Title: A Preliminary Analysis of Language Accessibility at Academic Orthopedic Surgery Centers Across Major U.S. Metropolitan Areas

Introduction: Language concordance between patients and physicians is associated with improved communication, satisfaction, and clinical outcomes. In orthopedic surgery, where shared decision-making and perioperative counseling are critical, language barriers may contribute to disparities in care. Recent studies have evaluated language accessibility at major academic institutions across the United States in other specialties. However, no study to date has specifically examined this issue within orthopedic surgery. The extent to which academic orthopedic surgery centers align with the linguistic needs of surrounding limited English proficiency (LEP) populations remains unclear.

Methods: This cross-sectional study evaluated orthopedic surgeons affiliated with academic centers across major US metropolitan areas. Surgeon language data were obtained from institutional websites and publicly available sources. Metropolitan-level LEP population data were derived from the US Census Bureau American Community Survey. Primary outcomes included language coverage (proportion of LEP languages represented), adjusted ratios (proportion of surgeons speaking a language relative to the LEP population speaking it), and surgeon availability (number of surgeons per 10,000 LEP patients). Regional comparisons were performed to assess geographic variation.

Results: Academic orthopedic surgery centers demonstrated incomplete language coverage across metropolitan areas, with notable regional variability. Spanish, the most prevalent LEP language, was consistently underrepresented relative to population need, with adjusted ratios below 1.0 in most regions and the lowest surgeon availability per 10,000 LEP patients. Other commonly spoken languages, including Chinese and Vietnamese, also demonstrated relative underrepresentation. In contrast, less prevalent languages appeared overrepresented, likely reflecting small LEP population sizes rather than true accessibility.

Conclusion: Academic orthopedic surgery centers demonstrate substantial gaps in language concordance with surrounding LEP populations, particularly for Spanish-speaking patients. These findings suggest workforce-level contributors to disparities in orthopedic care and highlight the need for targeted recruitment, training, and institutional language-access strategies to improve equitable delivery of musculoskeletal care.