

Medicare Advantage: Lower Use of Facility-based Post-acute Care but Longer Hospital Stays than Traditional Medicare

Research Report

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Abstract

Objective: Medicare Advantage (MA) plans have different incentives for post-acute care (PAC) use relative to Traditional Medicare (TM). To compare short-term acute care hospital (STACH) average length of stay and facility-based PAC utilization between MA and TM by patient severity of illness (SOI) and condition.

Data Sources: 2014 Health Care Utilization Project State Inpatient Databases from the Agency for Healthcare Research and Quality for seven states.

Study Design: Facility-based PAC settings included skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and long-term care hospitals (LTCHs). We conducted logistic regressions to examine the probability of discharge to facility-based PAC and Poisson regressions to examine the average length of stay at STACHs. We controlled for patient demographic and socioeconomic characteristics, clinical conditions, and severity, and hospital fixed effects.

Principal Findings: Discharge rates to facility-based PAC settings were 15% lower in MA than for TM (24.3% vs. 28.5%). For all levels of SOI and selected types of clinical conditions, the TM discharge rates to facility-based PAC were significantly higher than for MA beneficiaries. Relative differences in facility-based PAC rates between TM and MA narrowed for the highest severity patients and for clinical conditions with high levels of facility-based PAC use. For patients with higher SOI or the selected clinical conditions, MA beneficiaries had longer average length of stay at STACHs compared with TM beneficiaries and, among those discharged to a facility-based PAC setting, were more likely to be discharged to a SNF and less likely to be discharged to a LTCH or an IRF.

Conclusions: The observed differences in PAC use for low severity beneficiaries suggests there may be opportunities for TM savings among these patients. For high severity beneficiaries, MA may substitute longer hospital stays for facility-based PAC and, specifically, for care in LTCHs and IRFs. Further study is needed to understand care delivery differences under MA and TM and how to improve the overall quality and cost-effectiveness of Medicare.

Introduction

In 2017, Medicare spent \$59 billion on post-acute care (PAC) services, representing about 15 percent of all traditional (i.e., fee-for-service) Medicare spending.^{1,2} An Institute of Medicine study found that expenditures on PAC services explained 73 percent of the geographic variation in traditional Medicare (TM) spending.³ This variation suggests opportunities to reduce Medicare spending by focusing on use of PAC, which includes care provided at a skilled nursing facility (SNF), inpatient rehabilitation facility (IRF), long-term care hospital (LTCH), or care provided at home through a home health agency (HHA). In general, policymakers have looked to two primary approaches to control Medicare spending. First, the Center for Medicare and Medicaid Innovation (CMMI) has expanded its testing of alternative payment models (APMs), such as accountable care organizations and bundled payments. These APMs seek to control spending by shifting, at least some, risk from Medicare toward providers. While initial results are mixed, studies have consistently found a key source of savings in these programs is reduced use of PAC, particularly SNFs.⁴

Second, policymakers have encouraged enrollment in Medicare Advantage (MA) plans, whose enrollment has grown significantly, since their formal introduction in 1997, to include 34 percent of all Medicare beneficiaries in 2019.^{5,6} MA plans operate under risk-adjusted capitated rates that shift risk for high expenditures from Medicare to MA plans. As a result, MA plans have strong incentives to manage the healthcare cost of their enrollees through, for example, reductions in PAC use. Previous work comparing PAC use in MA and TM has demonstrated lower use in MA for select conditions.⁷ However, little is known about how the use of PAC in MA varies by patient severity or condition, and whether MA plans may be substituting longer hospital stays for reduced PAC use.

In this study, we compare short-term acute care hospital (STACH) average length of stay and PAC utilization in TM and MA by patient severity of illness (SOI) and condition. We focus on facility-based PAC, which includes SNFs, IRFs, and LTCHs. SNFs care for patients who need short-term, facility-based skilled nursing services after a hospital stay.⁸ IRFs provide supervised, intensive rehabilitative services to patients that are able to tolerate at least 3 hours of therapy per day.⁹ LTCHs, which along with IRFs must meet requirements for hospitals, care for patients that are generally higher acuity than patients treated in the other settings, with average length of stay typically exceeding 25 days.¹⁰ Our analysis provides insights on variation in use of PAC among traditional Medicare and Medicare Advantage and how use of these services vary by patient clinical characteristics.

