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STUDY PURPOSE

Multiple economic forces influence costs and access to healthcare in the united states. Though prior studies have investigated the impact of competition between hospitals, finding increased access to procedural care, no study has evaluated the impact of competition between surgeons and its impact upon cost or use of postmastectomy breast reconstruction.

METHODS

A retrospective cross-sectional analysis using Marketscan claims data from 2009 to 2020 was performed. The Herfindahl-Hirschman Index (HHI), a measure of market concentration, was calculated using the sum-of-squares of the proportion of breast reconstruction cases performed by each surgeon in a metropolitan statistical area (MSA). Multivariable logistic regression was used to identify differences in rates, outcomes, and costs of reconstruction by HHI for the 15,002 patients in the study cohort.

RESULTS

Approach and Type of Breast Reconstruction by Market Competition



- Increased likelihood of any breast reconstruction in competitive markets
- No difference in type or timing of breast reconstruction

90-day Postoperative Outcomes

	Breast Complications		Systemic Complications	
	OR (95% CI)	p	OR (95% CI)	p
HHI (Herfindahl-Hirschman Index)				
Noncompetitive	Ref	-	Ref	-
Moderately competitive	1.15 (0.94 to 1.39)	0.18	1.01 (0.75 to 1.35)	0.95
Competitive	0.96 (0.80 to 1.15)	0.64	1.04 (0.81 to 1.35)	0.76

- No difference in odds of complications associated with regional surgeon competition

	OR (95% CI)	p
Odds of any Breast Reconstruction by Market		
Noncompetitive	Ref	-
Moderately competitive	1.51 (1.37 to 1.66)	<0.001
Competitive	1.71 (1.58 to 1.86)	<0.001
Odds of Implant vs Autologous Recon. by Market		
Noncompetitive	Ref	-
Moderately competitive	0.9 (0.80 to 0.99)	0.06
Competitive	1.11 (0.99 to 1.23)	0.11
Odds of Immediate vs Delayed Recon. by Market		
Noncompetitive	Ref	-
Moderately competitive	1.11 (0.87 to 1.41)	0.39
Competitive	0.98 (0.79 to 1.20)	0.84



Costs

- Lower out-of-pocket costs in more competitive markets
- No linear association between market competition and total, surgeon, or facility costs

	Total Cost		Out-of-Pocket Cost		Surgeon Cost		Facility Cost	
	Coeff (95% CI)	p	Coeff (95% CI)	p	Coeff (95% CI)	p	Coeff (95% CI)	p
HHI (Herfindahl-Hirschman Index)								
Noncompetitive	Ref	-	Ref	-	Ref	-	Ref	-
Moderately competitive	\$3,006.29 (\$1,660.55 to \$4,352.03)	<0.001	-\$67.38 (-\$88.65 to -\$46.11)	0.007	\$1,007.01 (\$380.01 to \$1,634.02)	0.002	\$1,555.51 (\$363.04 to \$2,747.98)	0.01
Competitive	\$2,504.71 (\$1,312.50 to \$3,696.92)	<0.001	-\$113.06 (-\$137.00 to -\$89.12)	0.02	\$669.08 (\$111.25, \$1,226.92)	0.02	\$458.03 (-\$602.89 to \$1,518.96)	0.39

CONCLUSIONS

Greater competition among surgeons is associated with improved access to reconstructive surgery, but no difference in cost. Application of this evidence may include system-level strategies to bolster care coordination, while targeting drivers of cost, such as hospitals and hospital systems, through policy.