Real-World BReast CAncer gene 1 (BRCA1) and BReast CAncer gene 2 (BRCA2) Testing Trends by Race for Patients with Metastatic Prostate Cancer (mPC) from 2015 to 2024 in the Community Oncology Setting in the United States (US)

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Background

- Studies show that patients with prostate cancer (PC) who have BRCA1/2 mutations have higher risk of progression and poorer overall survival than those without documented mutations.[1]
- Targeted therapies like poly-ADP ribose polymerase inhibitors (PARPis) have demonstrated improved survival compared to standard of care therapies for patients with these gene mutations, leading to recent updates to practice guidelines for homologous recombination repair testing, including testing for BRCA 1/2 alterations.[2]
- Despite higher rates of PC in Black/African American men compared to other races, research suggests potential disparities in testing rates due to barriers in access.[3]
- To better understand this potential gap, the goal of this analysis was to evaluate real-world BCRA1/2 testing rates by race among patients with metastatic prostate cancer (mPC) within a large network of US community practices over the past decade.

Objective: To examine real-world BRCA1/2 testing rates for adult men with mPC from 2015 to 2024, stratified by race.

Methods

- **Study Design**: retrospective observational cohort study
- **Data Source**: iKnowMed™, an oncology-specific electronic health record (EHR) system that captures outpatient practice encounter histories for patients seen in The US Oncology Network and selected non-Network practices
- **Study Population**: adult patients diagnosed with mPC (de novo or those that progressed to metastatic) between January 01, 2015 - December 31, 2024
- **Statistical Methods**:
- Patient demographic and clinical characteristics were described at baseline (last value any time prior to or on index).
- Tumor somatic next-generation sequencing (NGS) testing for BRCA 1/2 was assessed within 30 days of metastatic diagnosis (index date) overall and by race to evaluate differences in testing rates for White vs Black/African American patients.

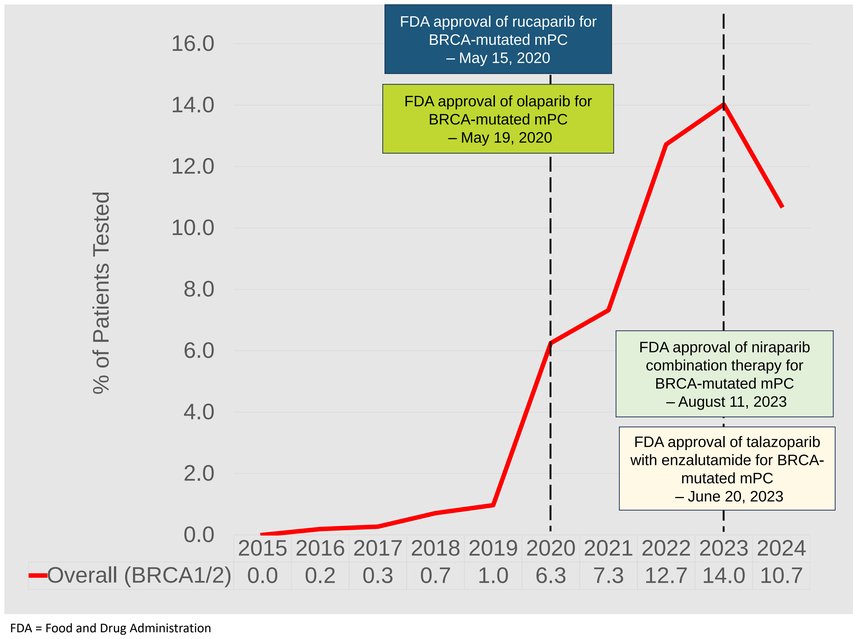
Table 1. Baseline Characteristics

Characteristic	Overall N=23,553	White N=18,967	Black/African American N=3,059
Median (interquartile range) Age in Years at Metastatic Diagnosis	73 (66, 80)	74 (67, 81)	69 (63, 76)
Documented Race*, n (%)			
White	18,967 (80.5.%)	18,967 (100.0%)	-
Black/African American	3,509 (13.0%)	-	3,509 (100.0%)
Other**	1,527 (6.5%)	-	-
De novo status, n (%)			
De novo	17,432 (74.0%)	13,961 (73.6%)	2,284 (74.7%)
Progressed	2,311 (10.0%)	1,982 (10.5%)	238 (7.8%)
Unknown	3,810 (16.2%)	3,024 (15.9%)	537 (17.6%)
Documented Stage at Diagnosis, n (%)			
I	193 (1.0%)	167 (1.1%)	20 (0.8%)
II	1146 (5.8%)	991 (6.2%)	121 (4.8%)
III	972 (4.9%)	824 (5.2%)	97 (3.9%)
IV	17,432 (88.3%)	13,961 (87.6%)	2,284 (90.6%)

*A small number of patients had undocumented race (n = 450).
**'Other' included patients with the following reported racial categories: American Indian or Alaska Native', 'Native Hawaiian or Other Pacific Islander', and 'Asian'.