Methods

We used data from the 2014 Health Care Utilization Project (HCUP) State Inpatient Databases (SID) from the Agency for Healthcare Research and Quality (AHRQ). The 2014 HCUP, the latest data available when we conducted the analysis, provided a unique data source with all-payer information of hospital discharges. We analyzed data from a convenience sample that includes seven states: Arizona, Florida,

Kentucky, Massachusetts, Michigan, New Jersey, and Nevada. These seven states represented approximately 21 percent and 20 percent of all MA and TM beneficiaries in 2014, respectively.

We identified enrollment status (TM/MA) based on primary payer information for the STACH stay. We excluded non-STACH discharges by dropping the following: 124 hospitals with an indicator for LTCH or IRF (available for 5 of the 7 states); 58 hospitals with more than 80 percent of its discharges with a principal diagnosis of cancer, psychiatrics, or rehabilitation using the AHRQ Clinical Classification Software (CCS); and 19 hospitals with average length of stay greater than 20 days among TM beneficiaries. After the exclusions, the analysis included data from 718 hospitals. We included only cases discharged alive from the STACH to an LTCH, IRF, SNF, home health agency (HHA), or home as determined by patient discharge disposition code on the STACH claim.

We selected five conditions for sub-analyses: severe wounds, prolonged mechanical ventilation (ventilator), stroke, lower extremity fracture (fracture), and sepsis. These conditions were selected because they represent conditions with high facility-based PAC use in TM.^{11,12,13} Our sample consisted of 2,674,723 HCUP SID discharges: 61,264 for severe wounds, 24,473 for ventilator, 62,868 for stroke, 75,565 for fracture, 135,114 for sepsis, and the remaining for all other conditions (Appendix, Table 1). Approximately 75 percent of all discharges occurred among TM beneficiaries.

We grouped clinically similar beneficiaries by using the 3M™ All Patients Refined Diagnosis Related Groups (APR-DRGs). The APR-DRGs account for a variety of patient characteristics and classify patients according to their reason for admission, severity of illness, and risk of mortality. Patients share a similar pattern of resource intensity within each of the APR-DRGs.¹⁴ In the analysis, we limited our sample to common APR-DRGs between TM and MA, and less than 0.01 percent of the sample was excluded due to this criterion.

We estimated logistic regressions to examine the probability of discharging to facility-based PAC in MA and TM. We used Poisson regressions to compare the average length of stay at STACH in MA and TM. In addition, we conducted analyses focusing on facility-based PAC only to better examine differences between SNF, IRF, and LTCH use in TM and MA. Within facility-based PAC settings, we compared separately utilization of SNFs and LTCHs, and then SNFs and IRFs, as SNFs may serve as a substitute setting for patients typically cared for in LTCHs and IRFs. The regression models controlled for patient age, gender, race, median income in patient's zip code, APR-DRG, and SOI (ranging from I to IV, with IV indicating the highest severity). Given variation in hospital networks, geographic areas, referral patterns across hospitals, we controlled for hospital fixed effects.

Our methods have limitations. First, our results may not be generalizable to the whole MA and TM populations as our analysis is based on data from selected states. Second, due to the data structure of the HCUP, we could not link STACH claims with PAC claims. We relied on discharge destination on the STACH claim to determine next care setting. Third, there may be differences between patients who were selected into MA and TM that were not fully accounted for by our model. Finally, our analysis only

examined PAC utilization using discharge rates. A more complete accounting of PAC use would incorporate length of stay in PAC settings as well.

Results

Overall Results. Our sample included 2,019,063 TM beneficiaries and 655,660 MA beneficiaries. MA beneficiaries were more likely to be 65 to 74 years old, male, non-White, and living in a zip code area with lower median household income as compared with TM beneficiaries (Exhibit 1). A greater proportion of MA beneficiaries had lower levels of SOI and were discharged to a non-facility-based PAC setting, compared with TM (Appendix, Table 1).

We find that discharge rates to facility-based PAC are 15 percent lower in MA as compared to TM, controlling for patient demographic and socioeconomic characteristics, clinical condition and severity, and hospital fixed effects. Facility-based PAC discharge rates for MA and TM were 24.3 percent and 28.5 percent, respectively, with MA-to-TM ratio being 0.85. Overall, MA beneficiaries had 1 percent longer average length of stay at STACH than TM beneficiaries (MA-to-TM ratio of 1.01) (Exhibit 2).

