Treatment Trends in Early-Stage Breast Cancer: A Population-Based Study of Medicare Fee-For-Service in Texas

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BACKGROUND

- Chemotherapy delays have been associated with worse survival in older patients with breast cancer.
- The aims of this project were to assess chemotherapy patterns of care and their association with Area Deprivation Index in older patients with early-stage breast cancer in Texas using Medicare Fee-For-Service claims data

METHODS

- Using Medicare Fee-For-Service parts A, B, and D claims data, we identified individuals in Texas who underwent mastectomy or lumpectomy from 2017 through 2020, had a breast cancer diagnosis code, and had 1 year of continuous enrollment before and after surgery, excluding those with metastatic disease.
- Using Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), and National Drug Code (NDC) codes, we developed an algorithm to identify breast cancer subtype according to treatment received.
- 1,857 patients treated with chemotherapy were identified, and treatment delay was defined as ≥ 60 days to chemotherapy start from either cancer diagnosis (if received neoadjuvant chemotherapy) or surgery (if received adjuvant chemotherapy).
- Multiple logistic regressions were performed to predict the odds of experiencing a delay in chemotherapy initiation.
- Patients were stratified by Area Deprivation Index (ADI) to understand the relationship between socioeconomic factors and treatment delays.

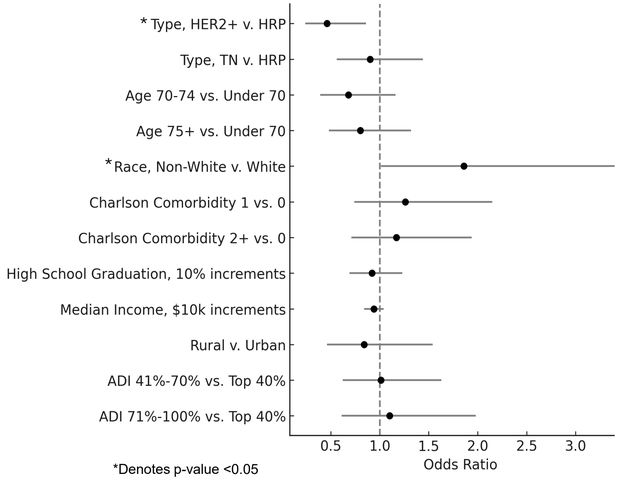
RESULTS

Table 1. Patients with early-stage breast cancer treated with chemotherapy from 2017-2020 in Medicare Fee-For-Service in Texas stratified by Area Deprivation Index (ADI)*

	ADI							
	Top 40%		41% - 70%		71% - 100%		All	
All, N (%)	922	(%)	582	(%)	289	(%)	1,857	(%)
Patient Characteristics								
Age, N (%)								
Under 70	324	(35.1)	194	(33.3)	95	(32.9)	637	(34.3)
70-74	325	(35.3)	191	(32.8)	92	(31.8)	629	(33.9)
75+	273	(29.6)	197	(33.9)	102	(35.3)	591	(31.8)
Median Age	71	--	72	--	72	--	71	--
White, N (%)	848	(92.0)	523	(89.9)	254	(87.9)	1,685	(90.7)
Charlson Comorbidity Score, N (%)								
0	481	(52.2)	266	(45.7)	113	(39.1)	893	(48.1)
1	216	(23.4)	128	(22.0)	88	(30.5)	447	(24.1)
2+	225	(24.4)	188	(32.3)	88	(34.5)	517	(27.8)
Cancer Type								
HER2+	201	(21.8)	133	(22.9)	66	(22.8)	423	(22.8)
HR+	450	(48.8)	269	(46.2)	127	(43.9)	868	(46.7)
TNBC	271	(29.4)	180	(30.9)	96	(33.2)	566	(30.5)
Chemotherapy, N (%)								
Neoadjuvant	385	(41.8)	244	(41.9)	121	(41.9)	778	(41.9)
Delay 60+ days	50	(13.0)	34	(13.9)	18	(14.9)	109	(14.0)
Delay 90+ days	37	(9.6)	26	(10.7)	14	(11.6)	80	(10.3)
Adjuvant	537	(58.2)	338	(58.1)	168	(58.1)	1,079	(58.1)
Delay 60+ days	190	(35.4)	117	(34.6)	51	(30.4)	369	(34.2)
Delay 90+ days	96	(17.9)	52	(15.4)	26	(15.5)	179	(16.6)
ZIP or County Characteristics								
Rural County°, N (%)	56	(6.10	109	(18.7)	145	(50.2)	326	(17.6)
% High School Graduates†, Median	93.8	--	86.9	--	80.2	--	9.03	--
Median Income $1k†, Median	90.5	--	57.8	--	45.3	--	68.5	--
Surgery Type¥, N (%)								
Lumpectomy	489	(53.0)	301	(51.7)	136	(47.1)	960	(51.7)
Mastectomy	258	(28.0)	218	(37.5)	115	(39.8)	616	(33.2)
Mastectomy + Reconstruction	173	(18.8)	61	(10.5)	38	(13.2)	277	(14.9)

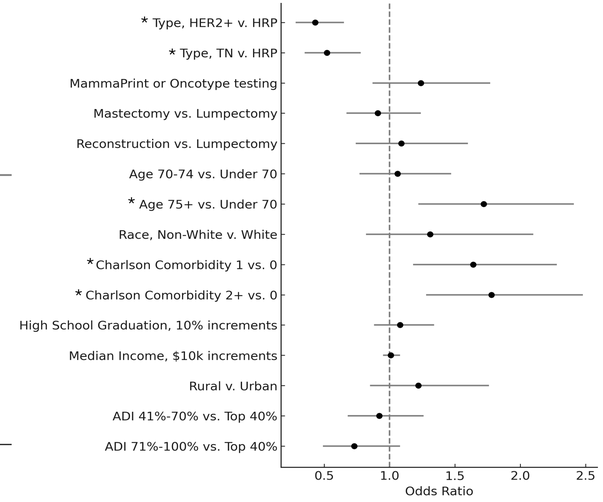
* 71-100% ADI indicates the highest levels of socioeconomic deprivation
° Indicates County-level non-medical drivers of health data
† Indicates ZIP Code-level information
¥ Mastectomy = Mastectomy only, Reconstruction = Mastectomy + Reconstruction

Figure 1. Odds of receiving delayed (≥ 60 days) neoadjuvant chemotherapy (N=778)



*Denotes p-value <0.05

Figure 2. Odds of receiving delayed (≥ 60 days) adjuvant chemotherapy (N=1,079)



MAIN FINDINGS

- Patients with breast cancer from high area deprivation index (ADI) neighborhoods tended to be older, from racial and/or ethnic minority groups, have more medical comorbidities, have more triple negative histology, and receive lumpectomy less often.
- ADI was not significantly associated with odds of experiencing a chemotherapy delay.
- Patients with HER2+ breast cancer were less likely (OR 0.58, 95% CI 0.24-0.86) to experience a delay in neoadjuvant chemotherapy initiation than those with HR+ breast cancer. Non-White women were more likely to experience such a delay (OR 1.86, 95% CI 1.01-3.41).
- Patients with HER2+ breast cancer (OR 0.43, 95% CI 0.28-0.65) and TNBC (OR 0.52, 95% CI 0.35-0.78) were less likely than those HR+ disease to receive delayed adjuvant chemotherapy. Patients over the age of 75, and those with more medical comorbidities were also more likely to experience delayed adjuvant chemotherapy.