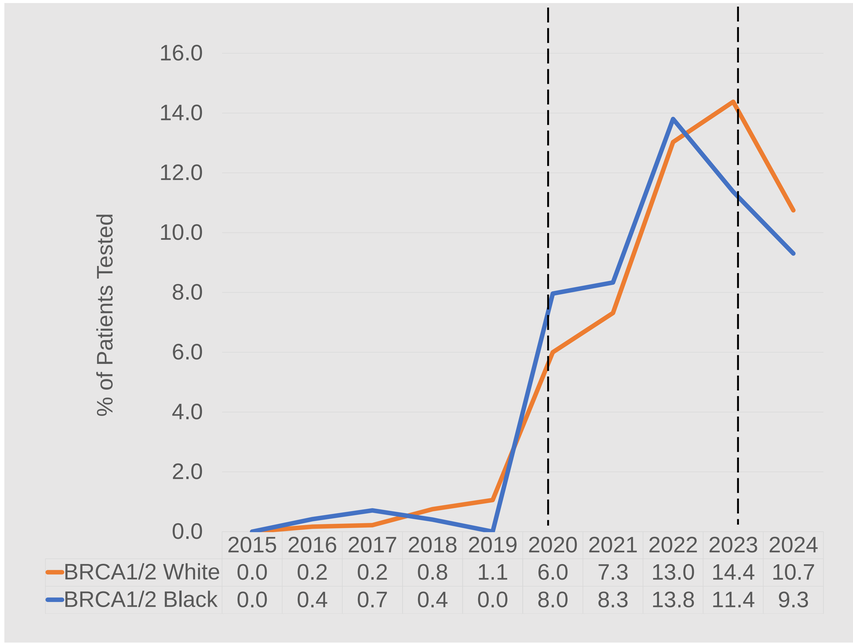
Results

Figure 1. Overall BRCA1/2 Testing Rates Annually



FDA = Food and Drug Administration

Figure 2. Annual BRCA1/2 Testing Rates by Race



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Key Findings

- Baseline demographic and clinical characteristics were similar for White and Black/African American patients, although Black/African American patients were diagnosed at a slightly younger age and higher proportion of stage-IV disease (90.6%) than White patients (87.6%).
- Annual testing rates for BCRA1/2 rates were low (0% to 1%) prior to 2020 but steadily increased in the years that followed.
- The year with the highest overall BRCA1/2 rate observed was in 2023, with 14.0% of all metastatic prostate cancer patients tested.
- From 2020 to 2022 BRCA1/2 testing rates were similar among Black/African American (8.0% to 13.8%) patients and White patients (6.0% to 13.0%). The first two PARPis (rucaparib and olaparib) were approved for BRCA-mutated castration-resistant mPC in May 2020, which likely contributed to this spike in testing rates.
- In 2023 and 2024, there were also similar albeit slightly higher BRCA1/2 testing rates among White patients (14.4% and 10.7%) than Black/African American patients (11.4% and 9.3%). Two additional PARPi-based therapies (niraparib and talazoparib-based regimens) were approved in June and August of 2023, which may explain the highest observed test rates that year.

Limitations

- This study utilized only structured data from an oncology-specific EHR system that captures outpatient encounters for patients receiving treatment within The US Oncology Network practices.
- Information on biomarker testing included in physician notes within the patient's EHR was not considered. Additionally, tests were only assessed within 30 days of the patient's metastatic diagnosis. Biomarker testing may also be recorded outside of this window in clinical practice.
- The study population included all patients with metastatic prostate cancer within the study period. Biomarker testing may not have been recommended for certain patients who were ineligible for various factors (including those untreated patients).

Conclusion

- BRCA1/2 testing rates have substantially increased in the community setting in the last 5 years due to the improvements in targeted therapy, including the approval of PARPi-based therapies in 2020 and 2023. This analysis only included structured data and testing rates within 30 days of metastatic diagnosis, which may under-represent actual testing rates.
- Although other real-world analyses have observed marked racial disparities exist for prostate cancer, this analysis indicated similar rates across racial stratifications. Additional research is needed to directly address and describe potential disparities.

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