Exhibit 1. Sample Description Statistics

	Traditional Medicare	Medicare Advantage
Sample Size	2,019,063	655,660
Age (years)		
0-64	20.5%	17.7%
65-74	30.7%	35.7%
75-84	38.8%	30.6%
85 and above	20.0%	16.0%
Gender		
Male	44.8%	45.5%
Female	55.2%	54.5%
Race		
White	78.3%	69.6%
Black	10.7%	12.2%
Hispanic	5.9%	12.7%
Other	5.1%	5.6%
Beneficiary Zip Code Median Household Annual Income (\$)*		
1 - 39,999	32.1%	37.9%
40,000 - 50,999	28.3%	31.0%
51,000 - 65,999	20.0%	18.7%
66,000 and above	19.5%	12.4%

Source: KNG Health Consulting analysis of select 2014 HCUP

Severity of Illness. Utilization of facility-based PAC varied across levels of SOI and between MA and TM (Exhibit 2). Beneficiaries with higher levels of SOI were more likely to be discharged to facility-based PAC settings in both MA and TM. For example, the percentage of TM beneficiaries discharged to facility-based PAC settings increased from 15.5 percent at SOI level I to 55.8 percent at SOI level IV. At each level of SOI, we found lower use of facility-based PAC in MA as compared to TM; however, the relative difference between MA and TM varied across SOI levels. For beneficiaries at the highest SOI level, we found that the relative difference of facility-based PAC use between MA and TM was 8 percent (ratio of 0.92). For lower levels of SOI, the relative difference in facility-based PAC use between MA and TM ranged from 18 to 14 percent.

The STACH average length of stay increased from about 3 days to 11 days as the level of SOI increased from I to IV (Exhibit 2). At SOI I and II, MA beneficiaries had shorter average lengths of stay compared to

TM beneficiaries (MA-to-TM ratio of 0.97 for SOI I, and 0.98 for SOI II). In contrast, at SOI III and IV, MA beneficiaries stayed longer at STACHs, on average, than TM beneficiaries (MA-to-TM ratio of 1.03 for SOI III, and 1.04 for SOI IV).

Exhibit 2: Predictive Margins and Marginal Effects by SOI Level and Clinical Condition				
Cohort	Traditional Medicare (Margin (SE))	Medicare Advantage (Margin (SE))	Marginal Effects (SE)	MA-to-TM Ratio
Discharge to Facility-based PAC				
All	28.5% (0.0%)	24.3% (0.0%)	-4.3% (0.1%)	0.85
SOI I	15.5% (0.1%)	13.1% (0.1%)	-2.4% (0.1%)	0.84
SOI II	23.0% (0.0%)	18.8% (0.1%)	-4.2% (0.1%)	0.82
SOI III	35.4% (0.1%)	30.4% (0.1%)	-4.9% (0.1%)	0.86
SOI IV	55.8% (0.1%)	51.1% (0.2%)	-4.7% (0.2%)	0.92
Wound	52.7% (0.2%)	47.5% (0.4%)	-5.2% (0.5%)	0.90
Ventilator	81.9% (0.3%)	79.6% (0.5%)	-2.3% (0.6%)	0.97
Stroke	54.1% (0.2%)	51.5% (0.4%)	-2.5% (0.4%)	0.95
Fracture	86.1% (0.1%)	83.7% (0.3%)	-2.4% (0.3%)	0.97
Sepsis	46.7% (0.1%)	39.6% (0.3%)	-7.2% (0.3%)	0.85
Length of Stay at STACH				
All	5.09 (0.00)	5.13 (0.00)	0.04 (0.00)	1.01
SOI I	3.01 (0.00)	2.91 (0.01)	-0.10 (0.01)	0.97
SOI II	4.04 (0.00)	3.96 (0.00)	-0.09 (0.00)	0.98
SOI III	6.04 (0.00)	6.22 (0.01)	0.17 (0.01)	1.03
SOI IV	10.58 (0.01)	11.03 (0.02)	0.45 (0.02)	1.04
Wound	9.98 (0.02)	10.44 (0.03)	0.47 (0.03)	1.05
Ventilator	21.28 (0.04)	22.48 (0.07)	1.20 (0.08)	1.06
Stroke	5.12 (0.01)	5.47 (0.02)	0.35 (0.02)	1.07
Fracture	5.09 (0.01)	5.33 (0.02)	0.24 (0.02)	1.05
Sepsis	7.75 (0.01)	7.98 (0.02)	0.24 (0.02)	1.03

Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases

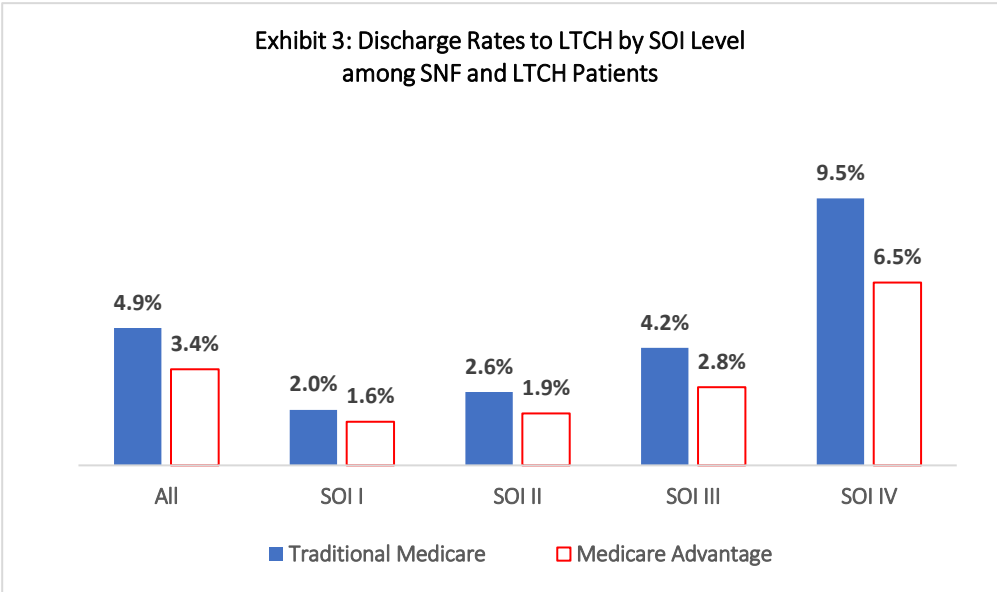
Clinical Conditions. The rates of facility-based PAC utilization differed across clinical conditions (Exhibit 2). Beneficiaries with the selected clinical conditions had much higher facility-based PAC use than the overall Medicare population. Among the selected conditions, beneficiaries with fracture had the highest discharge rate to facility-based PAC settings, with 86.1 percent for TM and 83.7 percent for MA beneficiaries. Beneficiaries with sepsis had the lowest discharge rate to facility-based PAC settings, with 46.7 percent for TM and 39.6 percent for MA. Relative to the overall population, we generally found smaller relative differences in facility-based PAC use between MA and TM for the selected conditions, with the exception of sepsis. For beneficiaries with a wound, or on a ventilator, or who suffered a lower-

extremity fracture or stroke, facility-based PAC use rates were 10 (ratio of 0.90), 3 (ratio of 0.97), 3 (0.97 ratio), and 5 (0.95 ratio) percent lower in MA relative to TM, respectively.

For average length of stay at the STACH, the relative differences between MA and TM were more evident among the selected conditions, in comparison to the overall Medicare population. (Exhibit 2). For example, for patients who suffered a stroke, MA beneficiaries stayed 0.35 days longer on average at the STACH than TM beneficiaries (MA-to-TM ratio of 1.07). For patients on a ventilator, average length of stay at the STACH was 22.48 days for MA beneficiaries and 21.28 days for TM beneficiaries (MA-to-TM ratio of 1.06).

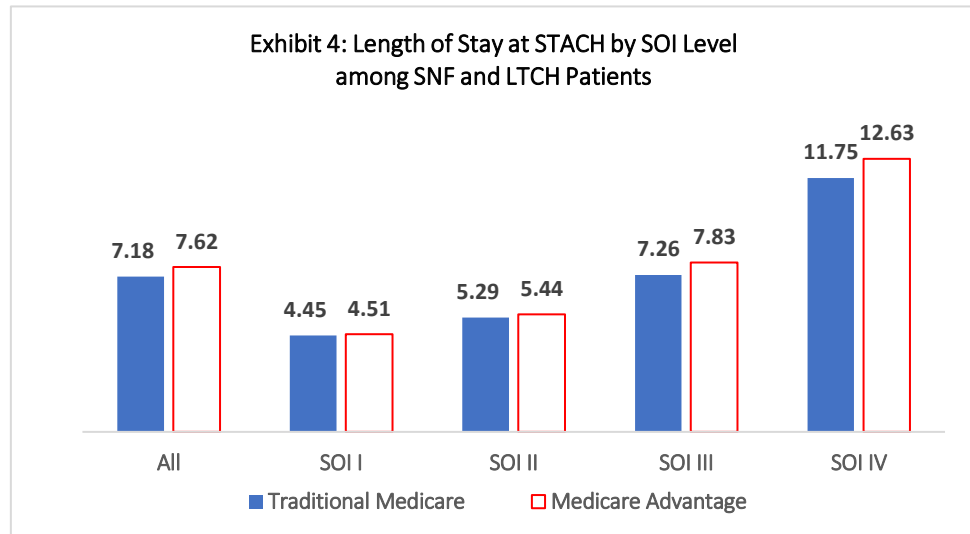
Distribution of Facility-based PAC Discharge Setting Overall and by SOI and Clinical Condition. Within discharges to facility-based PAC settings, SNF was the most frequently used PAC setting, with LTCH and IRF discharge placements accounting for 17 percent of all facility-based PAC discharges in TM and 13 percent of all facility-based PAC discharges in MA (Appendix, Table 1). We compared the risk-adjusted probability of discharge to an LTCH or an IRF and the length of stay at STACH between MA and TM by constructing two patient groups: SNF and LTCH patients, and SNF and IRF patients. We found that MA discharged patients to an LTCH or an IRF relative to a SNF at a rate 30 and 37 percent lower than TM, respectively.

