Racial/Ethnic Inequities in Access to Novel Therapies and Outcomes in Triple Negative Breast Cancer

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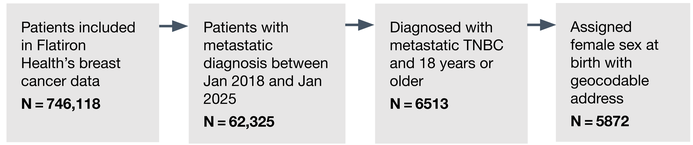
Introduction

- Triple-negative breast cancer (TNBC) is the most aggressive breast cancer subtype, and Black women face the highest incidence and poorest survival
- Novel therapies, including immunotherapy (IO), antibody-drug conjugates (ADCs), and poly (ADP-ribose) polymerase inhibitors (PARPis), have improved outcomes but there is limited evidence on whether there are inequities in access and treatment-related outcomes
- **Study Objective**: This study examined racial/ethnic inequities in biomarker testing, access to IOs, PARPis, and ADCs and real-world overall survival (rwOS), among patients with metastatic TNBC (mTNBC). We also assessed the potential contributions of individual-, practice-, and area-level social determinants of health (SDOH), to any observed inequities

Methods and Materials

- **Data Source:** The study used the Flatiron Health Research Database[1], a US-based, electronic health record (EHR)-derived, deidentified database
- **Inclusion Criteria:** Patients diagnosed with mTNBC between January 1, 2018, and January 31, 2025
- **Follow-up:** Patients were followed until outcome of interest, end of the patient's record, death, or the date of data cutoff March 31, 2025
- **Key Variables:**
  - ***Outcomes***: Biomarker testing (PD-L1 or *BRCA1*/*BRCA2*), use of IO, PARPi or ADC, and rwOS among patients on IO, PARPi, or ADC
  - ***Primary predictor***: EHR-documented race and ethnicity were categorized into mutually exclusive groups: Non-Latinx (NL)-Asian, NL-Black, Latinx, NL-White, and Other/Not documented (the Other category included all other racial groups due to small sample sizes)
  - ***SDOH factors***: Practice setting (community/academic), geography (rural/urban), residence in a medically underserved area, and area-level factors from the American Community Survey—including vehicle ownership, English proficiency, and residential segregation
- **Statistical Methods:** Fine and Grey models accounting for competing risks were used to estimate subdistribution hazard ratios (HRs) and 95% CI for biomarker access, receipt of IO, PARPi, or ADC, and survival. We ran models sequentially adjusting for clinical factors (e.g., age, year of diagnosis, stage) followed by area-level SDOH as relevant

Figure 1. Cohort Selection



Flow diagram of cohort selection showing inclusion and exclusion criteria for patients included in the analytic cohort

Results

- **Participants:** The cohort included 5872 patients (52.5% White, 17.9% Black, 7.0% Latinx, and 20.6% Other/Unknown) (**Table 1**)
- Overall, testing rates were 39.2% for PD-L1 and 25.2% for *BRCA1*/*BRCA2*

Table 1. Demographic Characteristics of Patients Included in the Study

Characteristics	Overall, No. (%) (N = 5872)
Age	
18-49	1071 (23.5)
50-64	2021 (44.3)
65+	1473 (32.3)
Race/ethnicity	
NL-Asian	118 (2.0)
N-Black or African American	1051 (17.9)
Latinx	410 (7.0)
NL-White	3081 (52.5)
NL-Other/Unknown race	1212 (20.6)
ECOG	
0	2007 (34.2)
1	1568 (26.7)
2+	629 (10.7)
Practice type	
Academic	871 (14.8)
Community	4670 (79.5)
Both	331 (5.6)

ECOG: Eastern Cooperative Oncology Group

Biomarker Testing and Positivity Rates by Race/Ethnicity

- There were no significant racial/ethnic differences in PD-L1 or *BRCA1*/*BRCA2* testing, and biomarker positivity rates were similar across racial/ethnic groups (**Figures 1-3**)

Figure 1. Biomarker Testing Rates by Race/Ethnicity

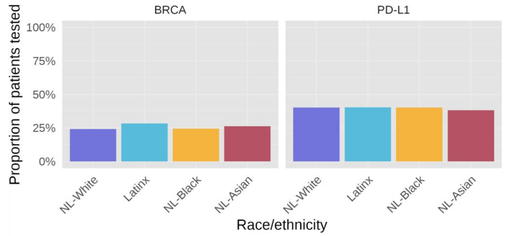
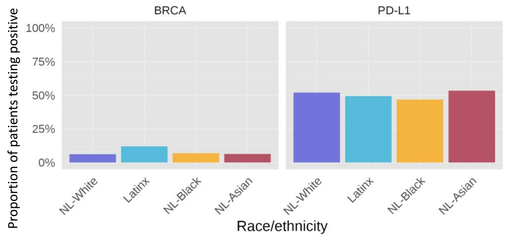


Figure 2. Biomarker Positivity Rates by Race/Ethnicity



Access to IOs, ADCs, and PARPi Treatment and Survival by Race/Ethnicity

- Black patients were less likely than their White counterparts to receive PARPi (adjusted HR: 0.64; 95% CI: 0.43-0.96), an inequity partially mediated by SDOH factors (mediated HR: 0.72; 95% CI: 0.30-1.73) (**Figure 4**). There were otherwise no racial/ethnic differences in treatment receipt (**Figure 5**)
- Among patients treated with IOs, ADCs, or PARPi, Black patients had worse survival than White patients (HR: 1.17; 95% CI: 1.00-1.37), whereas Latinx patients had better survival (HR: 0.73; 95% CI: 0.57-0.95) (**Figure 6**). SDOH did not explain inequities in survival

Figure 3. Likelihood of Germline *BRCA* and/or PD-L1 Testing by Race/Ethnicity

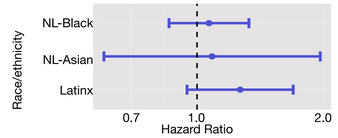


Figure 4. Likelihood of Receipt of PARPi by Race/Ethnicity

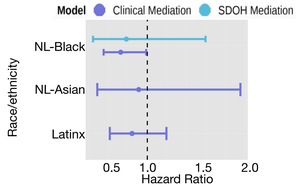
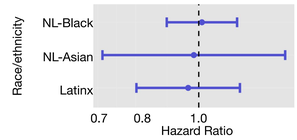
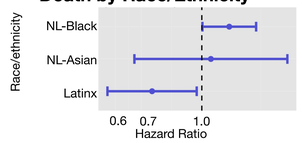


Figure 5. Likelihood of Receipt of Any IO, ADC, or PARPi by Race/Ethnicity



Note: The reference group for Figures 3-6 is NL-White

Figure 6. Relative Hazard of Death by Race/Ethnicity[1]



[1]Among patients who received targeted treatment

Despite **equitable rates** of biomarker testing, racial/ethnic **inequities** exist in **access to PARPis** and **survival** among patients with TNBC

Discussion

- Black patients were less likely to receive PARPis and had worse OS, with SDOH partially mediating some of these inequities. Meanwhile Latinx patients had better survival compared to White patients
- These findings underscore the need for targeted efforts to address structural barriers to care and promote equitable access to emerging therapies and outcomes in TNBC care

References

1. Flatiron Health. Database Characterization Guide. Flatiron.com. Published March 18, 2025. Accessed October 29, 2025. https://flatiron.com/database-characterization

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