

Open in app ↗



Search Medium



★ Get unlimited access to all of Medium for less than \$1/week. [Become a member](#)



Precision Screening for Health Equity



Genomes2People

3 min read · Just now

Listen

Share

More

by Morgan Danowski and Jason Vassy



A new paradigm of precision prostate cancer screening could increase benefits and lower harms.

The most common cancer among men in the United States, besides skin cancer, is prostate cancer. Black men in the U.S. are 60% more likely to be diagnosed with prostate cancer than white men — and twice as likely to die from it. Even in a world with significant racial disparities in health, these statistics are particularly striking. The gap isn't easily explained by a single factor. The disparities — and prostate cancer risks in general — are likely due to both environmental and genetic factors.

We could reduce prostate cancer metastasis and death for all men by catching it earlier, but the lack of an optimal screening strategy to identify men at high risk is a major barrier. And it's not as easy to address as you might think.

Many guidelines do not recommend prostate cancer screening for the average man, because the potential risks of screening (unnecessary biopsies and treatment) may not outweigh the benefits. One important set of guidelines identifies family history and race as risk factors but does not specify different screening recommendations for these populations, while another set of guidelines nudges toward screening higher-risk patients starting at age 40.

A new paradigm of precision screening could be the answer. Tailoring screening strategies to an individual's genetic profile can save lives while reducing harm and clearing up confusion about whether or not to screen. It could also replace the problematic use of race — a social construct with no actual biological meaning — as a means of assessing patient risk.

Polygenic risk scores (PRS) are an important element of this strategy. These combine many genetic markers, from dozens to millions, to categorize men as either low- or high-risk for prostate cancer. A high PRS can be considered its own risk factor, independent from traditional risk factors such as family history and race. But if physicians have been using race as a primary indicator of prostate cancer risk for years, will they be receptive to PRS as a new risk assessment?

We decided to investigate this question. We used clinical vignettes to survey a national sample of 369 primary care physicians (PCPs) on their perceived utility of a PRS to inform prostate cancer screening recommendations. Compared against patients with no PRS results, PCPs were significantly less likely to recommend screening to patients with low-risk PRS results and more likely to recommend it to those with high-risk PRS results. These hypothetical results suggest PCPs' willingness to consider PRS results in screening recommendations. However, PCPs were still almost twice as likely to recommend screening to a Black patient compared with an otherwise identical white patient, regardless of PRS results. There are many important questions remaining to disentangle how physicians and patients will use the social construct of race and the biological construct of genetic make-up in decision-making. It is critical to get these questions right, given the profound health disparities.

Now we're planning to enroll a diverse group of men to participate in a pragmatic randomized clinical trial comparing this type of DNA-based precision screening for prostate cancer risk to the current standard of care. The performance of PRS in diverse ancestry groups is improving, but concern remains that underrepresented populations will distrust the use of genetic screening in healthcare decision-making. This project will tackle these challenges directly by recruiting a racially diverse cohort of screen-eligible men to receive a state-of-the-science PRS while transparently framing the limitations of the results. The trial's pragmatic design will allow participants to make individual decisions about screening, which might differ from the recommendations provided in the intervention.

Addressing stark, deeply-rooted racial disparities in healthcare has to be a priority for medical research. PRS might be one tool to improve disease screening and move us beyond race-based medical decision-making and toward more equitable health outcomes.

Morgan Danowski is a genetic counselor with the [Genomes2Veterans Research Program](#) returning actionable genetic testing results to veterans nationwide.

Jason Vassy directs the [Genomes2Veterans Research Program](#) and is an Associate Professor of Medicine at Harvard Medical School. He practices primary care at the [VA Boston Healthcare System](#).

[Prostate Cancer](#)[Cancer Screening](#)[Genetics](#)[Precision Medicine](#)[Racial Equity](#)[Edit profile](#)

Written by Genomes2People