype-specific). Multivariable logistic or linear regressions were adjusted for age and Area Deprivation Index (ADI). Asian–NHPI contrasts were tested post-hoc using robust Wald tests with clustered covariance estimates. This study was approved via institutional review IRB #444255.

**RESULTS:** Compared with White patients, NHPI patients had 2.09 days longer adjusted length of stay (p = 0.009), followed by Black (+0.99 days; p = 4.5 × 10<sup>-8</sup>), Asian (+0.40 days; p = 0.006), and Other race (+0.78 days; p < 10<sup>-13</sup>) groups (Figure 1). NHPI patients stayed approximately 1.69 days longer than Asian patients (p = 0.038). When stratified by surgery type, the NHPI–Asian difference in LOS persisted most strongly for spinal fusion patients (+2.31 vs +0.77 days; p = 0.067) but was not significant for lower-extremity joint replacement (−0.04 vs +0.21 days; p = 0.42) or hip fracture repair (−0.98 vs −0.76 days; p = 0.11), indicating that the overall disparity was driven primarily by spinal fusion cases. For other outcomes, such as 90-day complications, NHPI patients had significantly lower odds of wound complications than White patients (OR ≈ 0.15; p = 0.007) and lower odds than Asian patients (p = 0.005). Black patients had higher odds overall for 90-day complications (OR ≈ 1.22; p = 0.004), but no other race differences were observed for pulmonary, neurologic, or infectious events. The venous thromboembolism model was unstable due to sparse events and was not interpreted. In 30-day utilization models, Black patients had higher odds of readmission (OR ≈ 1.31; p = 0.0025) and emergency department visits (OR ≈ 1.86; p < 10<sup>-12</sup>). Asian patients were less likely to be discharged home or with home health services (OR ≈ 0.91; p = 0.018). Although the point estimates for discharge disposition differed between NHPI and Asian patients, their adjusted effects were not statistically different (p = 0.79), reflecting small subgroup sizes and overlapping uncertainty intervals.



Adjusted differences in hospital length of stay (LOS) from multivariable linear regression with clustered standard errors. White patients served as the reference group. Error bars indicate 95% confidence intervals (p < 0.05, p < 0.01, p < 0.001).

**DISCUSSION:** NHPI patients experienced longer hospital stays and lower odds of wound complications compared with White and Asian patients, with LOS disparities driven largely by spinal fusion cases. Conversely, the lower wound complication rates may indicate unmeasured protective factors or care differences that warrant further study. These findings underscore the importance of analyzing NHPI populations separately from Asian groups, as aggregating them may obscure distinct trends in recovery and complication profiles. Targeted strategies to improve perioperative care coordination and post-discharge support for NHPI communities are warranted.

## SIGNIFICANCE/CLINICAL RELEVANCE:

This study reveals previously unrecognized disparities in orthopaedic surgery outcomes among NHPI patients, emphasizing the necessity of disaggregating racial/ethnic data. These findings can inform targeted interventions and policy efforts to reduce postoperative inequities and improve care disparities in surgical populations.

**DISCLOSURES:** None.