Discharges to different facility-based PAC settings varied by SOI levels in both MA and TM. The LTCH share consistently increased with patient SOI levels in both MA and TM (Exhibit 3). Among SNF and LTCH patients, the LTCH share was equal to or less than 2 percent among beneficiaries with the lowest SOI in both TM and MA. Among beneficiaries with the highest SOI, 9.5 percent of TM beneficiaries and 6.5 percent of MA beneficiaries were discharged to an LTCH.



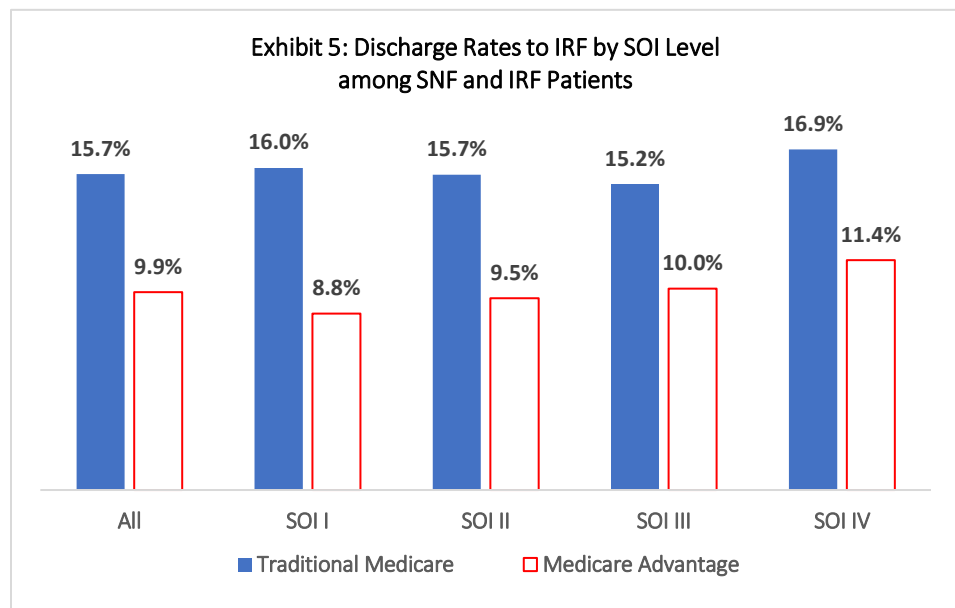
Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases

As SOI level increased, STACH average lengths of stay increased among SNF and LTCH patients (Exhibit 4). MA beneficiaries had longer average STACH length of stay at each level of SOI than TM beneficiaries, with MA-to-TM ratios ranging from 1.01 to 1.08. Among LTCH and SNF patients, we observed greater differences in STACH average length of stay the greater the difference between MA and TM discharge rates to LTCHs.

