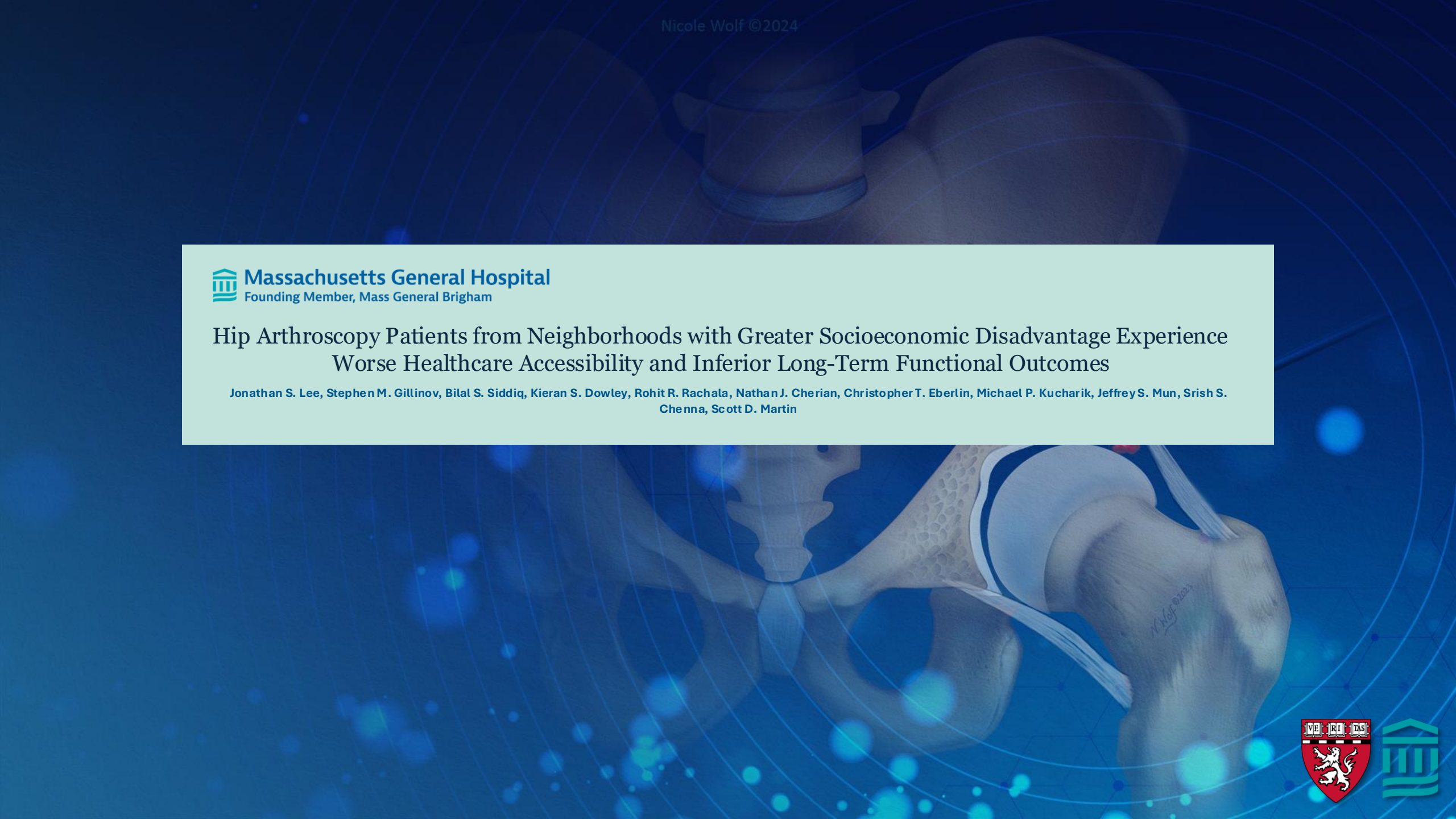


Massachusetts General Hospital
Founding Member, Mass General Brigham

Hip Arthroscopy Patients from Neighborhoods with Greater Socioeconomic Disadvantage Experience Worse Healthcare Accessibility and Inferior Long-Term Functional Outcomes

