



# Understanding Disparities after Knee Arthroplasty

Searching for insights into why elective orthopaedic surgery outcomes continue to differ among racial and socioeconomic groups.



**TOTAL HIP ARTHROPLASTY (THA)** and total knee arthroplasty (TKA) can prevent functional disability in patients with advanced osteoarthritis (OA) when performed on a timely basis. However, several studies have shown that despite the prevalence of OA being similar between Blacks and whites, Blacks have a lower utilization of these procedures and experience worse outcomes in terms of mortality, disability scores and longer lengths of stay in hospital than whites.

"Traditionally, disparities in elective knee and hip replacements have been examined from the race angle alone," says rheumatologist Bella Mehta, MBBS, MS. "Our work focuses on disparities under a larger umbrella that includes race, socioeconomics and community factors, and how they interrelate, to reveal things we can potentially intervene on."

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Previous work published in 2019 by Dr. Mehta and HSS hip and knee surgeon Michael L. Parks, and collaborators at other institutions revealed that among 93,493 patients undergoing primary elective THA, African Americans were more likely to be discharged to an inpatient rehabilitation facility (IPF) or skilled nursing facility (SNF) or home health care (HHC) than home with self-care after THA than white patients. Patients in all age groups discharged to an IRF or SNF or HHC after THA had a higher risk of 90-day readmission to an acute care hospital than those discharged to self-care at home. The study investigators used a large statewide database, the Pennsylvania Health Care Cost Containment Council Database, for their analysis.



In a new study published in 2021, lead author Dr. Mehta and colleagues at HSS and Weill Cornell Medicine used the same database to evaluate records for 84,931 elective THA patients to see whether the level of community deprivation influenced discharge disposition and the odds of 90-day readmission. This deeper look

revealed that patients 65 years of age and older from the most disadvantaged communities were significantly more likely to be discharged to an institution rather than to their homes after THA. The findings were timely given emerging payment reform policies like bundle payments for postoperative care and rehabilitation.

"From both studies, we have learned that both race and place influence post-surgical discharge disposition and patient outcomes," says Dr. Mehta. "We need to keep these insights in mind when designing healthcare policies to improve the quality of care for all. It is much easier to put policy interventions in place to address community disparities."