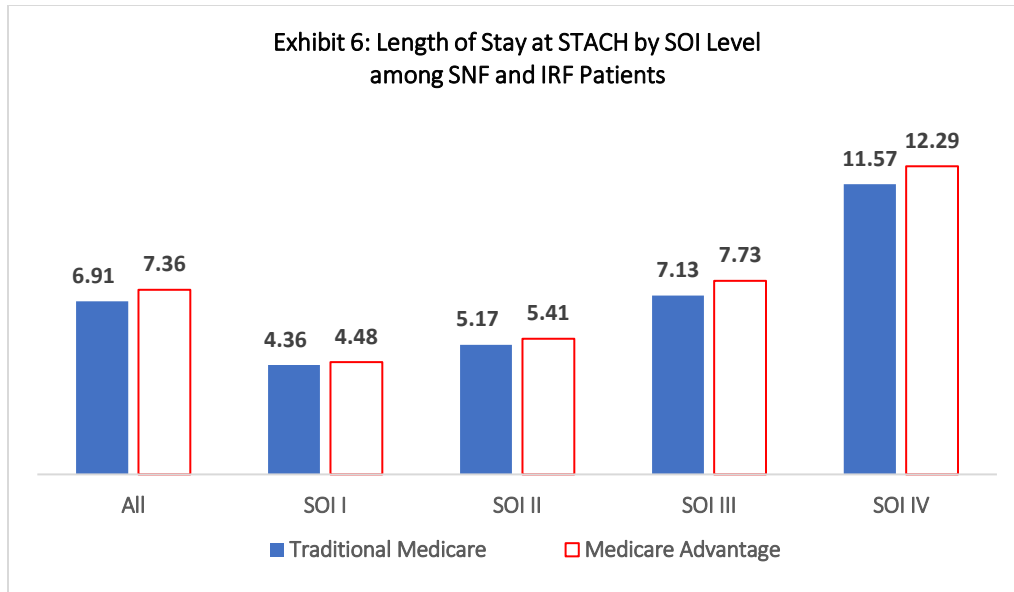


Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases

For IRF and SNF patients, we observed smaller variation in IRF use across SOI levels for TM and MA as compared to LTCH use. However, consistent with our observations based on the SNF/LTCH sample, we find that IRF use rates were lower in MA than in TM across SOI levels and that MA lengths of stay were longer (Exhibit 5 & Exhibit 6).



Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases



Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases

Across the selected clinical conditions, the share of SNF discharges was significantly larger among MA beneficiaries than among TM beneficiaries. Among all the selected clinical conditions, SNF accounted for more than half of the facility-based PAC discharges, with approximately 80 percent or more of the facility-based discharges being SNF discharges among beneficiaries with fracture or sepsis (Appendix, Table 1). The largest LTCH share across populations was for beneficiaries on a ventilator, with 50.0 percent for TM beneficiaries and 41.2 percent for MA beneficiaries (Appendix, Table 2). The largest IRF share across populations was for stroke patients, with 44.9 and 34.7 percent for TM and MA, respectively (Appendix, Table 3). Consistently, MA beneficiaries stayed significantly longer at STACH than TM beneficiaries. For example, among the SNF and LTCH patient group, for patients with severe wounds or on ventilator, MA beneficiaries stayed 1.1 days and 1.5 days longer at the STACH compared with TM beneficiaries, respectively (Appendix, Table 2). Among SNF and IRF patient group, the largest difference on average length of stay at STACH was found among patients with a severe wound, with 0.83 longer hospital days for MA as compared to TM (Appendix, Table 3).

Discussion

Our analyses contribute to the growing evidence that highlights differences in PAC use between MA and TM. We extend the literature in important ways by examining risk-adjusted facility-based PAC utilization and average length of stay at STACHs for patients with different levels of SOI and selected clinical conditions. In addition to patient demographic characteristics, socioeconomic characteristics, and clinical condition and severity, we controlled for hospital fixed effects to account for variation in hospital networks, discharge patterns, and geographical differences.

Our results demonstrate that for all levels of SOI and selected types of clinical conditions, the TM discharge rates to facility-based PAC were significantly higher than for MA beneficiaries. Among patients discharged to facility-based PAC settings, MA plans demonstrated a preference for SNFs as compared to LTCHs or IRFs. Moreover, we found that relative differences in facility-based PAC rates between TM and MA narrowed for the highest severity patients and for clinical conditions with high levels of facility-based PAC use. However, for patients with higher SOI or the selected clinical conditions, MA beneficiaries had longer average lengths of stay at STACHs compared with TM beneficiaries. Our findings on hospital length of stay are consistent with a recent study that found that, for MA beneficiaries with injury or surgery, hospital stays were longer and more expensive than for TM beneficiaries, whereas for beneficiaries with less complex medical needs, hospital stays were shorter and less expensive.¹⁵

We see three main implications of our study. First, the larger observed differences in facility-based PAC use for low severity beneficiaries suggests there may be opportunities for TM savings among these patients. Previous research showed that among patients with lower extremity joint replacement, stroke and heart failure, MA coverage and its monthly capitated payment might reduce the intensity of IRF and SNF use, with better outcomes in readmission and returning to the community.¹⁶ Such findings indicated that TM may adopt payment reforms such as bundling to produce more savings without adversely affect patient outcomes.

