

## Do Hospitals Participating in Accountable Care Organizations Discharge Patients to Higher Quality Nursing Homes?

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We examined whether hospitals participating in Medicare's Shared Saving Program increased the use of highly rated skilled nursing facilities (SNFs) or decreased the use of low-rated SNFs hospital-wide after initiation of their accountable care organization (ACO) contracts compared with non-ACO hospitals. Using a difference-in-differences design, we estimated the change in the probability of discharge to 5-star and 1-star SNFs among all beneficiaries discharged from ACO-participating hospitals after the hospital initiated ACO participation. After joining an ACO, the percentage of hospital discharges going to a high-quality SNF increased by 3.4

percentage points on a base of 15.4% (95% confidence interval [CI] 1.3-5.5,  $P = .002$ ) compared with non-ACO-participating hospitals. The probability of discharge from an ACO-participating hospital to low-quality SNFs did not change significantly compared with non-ACO-participating hospitals. Our findings indicate that ACO-participating hospitals were more likely to discharge patients to highly rated SNFs after they began their ACO contract but did not change the likelihood of discharge to lower rated SNFs in comparison with non-ACO hospitals. *Journal of Hospital Medicine* 2019;14:288-289. Published online first March 20, 2019. © 2019 Society of Hospital Medicine

Accountable care organizations (ACOs) create incentives for more efficient healthcare utilization. For patients being discharged from the hospital, this may mean more efficient use of postacute care (PAC), including discharging patients to higher quality skilled nursing facilities (SNFs) in an effort to limit readmissions and other costly complications. Public reporting of nursing home quality has been associated with improved performance measures, although improvements in preventable hospitalizations have lagged.<sup>1</sup> Evidence to date suggests that patients attributed to an ACO are not going to higher quality SNFs,<sup>2,3</sup> but these effects may be concentrated in hospitals that participate in ACOs and face stronger incentives to alter their discharge patterns compared with non-ACO hospitals. Therefore, we examined whether hospitals participating in Medicare's Shared Saving Program (MSSP) increased the use of highly rated SNFs or decreased the use of low-rated SNFs hospital-wide after initiation of their ACO contracts compared with non-ACO hospitals.

### METHODS

We used discharge-level data from the 100% MedPAR file for all fee-for-service Medicare beneficiaries discharged from an acute care hospital to an SNF between 2010 and 2013. We measured the SNF quality using Medicare's Nursing Home

Compare star ratings. Our primary outcome was probability of discharge to high-rated (five star) and low-rated (one star) SNFs.

We utilized a difference-in-differences design. Using a linear probability model, we first estimated the change in the probability of discharge to five-star SNFs (compared to all other SNFs) among all beneficiaries discharged from one of the 233 ACO-participating hospitals after the hospital became an ACO provider compared with before and compared with all beneficiaries discharged from one of the 3,081 non-ACO hospitals over the same time period. Individual hospitals were determined to be "ACO-participating" if they were listed on Medicare's website as being part of an ACO-participating hospital in the MSSP. ACOs joined the MSSP in three waves: April 1, 2012; July 1, 2012; and January 1, 2013, which were also determined based on information on Medicare's website. We separately estimated the change in probability of discharge to a one-star SNF (compared to all other SNFs) using the same approach. Models were adjusted for beneficiary demographic and clinical characteristics (age, sex, race, dual eligibility, urban ZIP code, diagnosis-related group code, and Elixhauser comorbidities) and market characteristics (the concentration of hospital discharges, SNF discharges, and the number of five-star SNFs, all measured in each hospital referral region).

### RESULTS

We examined a total of 12,736,287 discharges, 11.8% from ACO-participating hospitals and 88.2% from non-ACO-participating hospitals. ACO-participating hospitals cared for fewer black patients and fewer patients who were dually enrolled in Medicare and Medicaid (Table 1), but these characteris-

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TABLE 1. Skilled Nursing Facility Patient and SNF Characteristics, According to ACO Hospital Status

	ACO Hospitals (n = 233 hospitals, 775,829 admissions)	Non-ACO Hospitals (n = 3,100 hospitals, 5,598,513 admissions)
Age, mean (SD)	81.2 (7.7)	81.1 (7.7)
Male, %	36.7	36.9
Black, %	8.9	10.4
Dual Eligibility, %	25.6	29.5
# of comorbidities, mean (SD)	4.0 (2.0)	3.9 (2.0)
% discharged in 2010-2011 (adjusted*)		
1-star SNF	13.5	16.1
2-star SNF	18.9	19.6
3-star SNF	22.2	21.6
4-star SNF	30.0	28.6
5-star SNF	15.4	14.2

\*Discharge rates were adjusted for patient-level covariates, including age, sex, race, dual eligibility, urban ZIP code, diagnosis-related group code, and Elixhauser comorbidities.

TABLE 2. Difference in Percentage Point Change in Discharge to Five-Star and One-Star SNFs among Hospitals that became ACO Providers Compared with Non-ACO Hospitals

	Percentage Point Change	95% CI	P Value
To 5-star SNFs	3.4	(1.3 to 5.5)	.002
To 1-star SNFs	0.4	(-0.7 to 1.5)	.494

tics did not change differentially between the two groups of hospitals over our study period. ACO-participating hospitals were also more likely to discharge patients to five-star SNFs prior to joining an ACO (in 2010-2011). After joining an ACO, the percentage of hospital discharges going to a 5-star SNF increased by 3.4 percentage points on a base of 15.4% (95% confidence interval [CI] 1.3-5.5,  $P = .002$ ; Table 2) compared with non-ACO-participating hospitals over the same time period. The differential changes did not extend to SNFs rated as three stars and above (change of 0.5 percentage points, 95% CI, 1.3-2.8,  $P = .600$ ).

The probability of discharge from an ACO hospital to low-quality (one-star) SNFs did not change significantly from its baseline level of 13.5% after joining an ACO compared with non-ACO-participating hospitals (change of 0.4 percentage points, 95% CI, 0.7-1.5,  $P = .494$ ).

## DISCUSSION

Our findings indicate that ACO-participating hospitals were more likely to discharge patients to the highest rated SNFs after they began their ACO contract but did not change the likelihood of discharge to lower rated SNFs in comparison with non-ACO hospitals. Previous research has suggested that patients attributed to a Medicare ACO were not more likely

to use high-quality SNFs. However, we examined the effect of hospital participation in an ACO, not individual beneficiaries attributed to an ACO. These contrasting results suggest that hospitals could be instituting hospital-wide changes in discharge patterns once they join an ACO and that hospital-led ACOs could be particularly well positioned to manage post-discharge care relative to physician-led ACOs. One potential limitation of this study is that ACO-participating hospitals may differ in unobservable ways from non-ACO-participating hospitals. However, using hospital fixed effects, we mitigated this limitation to some extent by controlling for time-invariant observed and unobserved characteristics. Further work will need to explore the mechanisms of higher PAC quality, including hospital-SNF integration and coordination.

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