

Parkinson's patients utilization of deep brain stimulation treatment reduced in demographic groups

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Among Parkinson's disease (PD) patients, female, black, Asian and patients are substantially less likely to receive proven deep brain stimulation (DBS) surgery to improve tremors and motor symptoms, according to a new report by a Perelman School of Medicine at the University of Pennsylvania researcher who identified considerable disparities among Medicare recipients receiving DBS for Parkinson's disease. The study, published in *Neurology*, found that patients from neighborhoods of lower socioeconomic status were less likely to receive DBS, regardless of race or sex. And patients of minority-serving physician practices were also less likely to receive DBS, irrespective of race. The study demonstrates a need to adjust policy and incentives to provide state of the art care for all Parkinson's patients.

Parkinson's disease, a progressive neurodegenerative disease, affects more than 2 million Americans and cannot be prevented or halted. DBS is often prescribed for PD patients when pharmacologic treatments are unable to control involuntary movements or decrease effectiveness over time. While DBS is effective, it requires extensive pre-operative testing, is contraindicated for PD patients who have evidence of cognitive impairment or dementia, and includes out-of-pocket costs that may not be covered by Medicare. DBS out-of-pocket costs average around \$2,200 (2007 dollars) per year—41 percent more than annual non-DBS costs —and would consume approximately 7 percent of the average income in the lowest socioeconomic quartile, potentially limiting the



willingness of low-income seniors to consider DBS.

"There are widespread disparities among Parkinson's patients that are restricting equal utilization of evidence-based care, limiting patients' quality of life, and increasing societal and health care costs," said lead study author Allison Willis, MD, Assistant Professor of Neurology and of Epidemiology at Penn Medicine. Dr. Willis collaborated on the study with colleagues from Washington University School of Medicine in St. Louis. "Efforts to overcome these disparities, through policy or reimbursement changes, can benefit elders and socioeconomically disadvantaged patients with Parkinson's disease, as well as other vulnerable groups," said Willis.

Analyzing more than 665,000 Medicare beneficiaries with a Parkinson's diagnosis between 2007 and 2009 - a decade after DBS was approved for Parkinson's disease patients - the team identified 8,420 patients treated with DBS (approximately 1 percent). Nearly 95 percent of DBS recipients were white, and 59 percent were male. Hispanic PD patients were nearly equally represented among DBS (2.2 percent of all cases) and non-DBS cases (1.7 percent), whereas black and Asian populations were significantly underrepresented among DBS cases. Black PD patients accounted for 1 percent of DBS cases, and 5.5 percent of non-DBS cases, while less than 1 percent of Asian PD patients received DBS, compared to 1.5 who did not. Women of all races accounted for 41 percent of DBS cases.

Patients with PD of all races who were treated by physicians with the highest concentrations of minority (Asian, Hispanic or black) patients had at least a 15 percent lower likelihood of receiving DBS, compared to providers caring for a small percentage of minority patients. While the data may not account for those who were offered DBS and refused or who were evaluated and did not qualify for DBS, the study suggests that minority-serving providers may be unlikely to perform or refer any of



their Medicare beneficiaries with PD for DBS.

In addition, early data suggest that socioeconomic challenges to patients with fixed incomes may also contribute to the treatment disparities. Further research is needed to compare DBS out-of-pocket costs with standard medical and surgical procedures for other conditions.

Penn researchers will continue to study clinical characteristics and progression of disease in minorities and women, to see if they may account for any of the DBS utilization differences. In addition, they hope to look further into physician and practice characteristics along with local medical resources to determine how care differences contribute to disparities in individual DBS use.

Provided by University of Pennsylvania School of Medicine

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