

Receipt of Breast Cancer Treatment Among White and Black Medicare Beneficiaries

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Background

- White women have a higher incidence of breast cancer, but black women experience poorer survival and higher mortality.
- Studies have shown that black women are less likely to receive treatment than white women which may explain these mortality disparities.
- Alabama is a state where many residents, especially minorities and the elderly, face challenges in accessing health care.
- Treatment disparities among women diagnosed with breast cancer in Alabama may exist.

Objective

- Determine whether racial disparities in treatment initiation and completion exist among white and black female Medicare beneficiaries in Alabama.

Methods

Linked Data Sources

- Alabama Statewide Cancer Registry
 - Tumor characteristics, vital status, and other factors for individuals diagnosed with breast cancer
- Center for Medicare and Medicaid Services
 - Medicare claims for inpatient, outpatient, and physician encounters for individuals ≥ 65

Study Population

- White and black female Alabama residents, aged 66 years and older
- Diagnosed with stages I-III breast cancer (ICD-O-3 codes C601-C609) from January 1, 2000 to December 31, 2002
- Enrolled in Medicare Parts A and B

Treatment Definitions

- Mastectomy, lumpectomy, chemotherapy, and radiation performed up to 1 year after the diagnosis date.
- Standard adjuvant chemotherapy with chemotherapy agents/combinations listed in National Comprehensive Cancer Network Clinical (NCCN) Practice Guidelines included:
 - Doxorubicin (A) and Cyclophosphamide (C)
 - C, Methotrexate (M) and Fluorouracil (F)
 - AC plus Paclitaxel (P)
 - Epirubicin (E) and C
 - Docetaxel (T), A and C
 - FAC, CAF, ECMF, ACMF, ATC and FEC
- Treatment duration was the time from the first to the last claim for that treatment.
 - Radiation Therapy Complete
 - ≥ 35 days
 - Chemotherapy Complete
 - ≥ 6 months, depending on the specific drug regimen

Statistical Analysis

- Chi-square statistics were used to compare the sociodemographic and clinical characteristics by race/ethnicity.
- Generalized Estimating Equation (GEE) models were used to determine whether there were significant differences in having initiated or completed treatment between whites and blacks after adjusting for confounders.
 - Accounted for the clustering of patients within reporting hospitals

Results

- Women diagnosed with breast cancer**
 - White and black women were equally likely to receive mastectomy (Figure 1, $p = 0.27$).
 - Also, they were equally likely to receive breast conserving surgery (Figure 1, $p = 0.12$).
- Among women who had a lumpectomy**
 - There were no racial differences in receipt of adjuvant radiation therapy (Figure 2, $p = 0.33$).
 - There were no racial differences in the completing adjuvant radiation therapy (Figure 2, $p = 0.29$).
- Among women with tumors over 1 centimeter**
 - Whites and blacks were equally likely to start adjuvant chemotherapy (Figure 3, $p = 0.34$).
 - They were also equally likely to complete adjuvant chemotherapy (Figure 3, $p = 0.87$).
- No racial disparities in treatment were observed for any of these groups after adjusting for differences in sociodemographic and clinical characteristics (Table 2).

Conclusions

- In Alabama, there were no disparities in breast cancer treatment initiation or completion among older black and white women enrolled in Medicare.
- These findings are in contrast to studies of Medicare enrollees residing in Surveillance, Epidemiology and End Results (SEER) areas which found that black women are less likely than white women to receive breast cancer therapy.
- Use of breast conserving therapy is similar to that of women in other SEER areas.
- The small proportion of Alabamian women receiving adjuvant chemotherapy suggests that some of both older black and white women may be receiving lower quality of care compared to their counterparts residing in SEER areas.
- Future studies should examine whether similar results hold in other poor non-SEER US states, determine if other disparities still exist, and address the reasons for low adjuvant chemotherapy rates.

Table 1: Characteristics of Alabama Medicare beneficiaries diagnosed in 2000-2002 with stage I-III breast cancer (n=2,251)

	White (n=1980)		Black (n=271)		P
	N	%	N	%	
Age at Diagnosis					
65-74	1101	55.6	135	49.8	0.07
75 +	879	44.4	136	50.2	
Stage at Diagnosis					
Stage I	1158	58.5	111	41.0	<0.0001
Stage II - III	822	41.5	160	59.0	
Tumor size (cm)					
<1.0	385	19.4	37	13.6	<0.0001
1-1.9	774	39.1	81	29.9	
2-2.9	384	19.4	55	20.3	
3 or more	437	16.8	85	31.4	
Missing	104	5.2	13	4.8	
ER +	970	49.0	118	43.5	0.09
ER missing	791	39.9	108	39.8	0.98
Comorbidity Index					
0	1505	76.0	189	69.7	
≥ 1	475	24.0	82	30.3	0.02
Socioeconomic status:					
Census tract characteristics					
$\geq 30\%$ of residents are Black	382	19.3	201	74.2	<0.0001
<30% of residents are Black	1598	80.7	70	25.8	
$\geq 40\%$ of residents with < high school	829	41.9	142	52.4	0.001
<40% of residents with < high school	1151	58.1	129	47.6	
$\geq 20\%$ of residents below poverty	310	15.7	162	59.8	<0.0001
<20% of residents below poverty	1670	84.3	109	40.2	
Urban	611	31.0	128	48.1	<0.0001
Rural	1357	68.9	138	51.9	