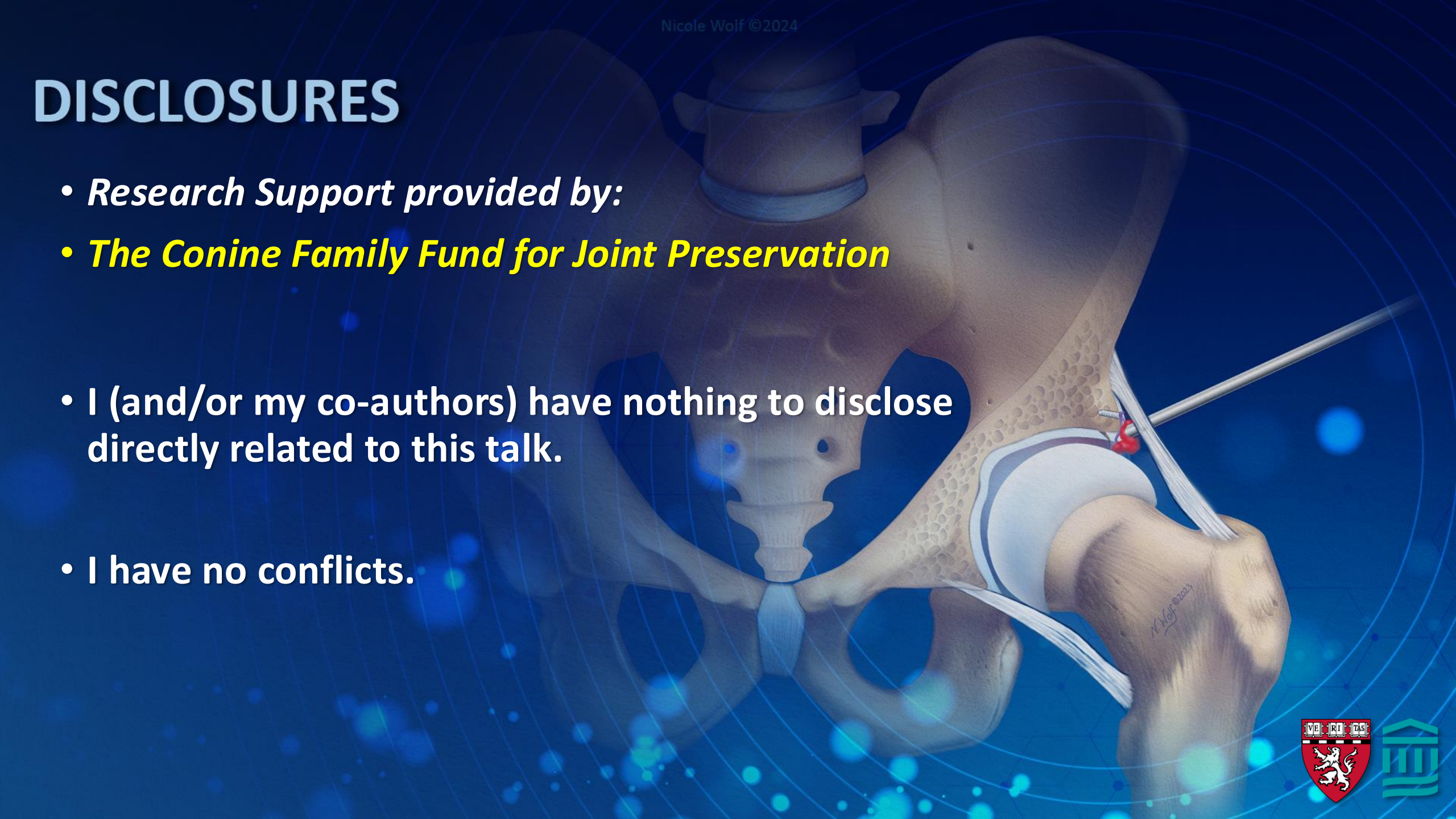
Jonathan S. Lee, Stephen M. Gillinov, Bilal S. Siddiq, Kieran S. Dowley, Rohit R. Rachala, Nathan J. Cherian, Christopher T. Eberlin, Michael P. Kucharik, Jeffrey S. Mun, Srish S. Chenna, Scott D. Martin

DISCLOSURES

- *Research Support provided by:*
- *The Conine Family Fund for Joint Preservation*

- I (and/or my co-authors) have nothing to disclose directly related to this talk.

- I have no conflicts.



Background

- There is growing evidence that social determinants of health influence orthopaedic surgery outcomes.
- Area Deprivation Index (ADI), is a validated tool that calculates neighborhood-level socioeconomic disadvantage.[1]
- Among hip arthroscopy surgeons, utilization of the ADI may be particularly useful, considering that neighborhood disadvantage plays a crucial role in the development of hip pathologies.[2]
- ADI may help identify neighborhoods that lack resources (e.g. medical services, recreational facilities, or grocery stores) that play a key role in improving overall health and post-operative recovery.[3]

Purpose

- The purpose of this study was to investigate the effects of neighborhood-level socioeconomic disadvantage on healthcare accessibility and long-term functional outcomes for patients undergoing hip arthroscopy.

