RWD17

Evolving Real-world Trends in Biomarker Testing for Bladder Cancer: A Comprehensive Retrospective Analysis from the US Community Oncology Setting (2015-2024)

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Background

- Understanding the molecular pathogenesis of bladder cancer has paved the way for identifying new therapeutic targets and resulted in the development of targeted treatments for certain alterations/mutations such as:
  - Atezolizumab for PD-L1 (approved 2016)
  - Trastuzumab deruxtecan for HER2 (approved 2024)
  - Erdafitinib for FGFR2/3 (approved 2019).
- Molecular profiling is recommended for all patients with advanced bladder cancer and assists in selecting appropriate therapies.
- However, barriers to biomarker testing such access, cost, and variable testing protocols may persist, particularly in diverse community settings.

Objective

To examine real-world trends in biomarker testing for bladder cancer within a large nationally representative network of US community oncology practices over the past decade

Methodology

- **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**: all adult patients diagnosed with metastatic bladder cancer January 01, 2015 - December 31, 2024
- **Statistical Methods**:
  - Patient demographic and clinical characteristics were described at baseline.
  - Patients were divided into two cohorts: those diagnosed as de novo metastatic and those who progressed to metastasis following prior non-metastatic diagnosis
  - Testing for FGFR2/3, HER2, and PDL-1 was assessed within 30 days of metastatic diagnosis.

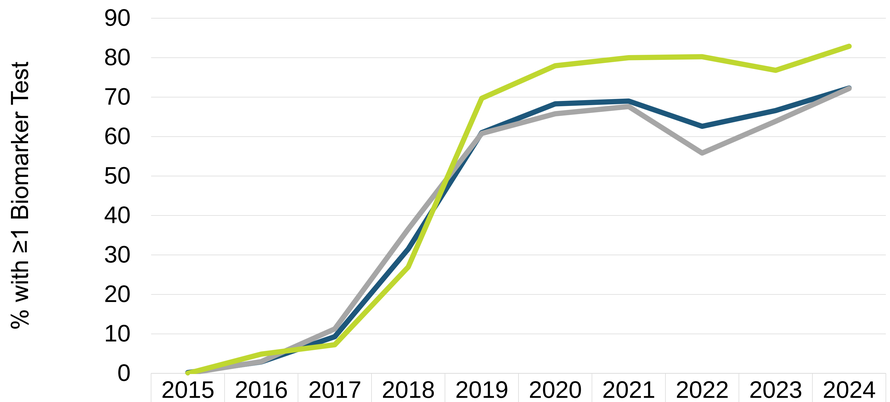
Results

Table 1. Patient Characteristics

Characteristic	Overall N=5,797	De Novo Metastatic N=3,550	Progressed to Metastatic N=1,525
Median (interquartile range) Age in Years at Metastatic Diagnosis	73 (65, 80)	73 (65, 80)	73 (65, 80)
Sex, n (%)			
Male	4,334 (74.8%)	2,639 (74.3%)	1,156 (75.8%)
Female	1,463 (25.2%)	911 (25.7%)	369 (24.2%)
Race, n (%)			
White	4,330 (74.7%)	2,621 (73.8%)	1,182 (77.5%)
Black/African American	285 (4.9%)	177 (5.0%)	69 (4.5%)
Other	200 (3.5%)	133 (3.7%)	48 (3.1%)
Unknown	982 (16.9%)	619 (27.4%)	226 (14.8%)
Stage at Diagnosis, n (%)			
I	138 (2.4%)	0	138 (9.0%)
II	786 (13.6%)	0	786 (51.5%)
III	601 (10.4%)	0	601 (39.4%)
IV	3,550 (61.2%)	3,550 (100.0%)	0
Unknown	722 (12.5%)	0	0

Note: Cohort analysis excludes 722 patients whose initial stage was undocumented.

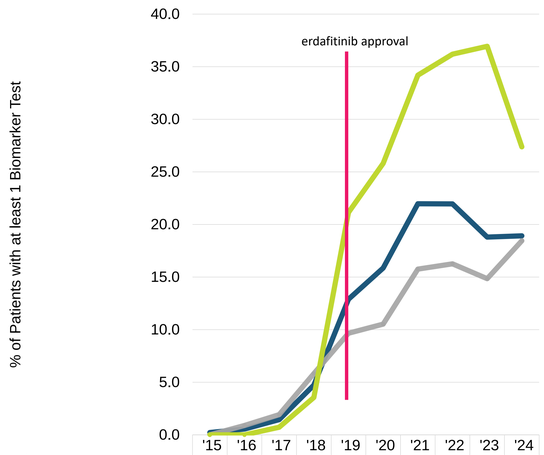
Figure 1. Rates Over Time – Any FGFR2/3, HER2 or PD-L1 Test