Abbreviations: ER+, estrogen receptor positive

Table 2: Adjusted odds of receiving treatment for black versus white Medicare beneficiaries diagnosed with breast cancer, 2000-2002

	Black versus White	
	Odds Ratio*	95% CI
Lumpectomy	1.03	0.63-1.68
Mastectomy	0.88	0.57-1.36
Radiation after lumpectomy initiated	0.99	0.51-1.93
Radiation after lumpectomy completed	1.25	0.71-2.23
Adjuvant chemotherapy initiated [^]	1.09	0.66-1.79
Adjuvant chemotherapy completed [^]	0.61	0.26-1.37

Abbreviations: *95% CI, 95% Confidence Interval

^{*}Odds ratio adjusted for age, stage at diagnosis, Charlson comorbidity index, demographics and socioeconomic variables at the census tract level (percent African American, percent living below the poverty line, and percent with high school education or less) and rural-urban residence based on the Census tract of residence at diagnosis.

[^]Odds of receiving chemotherapy also adjusted for the presence of positive or negative lymph nodes; odds of completing chemotherapy were adjusted for whether the chemotherapy regimen was a Doxorubicin-based regimen.

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Figure 1. Receipt of lumpectomy and mastectomy among Medicare beneficiaries with breast cancer

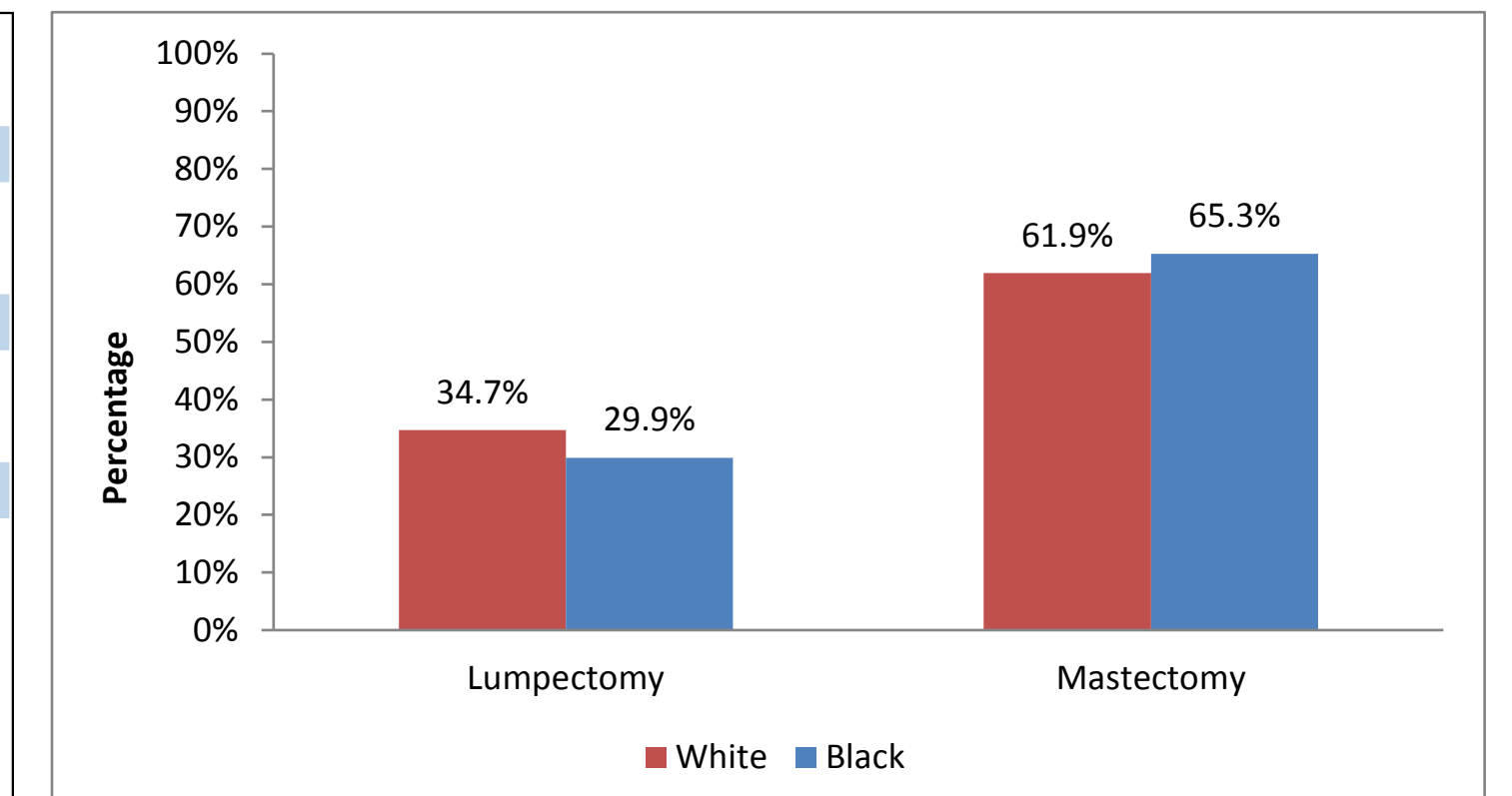
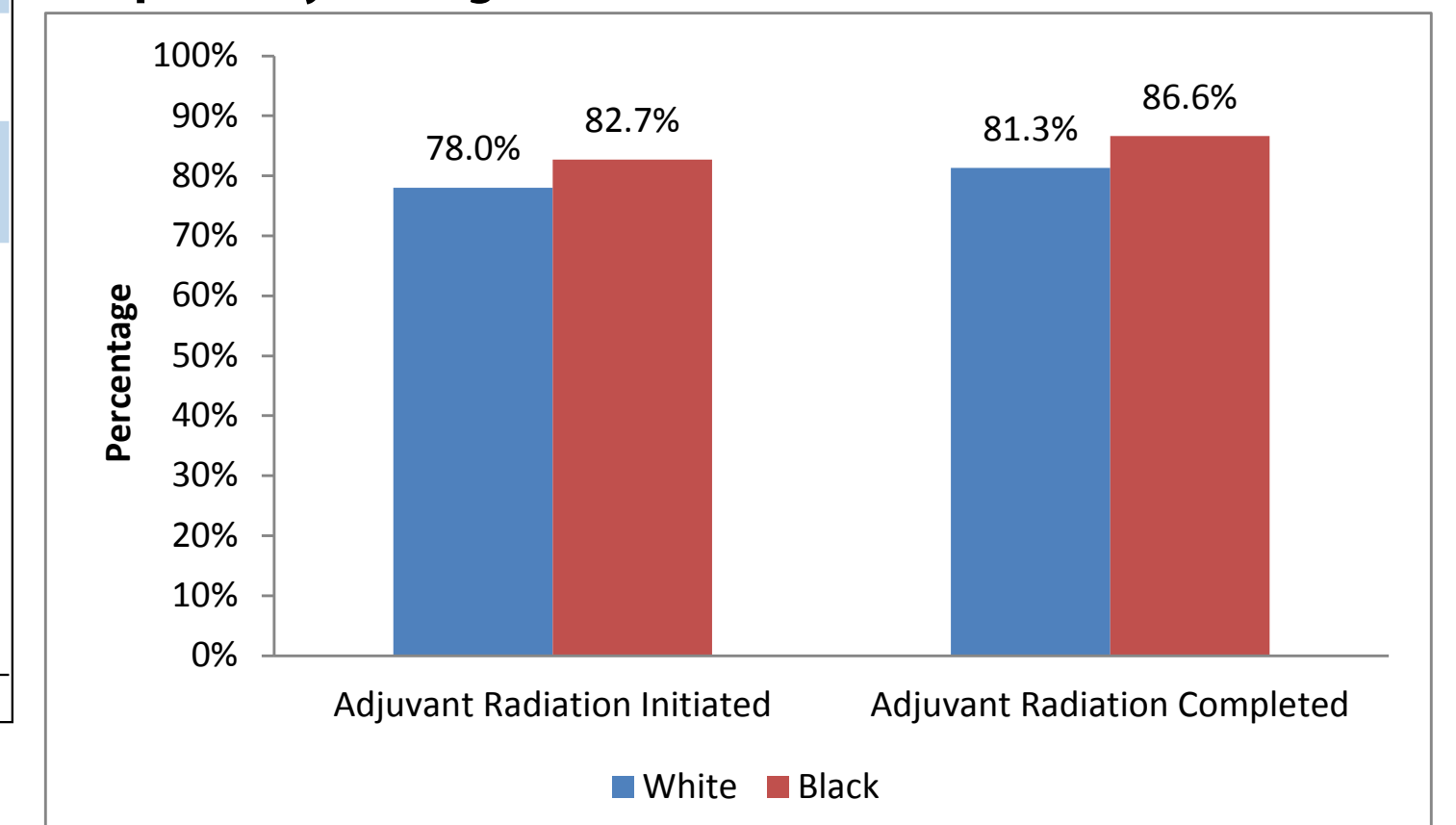
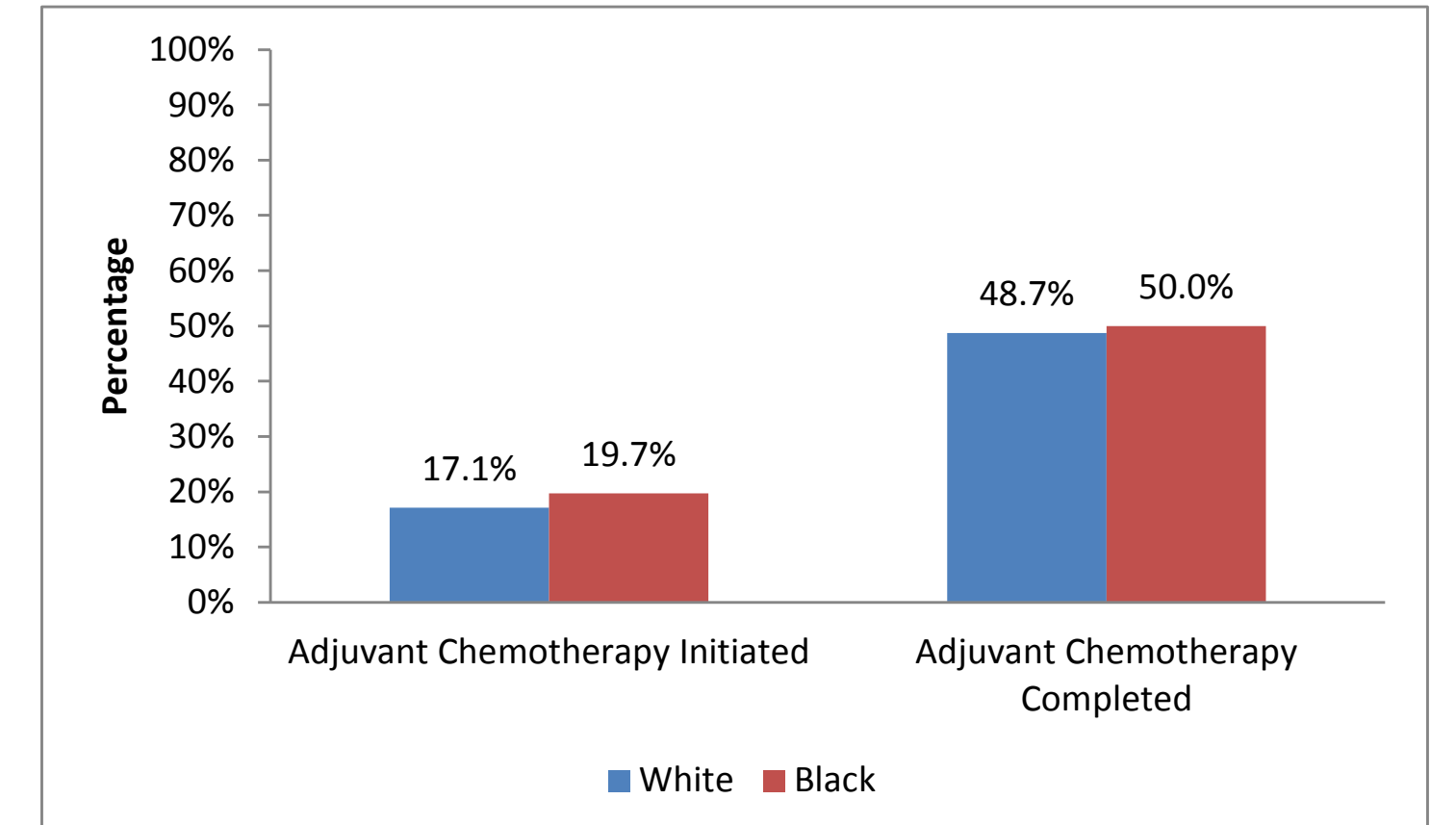


Figure 2. Initiation and completion* of adjuvant radiation after lumpectomy among Medicare beneficiaries with breast cancer



*Completed ≥ 35 days (5 weeks) of therapy

Figure 3. Initiation and completion* of adjuvant chemotherapy among Medicare beneficiaries with breast cancer and tumors >1 centimeter



*Completed ≥ 6 months of therapy, depending on specific drug regimen