Methods

- This retrospective analysis queried patients ≥18 years old with minimum 8-year follow-up who underwent hip arthroscopy for the treatment of symptomatic labral tears.
- Utilizing the ADI score as a validated measurement of neighborhood-level socioeconomic disadvantage, the study population was divided into quartiles. Patients in the least and most disadvantaged quartiles represented the ADI_{Low} and ADI_{High} cohorts, respectively (**Figure 1**).
- Healthcare accessibility and socioeconomic disadvantage were compared between ADI cohorts using rural classification, health professional shortage area designation (HPSA), medically underserved area/population (MUA/P) designation, insurance status, level of education, and household income.
- Collected PROMs included ADI, Area Deprivation Index; mHHS, modified Harris Hip Score; NAHS, Nonarthritic Hip 475 Score; LEFS, HOS-ADL, Hip Outcome Score-Activities of Daily Living; HOS-SSS, Hip 476 Outcome Score-Sports Specific Subscale; iHOT-33, 33-item International Hip Outcome Tool, pain levels, patient satisfaction, and rates of conversion to Total Hip Arthroplasty (THA).

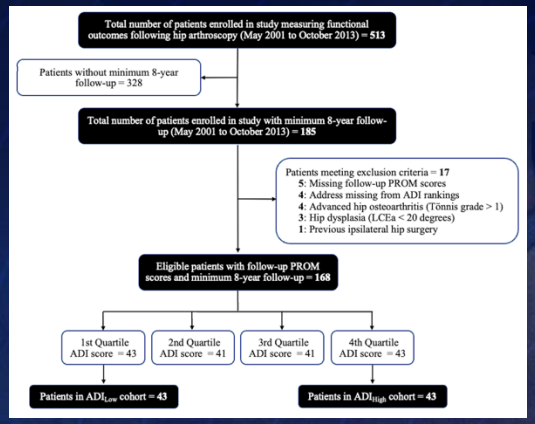


Figure 1. Consort diagram detailing eligibility criteria of patients with minimum 8-year follow-up.

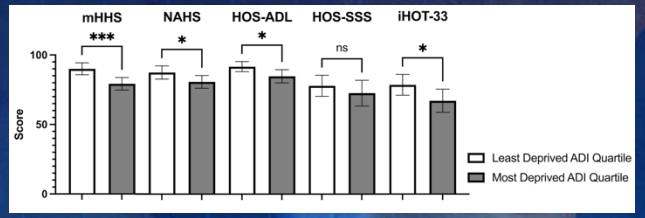


Figure 2. PROMs at minimum 8-year follow-up.

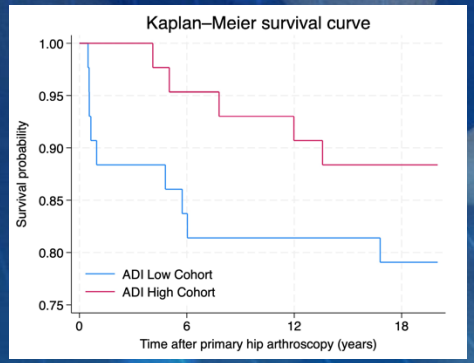


Figure 3. Unadjusted Kaplan-Meier survival curves analyzed by log-rank test

Results

- A greater proportion of ADI_{High} patients resided in rural communities (P=0.026), primary care HPSAs (P=0.024), and MUA/Ps (P=0.019).
- At a patient level, the ADI_{High} cohort had lower levels of insurance coverage (P=0.035), education (P=0.002), and household income (P=0.002).
- At minimum 8-year follow-up, ADI_{High} patients reported significantly worse scores for all PROMs except for HOS-SSS groups (77.9±24.7 vs 72.6±28.9; P=0.371) (**Figure 2**).
- Despite having significantly worse PROMs, ADI_{High} patients converted to THA at a statistically similar rate to ADI_{Low} patients (ADI_{High}: 5 [11.6%] vs. ADI_{Low}: 9 [20.9%]; P=0.243) (**Figure 3**).
- Lastly, ADI_{High} patients were 10.4 and 11.4 times less likely to achieve PASS for mHHS (ADI_{High} vs. ADI_{Low}, OR: 0.09; P=0.007) and HOS-ADL (ADI_{High} vs. ADI_{Low}, OR: 0.10; P=0.018), respectively.

Conclusion

- Hip arthroscopy patients from neighborhoods with greater ADI scores experience worse healthcare accessibility and inferior long-term functional outcomes at minimum 8-year follow-up.
- While it is important that orthopaedic surgeons understand the consequential effects of SDOH on long-term musculoskeletal health, these findings have far greater implications.
- Orthopaedic surgeons nationwide must collaborate with patients, hospital systems, and local/state governments to reform healthcare policies that have contributed to these disparities.

REFERENCES

1. Neighborhood Atlas - Mapping. Accessed January 9, 2024. https://www.neighborhoodatlas.medicine.wisc.edu/mapping
2. Graham GN. Why Your ZIP Code Matters More Than Your Genetic Code: Promoting Healthy Outcomes from Mother to Child. Breastfeed Med. 2016;11:396-397. doi:10.1089/bfm.2016.0113
3. Maroko AR. Integrating Social Determinants of Health With Treatment and Prevention: A New Tool to Assess Local Area Deprivation. Prev Chronic Dis. 2016;13. doi:10.5888/pcd13.160221