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Overall	0.2	2.9	9.3	31.5	61	68.3	69	62.6	66.6	72.3
De Novo	0.0	3.0	11.3	36.6	60.8	65.8	67.6	55.8	63.9	72.2
Progressed	0.0	4.9	7.3	27.0	69.7	78.0	80.0	80.3	76.8	82.9

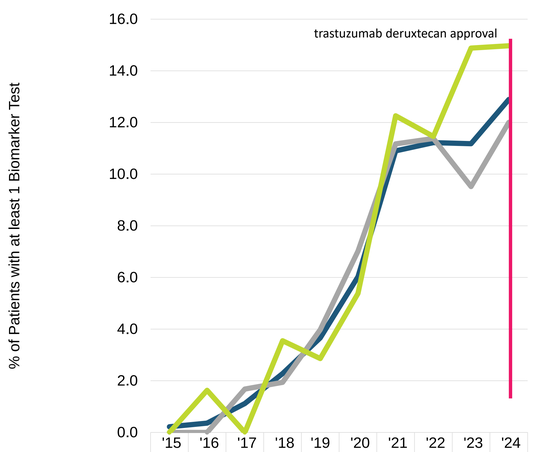
Figure 2. Biomarker Testing Rates Over Time by Biomarker

Figure 2a. FGFR2/FGFR3



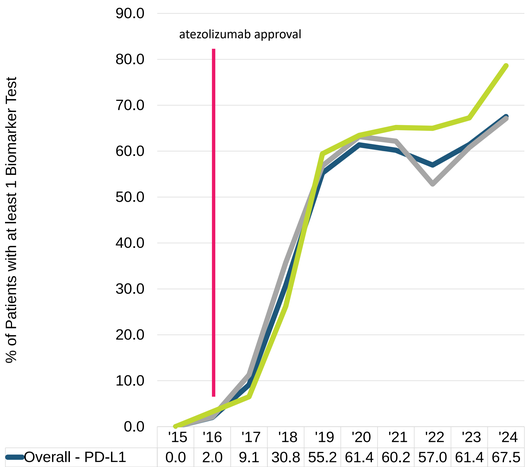
	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24
Overall - FGFR2/3	0.2	0.6	1.4	4.7	12.9	15.9	22.0	22.0	18.8	18.9
De Novo - FGFR2/3	0.0	0.9	1.9	5.8	9.7	10.5	15.8	16.3	14.9	18.5
Progressed- FGFR2/3	0.0	0.0	0.7	3.6	21.1	25.8	34.2	36.2	36.9	27.4

Figure 2b. HER2



	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24
Overall - HER2	0.2	0.4	1.1	2.3	3.7	6.0	10.9	11.2	11.2	12.9
De Novo - HER2	0.0	0.0	1.7	1.9	4.0	7.0	11.2	11.4	9.5	12.0
Progresed - HER2	0.0	1.6	0.0	3.6	2.9	5.4	12.3	11.5	14.9	15.0

Figure 2c. PD-L1



	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24
Overall - PD-L1	0.0	2.0	9.1	30.8	55.2	61.4	60.2	57.0	61.4	67.5
De Novo - PD-L1	0.0	2.1	11.3	35.7	56.8	63.2	62.2	52.9	60.8	67.1
Progressed - PD-L1	0.0	3.3	6.5	26.2	59.4	63.4	65.2	65.0	67.3	78.6

Conclusions and Limitations

Key Take-Aways

- Biomarker testing has significantly increased over the past decade. This pattern also holds for patients diagnosed with de novo metastatic disease as well as those diagnosed with earlier disease who subsequently develop metastasis, with no significant differences in testing rates between these groups.
- Annual trends also indicate that testing may be influenced by the timing of regulatory approval for targeted companion therapies, the setting for these treatments, and subsequently evolving practice guidelines.
- This study highlights an encouraging trend towards more testing, which is promising as new bladder cancer treatments emerge.

Limitations

- Reliance on structured data, as opposed to including information from progress notes, as well as restricting the observation period to testing within 30 days may underrepresent true testing rates.
- Biomarker testing is only recommended for patients at certain points in their treatment journey; the denominator population in this study may include patients (including untreated patients) who were never candidates for testing based on guidelines at index.