

Preoperative MRI may lead to better surgical outcomes for prostate cancer patients

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Imaging techniques are important tools in cancer diagnosis and treatment, but their use remains limited in prostate cancer patients. Systematic prostate biopsies are often used to locate cancerous tissue and guide treatment. While magnetic resonance imaging (MRI) can yield greater insight into tumor characteristics, the extent to which it improves treatment outcomes had not been explored on a national scale.

Using a population-based [cancer](#) registry linked to Medicare claims, researchers from Brigham and Women's Hospital and collaborators examined the association between preoperative MRI usage and surgical outcomes in 19,369 prostatectomy patients from 2004-2015. Their research, published in *The Journal of Urology*, demonstrates that MRI may significantly reduce postoperative complications, but that it remains under-utilized in many areas of the United States, with only 6.1 percent of Black patients receiving preoperative MRIs compared to 10.2 percent of white patients.

"Overdiagnosis, overtreatment and toxicity associated with treatment are big problems with [prostate](#) cancer, but MRI can help reduce unnecessary biopsies and improve [surgical outcomes](#)," said corresponding author Alexander Cole, MD, of the Brigham's Division of Urology. "While MRI is a tool that is changing the diagnosis and treatment of prostate cancer, our work shows that the chance of getting a preoperative prostate MRI varies significantly depending on where you happen to be living, what race you are, and on what year you were diagnosed."

In analyzing Medicare claims linked to the Surveillance, Epidemiology, and End Results (SEER) database, a cancer registry representative of the

United States population, the study authors found significant postoperative benefits for patients who received MRI. They identified a reduced likelihood that cancerous cells may remain in the patient after the operation (a "positive surgical margin") and reduced odds of blood transfusions at 30 and 90 days after the operation. Notably, the researchers found that preoperative MRI was associated with higher likelihood of further treatment, but they hypothesize that MRI may be associated with more resource-intensive cancer care overall.

While the proportion of prostatectomy patients receiving preoperative MRI increased over the study period nearly tenfold, from 2.9 percent to 28.2 percent, the use of MRI in different regional health care markets varied widely, ranging from 0 to 28.8 percent. Patients who received MRI were more likely to be white, married and living within the hospital region in which they were treated. Factors such as cost, health literacy and availability of imaging may affect whether a man with prostate cancer receives an MRI, according to Cole.

Going forward, study senior author Quoc-Dien Trinh, MD, FACS, of the Division of Urological Surgery and Center for Surgical and Public Health, and colleagues are piloting the Mass General Brigham PCOC, or Prostate Cancer Outreach Clinic, for underserved minority patients with support from the United Against Racism program. The team has partnered with stakeholders including community centers and advocacy organizations to connect underserved minority patients in Massachusetts with high quality cancer care. According to previous research by Cole and colleagues published in *Cancer*, Black men in Massachusetts with potentially lethal prostate cancers are 22 percent less likely than non-Hispanic white men to receive definitive treatment, an inequity that they believe could be reduced with greater MRI access.

"Work by our team has shown that early diagnosis and access to care really makes a difference for prostate cancer treatment," Cole said.

"Although the trend in MRI usage is moving upwards, MRIs are still only used in a minority of men who are diagnosed with prostate cancer. We are trying to connect with [community leaders](#) to bridge the gap between underserved communities and high-quality services. By attacking some of the variability in treatment highlighted by our study, we could potentially improve [prostate cancer](#) outcomes overall."

More information: Alexander P. Cole et al, Geographic Variability, Time Trends and Association of Preoperative Magnetic Resonance Imaging with Surgical Outcomes for Elderly United States Men with Prostate Cancer: A Surveillance, Epidemiology, and End Results-Medicare Analysis, *Journal of Urology* (2022). [DOI: 10.1097/JU.0000000000002736](#)

Alexander P. Cole et al, Racial differences in the treatment and outcomes for prostate cancer in Massachusetts, *Cancer* (2021). [DOI: 10.1002/cncr.33564](#)

Provided by Brigham and Women's Hospital

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