

In search of options: re-evaluating distance to treatment in breast cancer surgery

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Purpose: The choice between breast conserving therapy and mastectomy with or without reconstruction may be unduly influenced by socioeconomic and geographic factors. We conducted this study quantify this influence by evaluating the relationship between distance to treating facility and initial breast cancer surgery selected, as well as the characteristics of women who are more likely to travel greater distances for care.

Methods: Utilizing Florida state inpatient and ambulatory surgery databases, we identified female breast cancer patients at least 18 years of age who underwent surgical treatment from January 1 to December 31, 2013. Patients were sub-grouped by distance to treatment facility informed by distribution in the overall sample. The primary outcome was the initial surgical treatment: lumpectomy, mastectomy alone, or mastectomy with reconstruction. Regression models were used to identify factors associated with greater distance to initial treatment.

Results: The final sample included 12,786 patients who underwent lumpectomy, mastectomy alone, or mastectomy with reconstruction. Compared to women who travelled <4.0 miles, women who travelled >14.0

Table 1: Description of 12,786 women who underwent lumpectomy or mastectomy for a diagnosis of breast cancer during 2013 in Florida stratified by distance between home and location of treatment

	0.0-4.0 miles	4.1-13.9 miles	14.0+ miles	p-value
Patients	3,218	6,466	3,122	-
Age in years, mean	66.0	63.2	61.1	<.001
Distance to treatment location (miles), mean	1.9	8.1	37.5	<.001
Initial treatment setting				<.001
Inpatient	20.4	20.1	26.9	
Ambulatory surgery	79.6	79.9	73.1	
Race/insurance status				<.001
White, private insurance	23.1	26.4	33.9	
Non-white, private insurance	8.2	13.4	11.4	
White, public insurance	51.2	41.6	41.5	
Non-white, public insurance	17.4	18.6	13.2	
Primary diagnosis				<.001
In-situ cancer	15.9	17.6	16.1	
Invasive, node negative	71.2	67.7	67.2	
Invasive, node positive	13.0	14.8	16.7	
Elixhauser comorbidity				<.001
None	6.7	8.6	8.0	
1 to 2	60.2	62.5	62.7	
3 or more	33.1	28.9	29.3	

miles were younger (61.1 vs. 66.0 years, $p < .001$), more often identified as white and having private insurance (33.9% vs. 23.1%, $p < .001$), and were less likely to have 3 or more medical comorbidities (29.3% vs. 33.1%, $p < .001$). As the distance to treatment increased, the frequency of lumpectomy decreased (<4.0 miles = 58.2% vs. >14.0 miles = 50.0%, $p < .001$) and the frequency of mastectomy with reconstruction increased (12.7% vs. 20.0%, $p < .001$). In multivariate regression modelling, increasing age in years (adjusted odds ratio = 0.98 [95% CI = 0.98-0.99]) and identifying as non-white with private (AOR = 0.70 [0.61-0.80]) or public insurance (AOR = 0.64 [0.56-0.73]) was associated with less frequently travelling for initial breast cancer surgery.

Conclusion: Women who travelled for care were more likely to undergo mastectomy and breast reconstruction while being less likely to undergo breast-conserving surgery. Demographic factors are predictive of those who travel for care. Advanced age, increased comorbidities, identifying as “non-white”, and having public insurance are associated with a decreased likelihood of traveling for care. Women’s willingness to travel for breast reconstruction may belie an underlying difference in the way women see reconstructive and oncologic surgery. This study highlights a disparity in cancer care between those that can and cannot travel to receive it.

