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Characteristics of hospitals exiting the newly voluntary Comprehensive Care for Joint Replacement Program

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Introduction

In 2018, Medicare made participation in the Comprehensive Care for Joint Replacement (CJR) program, which had been mandatory for all hospitals in 67 metropolitan statistical areas (MSAs), voluntary in the 33 of 67 MSAs with the lowest historical costs. CJR was designed to hold hospitals accountable for the cost and quality of care during hip or knee replacement episodes, defined as hospitalization and 90 days of post-discharge care. We compared hospitals that stayed with the CJR program against those that withdrew. This information is important for understanding the effects of voluntary payment models.

Methods

We used Medicare 100% claims, Provider of Services and Specific Files, and the Hospital Compare dataset to describe each hospital's characteristics in the first year of CJR, 2016. We compared hospital characteristics using chi-squared and t tests. We also estimated the effect of each hospital characteristic on the likelihood of CJR exit using a logistic regression adjusting for MSA-level characteristics (Supplemental Online Appendix A). We then calculated the marginal effect of each hospital characteristic and presented percentage point changes in the likelihood of CJR exit associated with each hospital characteristic. We considered two-tailed P values of <0.01 statistically significant.

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Results

Of 280 hospitals in the 33 voluntary MSAs, 205 (73%) left the CJR program in 2018 (Table). Compared to hospitals remaining in the program, hospitals that left had a higher proportion of non-white (16.2% vs 9.3%; $P = 0.005$) and Medicaid-enrolled (11.8% vs 5.1%; $P = 0.002$) patients. Hospitals that left the program were also more likely to have a low volume of joint replacements (31.7% vs 12.0%; $P < 0.001$).

Exiting hospitals performed worse under the CJR program. Their patients had longer hospital stays (3.2 vs 2.6 days; $P < 0.001$), more institutional post-acute care use (41.5% vs 30.7%; $P < 0.001$), and higher readmission rates (10.9% vs 8.0%; $P < 0.005$), suggesting higher CJR episode spending. Hospitals that left the program also had lower submission rates of patient reported outcomes (19.9% vs 41.9%; $P < 0.001$) and were less likely to have received reconciliation payments (46.3% vs 72.0%; $P < 0.001$). All of these associations persisted after adjusting for MSA-level factors.

Discussion

Hospitals that left the CJR program when it became voluntary served a higher percentage of non-white and Medicaid-enrolled patients, and performed poorly in the program. These hospitals may have left the program because they would be more likely to suffer financially from staying in the program. However, patients at these hospitals may be the ones who would gain the most from improvements in care coordination.

Hospitals with a higher proportion of socially vulnerable patients might be more likely to leave the program because episode spending for these patients tends to be high due to greater complication rates and more common use of institutional post-acute care.¹⁻³ CJR cost thresholds are more restrictive for hospitals with historical costs above regional average rates because the threshold is a weighted average of each hospital's historical and regional costs in the first three years of CJR and will become 100% based on regional costs starting in 2019.

This study has limitations. Program performance in 2017 was not examined. Medicare began covering outpatient knee replacements in 2018, which may have affected hospitals' decisions to leave CJR. Our analysis is descriptive and did not examine the relative influence of hospital characteristics on the decision to leave the program. Nevertheless, we found that hospitals exiting CJR were those whose patients might benefit the most from improved care coordination. Our findings suggest that the wider use of voluntary value-based payment programs by Medicare is problematic and that effective strategies that result in greater hospital participation in these programs are needed.⁴

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table.