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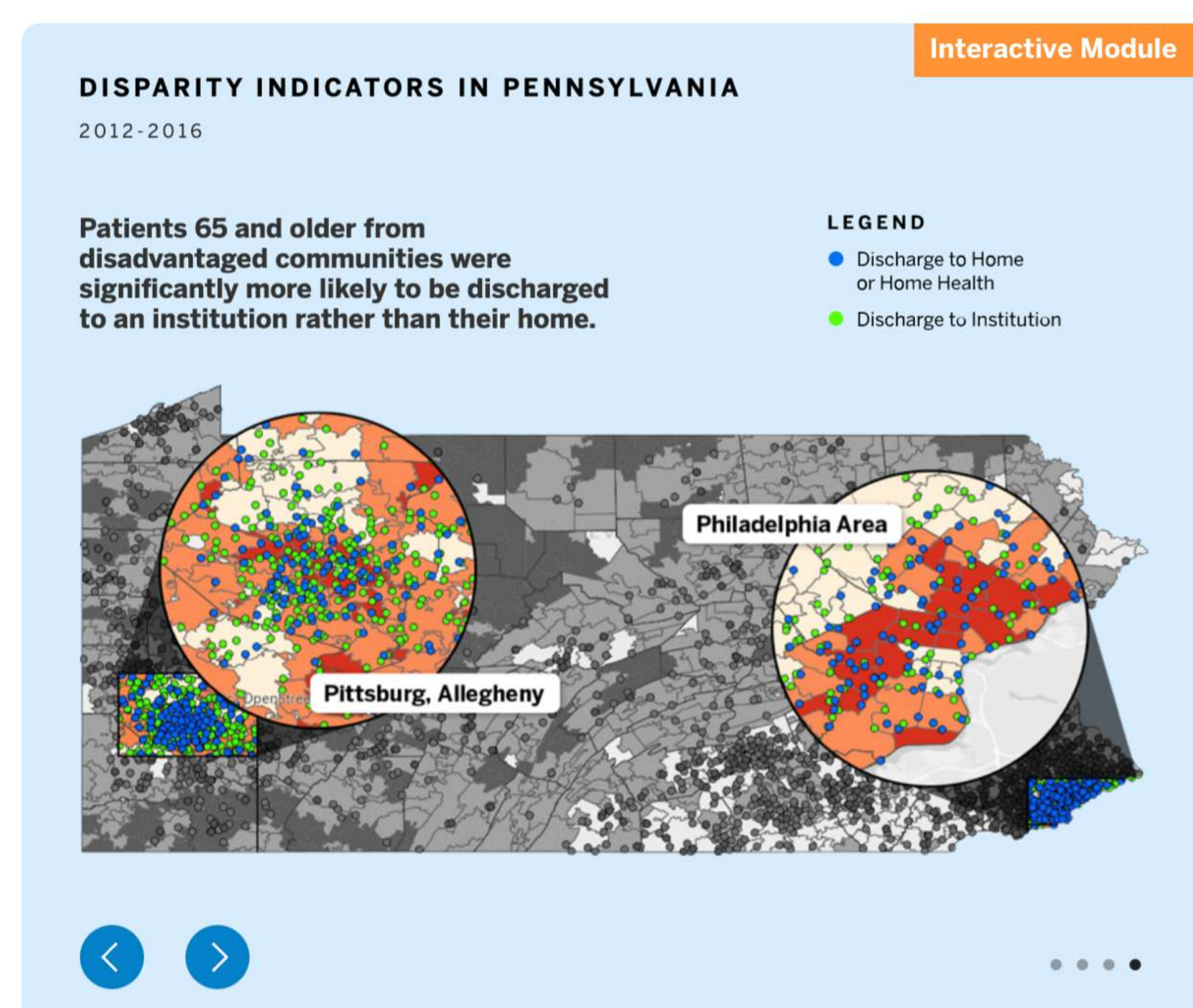


Figure 2. Pennsylvania community-level Area Deprivation Index data with individual total hip replacement (THR) patient discharge destination, showing adjusted relative risk ratios of referral to varying discharge locations in African American patients with total hip arthroplasty (versus white patients) in two age groups.

Dr. Mehta and colleagues at HSS and Weill Cornell Medicine also reported trends in utilization and in-hospital complication rates for same-day bilateral and unilateral TKA by race. Using the National Inpatient Sample database, the largest publicly available inpatient database in the U.S., they estimated about 267,000 bilateral TKA and 5.5 million unilateral TKA performed over the period 2007 to 2016. Their analysis revealed that while the proportion of bilateral procedures declined from 5.53% in 2007–08 to 4.03% in 2015–16, African Americans were significantly less likely to undergo bilateral TKA than whites throughout the study period. Interestingly, while African Americans had consistently higher complication rates with unilateral TKA, their complication rates were similar to whites for bilateral TKA.



"We discovered an important racial disparity in utilization of bilateral TKA. More research is required to understand why it exists: Surgeons may be offering it less often to African Americans, or these patients may be choosing not to have the procedure," says Dr. Mehta. "Surgeons also need to be aware of this bias when considering candidates for the procedure."

To learn more about whether racial disparities in TKA trace to utilization or access issues, Dr. Goodman spearheaded the Barriers to Care project, which began in 2020. She and her team surveyed over 1,000 patients living in communities with higher proportions of racial and ethnic minority groups to find out why they chose not to have TKA. "Maybe they are having difficulty navigating the system or had concerns about postoperative recovery, or surgeons did not offer them the procedure," Dr. Mehta says.

**If we can understand the barriers to care better at the patient level, we can formulate ways to intervene**

"If we can understand the barriers to care better at the patient level, we can formulate ways to intervene at the provider and system level." The research team is analyzing their data and plan to publish their findings when available.



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