Second, the study findings suggest that MA may substitute longer hospital stays for facility-based PAC among high severity beneficiaries. If MA plans are substituting longer hospital stays for facility-based PAC use, reduced spending on PAC use could be a cost saving to MA plans. However, the costs associated with longer hospital stays may offset, to some extent, the cost savings from lower PAC use. These costs and cost savings may be borne by different entities. Specifically, hospital costs increase with length of stay and these costs may not be compensated through higher payments from MA plans.¹⁷

Third, based on our analyses of facility-based PAC discharges, the substitution among high severity beneficiaries between longer hospital stays and facility-based PAC mainly occurs in LTCHs and IRFs. Because Medicare certification requires that LTCHs and IRFs meet the Medicare Conditions of Participation of STACHs, as well as other criteria, these providers may have the capability to substitute for care received in STACHs. Some empirical evidence supports this perspective, particularly for LTCH care.¹⁸ For beneficiaries with high severity of illness, LTCHs serve as alternative settings to STACHs.

The lower utilization of facility-based PAC may indicate that the MA beneficiaries were healthier than the TM beneficiaries, in ways not controlled for in our study. Some studies have shown that Medicare beneficiaries who enroll in MA may be healthier and have lower spending than those in TM.¹⁹ To the extent our study inadequately controls for severity of illness differences between TM and MA enrollees, our findings may understate the longer STACH average length of stay in MA as compared to TM.

While MA practices may reduce PAC use, its impact on beneficiary outcomes is not well established. In a 2014 literature review, researchers found that quality of care under MA was similar to quality under TM, but these findings drew upon old data and a limited set of measures.²⁰ Recent studies have found some

evidence of better outcomes and lower cost of care for MA.⁷ However, researchers have found high switch rates from MA to TM for high-needs Medicare beneficiaries, raising questions as to whether these patients care needs are being met by MA plans.²¹ Our analysis treats all MA plans as the same. Heterogeneity among MA plans, in terms of benefit generosity, organizational structure, and designation, may result in significant variation of PAC utilization.²²

Our study provides insights on mechanisms of potential substitution of care, by comparing the facility-based PAC utilization and STACH length of stay among FFS and MA plans. MA plans' low use of facility-based PAC in general and preference for sub-acute care (SNFs) instead of acute care (IRFs, and LTCHs) following a hospital stay warrants further study to assess the impact on beneficiary outcomes, particularly among the high-severity patients. While this type of research has been hampered by the limited availability of MA clinical and administrative data, the recent release by the Centers for Medicare & Medicaid Services of MA encounter data should significantly open up this area of study.²³ Researchers and policy makers should prioritize studies to understand care delivery differences under MA and TM and how to improve the overall quality and cost-effectiveness of Medicare.

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Appendix

Table 1. Number of Cases by Clinical Characteristics and Discharge Settings

Traditional Medicare					
Cohort	LTCH	IRF	SNF	HHA /Home	Total
All	21,663	79,406	484,777	1,433,217	2,019,063
SOI I	351	10,297	46,308	258,171	315,127
SOI II	2,402	28,497	164,177	645,137	840,213
SOI III	7,465	29,435	210,047	467,569	714,516
SOI IV	11,445	11,177	64,245	62,340	149,207
Wound	3,560	2,008	19,976	22,247	47,791
Ventilator	5,743	2,047	7,312	3,316	18,418
Stroke	599	10,357	14,278	20,734	45,968
Fracture	328	9,970	39,017	7,833	57,148
Sepsis	4,913	3,671	42,348	57,081	108,013
Medicare Advantage					
Cohort	LTCH	IRF	SNF	HHA /Home	Total
All	4,110	15,169	130,530	505,851	655,660
SOI I	87	2,054	15,639	106,742	124,522
SOI II	433	5,422	44,838	230,215	280,908
SOI III	1,210	5,432	52,386	149,631	208,659
SOI IV	2,380	2,261	17,667	19,263	41,571
Wound	665	467	4,921	7,420	13,473
Ventilator	1,477	539	2,858	1,181	6,055
Stroke	175	2,588	5,565	8,572	16,900
Fracture	72	1,594	13,594	3,157	18,417
Sepsis	774	611	9,231	17,515	28,131

Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases

Table 2: Predictive Margins and Marginal Effects by SOI Level and Clinical Condition among SNF and LTCH Patients

