RESEARCH
IN ACTION:

Wharton's Alon Bergman and Guy David Measure Inequality in Patient Access to Hospital Procedures

THE PROBLEM:

Many studies have undertaken the Herculean task of trying to quantify disparities in the U.S. health care system. But there are so many variables that it can be difficult to develop a precise equation. Race, age, income, insurance coverage, location, prevalence of disease, and language barriers are among numerous factors that influence health outcomes and make it challenging to establish benchmarks for comparison.

In their 2024 paper, Wharton health care management professors Guy David and Alon Bergman introduce the Procedure Access Inequality Index (PAI). It's a standardized metric they created to measure inequality in access to inpatient hospital procedures by geographic location, while accounting for the inherently unequal dispersion of disease.

The paper, "Measuring Hospital Inpatient Procedure Access Inequality in the United States," reveals that procedures with the highest inequality scores also have the greatest market concentration. That means there are fewer hospitals offering those procedures, making it harder for patients to get the care they need.

"Alon and I have been working on issues around equity for a long time, and when people talk about those topics, there's always a geographic element," David said. "It's the ZIP code you were born in and how it affects your journey. But that's not the only way to look at it. There are other angles, like looking at what services are readily available to all residents versus what is available to a select few."

The results emphasize the need for targeted policy interventions that can help redistribute the provision of health care more evenly across the U.S.

"We're not going to have perfect equality in everything, but what procedures tend to be more equally distributed than others and why? This method gave us a unified way of measuring of it," Bergman said.

THE RESEARCH:

With the help of generative AI, the professors analyzed inpatient procedure data in 18 states from 2016 to 2019. They ranked the 40 highest-volume procedures according to their PAI index. At the top of the list, the five with the highest inequality of access were (1) skin grafts, (2) carotid endarterectomy and stenting, (3) minimally invasive gastrectomy, (4) embolectomy, endarterectomy, and related blood vessel procedures, and (5) toe and mid-foot amputations. At the bottom of the list with the least inequality of access were (36) colectomy, (37) femur fixation, (38) minimally invasive cholecystectomy, (39) percutaneous coronary interventions, and (40) Cesarean section.

The professors highlighted a particular correlation that illustrates the potential benefits of greater access for patients. Transcatheter aortic valve replacement (TAVR) is a newer, minimally invasive procedure to replace a damaged aortic valve. It requires a small cut in the skin, compared with surgical aortic valve replacement (SAVR), which is the only other alternative. During the 2016-2019 study period, the number of hospitals offering TAVR increased by 31%. At the same time, the TAVR inequality score decreased by 31.4%. It was the largest drop in access inequality among all cardiac procedures.

“Multiple potential mechanisms drive disparities. But when we think about actionable elements, it’s going to be where those services are being offered,” David said.

THE SOLUTION:

Bergman and David said decision-makers can use the PAI index to identify procedures with the greatest access disparities and target interventions accordingly. This might include expanding procedure availability in underserved areas, developing robust referral networks, addressing transportation barriers for patients, and implementing training programs to expand the skilled workforce.

TAVR is an example of how policy impacts access. When it first became available in the U.S. about 20 years ago, the Centers for Medicare & Medicaid Services limited coverage to ensure quality and safety as doctors trained in the innovative procedure. Now, the PAI index could help reevaluate and refine those decisions.

“While there is no question that TAVR coverage determination rules were useful during its initial rollout, these rules inadvertently contributed to access disparities by limiting the number of hospitals able to perform the procedure,” Bergman said. “The question now is, are we willing to accept the cost in terms of access?”

THE SCHOLARS

Guy David is chair of the Department of Health Care Management at Wharton and a professor of medical ethics and health care policy at the Perelman School of Medicine. He earned his doctorate in business economics from the University of Chicago in 2004, the same year he joined the faculty at Wharton. David is a senior fellow at the Leonard Davis Institute of Health Economics and has won numerous awards for teaching excellence.

Alon Bergman is an assistant professor of medical ethics and health care policy at Perelman with a secondary appointment as an assistant professor of health care management at Wharton. He earned his doctorate in economics from the University of Rochester and completed postdoctoral training at Wharton.

Both professors are deeply committed to understanding the drivers behind disparities in health care and finding ways to close the gap. They firmly believe that quality health care should be available to every patient, no matter their socioeconomic circumstances.

"Witnessing the tangible impact of inequities on patient outcomes reinforces our dedication to identifying and mitigating these challenges through evidence-based solutions," Bergman said. "More equitable care requires a new social contract, grounded in reallocation of resources, and the rethinking of the trade-off between equity and efficiency."

The Wharton Coalition for Equity and Opportunity (CEO) creates research-driven solutions to help current and future leaders ensure equity in business relationships and leadership. Dean Erika James, who is Wharton's first Black and first female dean, is emblematic of a paradigm shift in executive leadership. She launched the Wharton Coalition for Equity and Opportunity as the hallmark of her leadership commitment to diversity, equity, and inclusion. CEO is led by Managing Director Dr. Fareeda Griffith with support from an advisory committee of Wharton faculty across several departments. Wharton Emeritus Professor Kenneth L. Shropshire founded the initiative in 2022.