Characteristics of Hospitals that Remained in vs Left the CJR Program in 2018 (in 33 voluntary MSAs)

	No. (%) or Mean (SD)		CJR Program Exit		
	Hospitals That Remained (N = 75)	Hospitals That Left (N = 205)	P Value ^a	Adjusted Percentage Point Difference (95% CI) ^b	P Value
Hospital Characteristics					
Patient mix, mean (SD)					
% medically complex patients	31.8 (10.9)	35.5 (16.3)	0.07	0.4 (0.0, 0.8)	0.03
% non-white patients	9.3 (8.0)	16.2 (20.7)	0.005	0.8 (0.3, 1.3)	0.001
% Medicaid-enrolled patients	5.1 (5.0)	11.8 (18.6)	0.002	1.4 (0.6, 2.2)	0.001
Volume of Medicare joint replacements					
Low (<23 replacements)	9 (12.0)	65 (31.7)		Reference	
Medium (23–80 replacements)	20 (26.7)	72 (35.1)		–11.5 (–21.9, –1.1)	0.03
High (>80 replacements)	46 (61.3)	68 (33.2)	< 0.001	–30.8 (–41.8, –19.9)	< 0.001
Size of hospital					
Small (<200 Beds)	31 (41.3)	99 (48.3)		Reference	
Medium (200–399 Beds)	28 (37.3)	57 (27.8)		–7.9 (–20.0, 4.1)	0.20
Large (>400 Beds)	16 (21.3)	49 (23.9)	0.31	2.5 (–9.4, 14.5)	0.68
Ownership type ^c					
For-profit	11 (15.1)	31 (15.2)		Reference	
Non-profit	54 (74.0)	132 (64.7)		4.4 (–11.3, 20)	0.59
Public	8 (11.0)	41 (20.1)	0.20	14.1 (–3.2, 31.4)	0.11
Operating margin %, mean (SD) ^d					
Major teaching hospital	9 (12.0)	36 (17.6)	0.26	13.5 (2.2, 24.8)	0.02
Safety-net hospital ^e	12 (16.0)	50 (24.5)	0.13	15.4 (5.3, 25.5)	0.003
Affiliation with post-acute care providers	10 (13.3)	39 (19.0)	0.27	7.7 (–4.6, 19.9)	0.22
Affiliation with ambulatory surgery centers	5 (6.7)	5 (2.4)	0.09	–21.7 (–52.4, 9)	0.17
CJR Performance Measures					
Hospital length of stay (in days), mean (SD)	2.6 (0.6)	3.2 (1.1)	< 0.001	15.5 (9.1, 22)	< 0.001
% patients discharged to an institution (vs home), mean (SD)	30.7 (16.3)	41.5 (22.8)	< 0.001	0.5 (0.3, 0.8)	< 0.001
% patients readmitted within 90 days of hospital discharge, mean (SD)	8.0 (4.1)	10.9 (8.5)	0.005	1.1 (0.2, 1.9)	0.01
CJR quality measures					
% patients with complications, mean (SD) ^f	2.6 (0.5)	2.9 (0.6)	< 0.001	19 (9.4, 28.6)	< 0.001
Patient satisfaction score (min: 1 – max: 100), mean (SD) ^g					
Submission of patient reported outcomes ^h	31 (41.9)	40 (19.9)	< 0.001	–24.7 (–37.7, –11.8)	< 0.001
Receipt of any reconciliation payment	54 (72.0)	95 (46.3)	< 0.001	–16.2 (–26.2, –6.2)	0.002

Of the 308 hospitals in voluntary MSAs, we dropped 28 specialized hospitals that had no hip or knee replacement surgeries during the first performance year.

^aP values for hospitals that remained vs left the CJR are from chi-squared tests for categorical variables and t tests for continuous variables.

^bAdjusted percentage point differences were calculated as the marginal effect of the characteristic compared to the reference group for categorical characteristics, and the marginal effect associated with an increase of one unit for continuous variables.

^cHospital ownership type was unavailable for 3 hospitals (1%).

^dHospital operating margin was unavailable for 16 hospitals (6%).

^eThe safety-net hospital indicator was unavailable for one hospital (< 1%).

^fPatient complication rates were unavailable for 30 hospitals (11%).

^gPatient satisfaction score was unavailable for 6 hospitals (2%).

^hSubmission of patient reported outcomes was unavailable for 5 hospitals (2%).