Cohort	Traditional Medicare (Margin (SE))	Medicare Advantage (Margin (SE))	Marginal Effects (dy/dx (SE))	MA-to-TM Ratio
Discharge to LTCH				
All	4.9% (0.0%)	3.4% (0.0%)	-1.5% (0.1%)	0.70
SOI I	2.0% (0.1%)	1.6% (0.1%)	-0.4% (0.2%)	0.79
SOI II	2.6% (0.0%)	1.9% (0.1%)	-0.8% (0.1%)	0.71
SOI III	4.2% (0.0%)	2.8% (0.1%)	-1.4% (0.1%)	0.67
SOI IV	9.5% (0.1%)	6.5% (0.1%)	-3.0% (0.2%)	0.68
Wound	18.1% (0.2%)	14.3% (0.5%)	-3.9% (0.5%)	0.79
Ventilator	50.0% (0.4%)	41.2% (0.7%)	-8.9% (0.8%)	0.82
Stroke	6.8% (0.2%)	4.6% (0.3%)	-2.2% (0.4%)	0.68
Fracture	1.9% (0.1%)	1.0% (0.1%)	-0.9% (0.2%)	0.54
Sepsis	12.4% (0.1%)	8.6% (0.3%)	-3.8% (0.3%)	0.70
Length of Stay at STACH				
All	7.18 (0.00)	7.62 (0.01)	0.44 (0.01)	1.06
SOI I	4.45 (0.01)	4.51 (0.02)	0.06 (0.02)	1.01
SOI II	5.29 (0.01)	5.44 (0.01)	0.15 (0.01)	1.03
SOI III	7.26 (0.01)	7.83 (0.01)	0.58 (0.01)	1.08
SOI IV	11.75 (0.01)	12.63 (0.02)	0.88 (0.03)	1.07
Wound	11.71 (0.02)	12.83 (0.05)	1.12 (0.06)	1.10
Ventilator	21.71 (0.04)	23.22 (0.08)	1.51 (0.10)	1.07
Stroke	7.10 (0.02)	7.53 (0.04)	0.43 (0.05)	1.06
Fracture	5.29 (0.01)	5.47 (0.02)	0.17 (0.03)	1.03
Sepsis	9.79 (0.01)	10.67 (0.03)	0.88 (0.04)	1.09

Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases

Table 3: Predictive Margins and Marginal Effects by SOI Level and Clinical Condition among SNF and IRF Patients

Cohort	Traditional Medicare (Margin (SE))	Medicare Advantage (Margin (SE))	Marginal Effects (dy/dx (SE))	MA-to-TM Ratio
Discharge to IRF				
All	15.7% (0.0%)	9.9% (0.1%)	-5.9% (0.1%)	0.63
SOI I	16.0% (0.1%)	8.8% (0.2%)	-7.2% (0.2%)	0.55
SOI II	15.7% (0.1%)	9.5% (0.1%)	-6.2% (0.1%)	0.61
SOI III	15.2% (0.1%)	10.0% (0.1%)	-5.2% (0.1%)	0.66
SOI IV	16.9% (0.1%)	11.4% (0.2%)	-5.5% (0.2%)	0.68
Wound	11.6% (0.2%)	9.0% (0.4%)	-2.5% (0.5%)	0.78
Ventilator	26.1% (0.5%)	19.2% (0.7%)	-6.9% (0.9%)	0.74
Stroke	44.9% (0.3%)	34.7% (0.5%)	-10.2% (0.6%)	0.77
Fracture	23.1% (0.2%)	10.7% (0.2%)	-12.4% (0.3%)	0.46
Sepsis	9.8% (0.1%)	7.0% (0.3%)	-2.8% (0.3%)	0.72
Length of Stay at STACH				
All	6.91 (0.00)	7.36 (0.01)	0.45 (0.01)	1.07
SOI I	4.36 (0.01)	4.48 (0.02)	0.12 (0.02)	1.03
SOI II	5.17 (0.01)	5.41 (0.01)	0.24 (0.01)	1.05
SOI III	7.13 (0.01)	7.73 (0.01)	0.60 (0.01)	1.08
SOI IV	11.57 (0.01)	12.29 (0.02)	0.72 (0.03)	1.06
Wound	11.38 (0.02)	12.22 (0.05)	0.83 (0.06)	1.07
Ventilator	21.94 (0.05)	22.42 (0.09)	0.48 (0.11)	1.02
Stroke	6.32 (0.02)	6.96 (0.03)	0.64 (0.04)	1.10
Fracture	5.20 (0.01)	5.47 (0.02)	0.27 (0.02)	1.05
Sepsis	9.43 (0.01)	10.18 (0.03)	0.75 (0.04)	1.08

Source: KNG Health Consulting analysis of select 2014 HCUP State Inpatient Databases