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Original Investigation

Health Care Utilization and Spending in Medicare Advantage vs Traditional Medicare

A Difference-in-Differences Analysis

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Abstract

IMPORTANCE Medicare Advantage (MA) has entailed a major expansion of government-financed, privately administered health insurance in the US. As policy makers consider options to expand Medicare further, it is informative to compare the performance of traditional Medicare (TM) and MA.

OBJECTIVE To assess whether MA is associated with differential changes in health care utilization and spending for beneficiaries entering Medicare from commercial insurance compared with beneficiaries entering TM.

DESIGN, SETTING, AND PARTICIPANTS This retrospective cohort study with a difference-in-differences analysis and propensity score matching compared health care utilization and spending between beneficiaries enrolling in MA and beneficiaries enrolling in TM with a Medicare Supplement plan 1 year before vs 1 year after their initial Medicare enrollment. Participants included beneficiaries aged 65 to 70 years who remained enrolled with a large insurer when transitioning from commercial insurance to Medicare between June 2018 and December 2018. Data were analyzed from February 2020 to October 2021.

MAIN OUTCOMES AND MEASURES Use of, and spending on, institutional (Part A) and professional (Part B) medical services, measured as overall spending per member per month, and as rates of services per thousand members per year, including inpatient stays, inpatient days, physician visits, and injectable drug administrations.

RESULTS Among 1082 matched beneficiaries (541 joining MA, 541 joining TM with a Supplement plan), 585 (54.1%) were female, and the mean (SD) age at Medicare enrollment was 66 (1.4) years. Prior to Medicare enrollment, there was no statistically significant difference in outcome trends between the MA and TM groups. The first year of MA enrollment was associated with a differential reduction in institutional (Part A) spending of $95 (95% CI, $7-$183) per member per month, corresponding to a differential reduction in inpatient stays of 63 (95% CI, 10-116) per thousand members per year. Medicare Advantage was associated with a differential reduction in total spending (Parts A and B) of $142 (95% CI, $0-$282) per member per month, which was 36% of total spending in TM. There was no differential reduction in professional (Part B) spending (per member per month, $47; 95% CI, $51-$145) or utilization.

CONCLUSIONS AND RELEVANCE In this cohort study with a difference-in-differences analysis, during the first year of Medicare coverage, MA was associated with large reductions in institutional (Part A) utilization and spending.

Key Points

Question Is entering Medicare Advantage associated with differential changes in health care utilization and spending compared with traditional Medicare?

Findings In this cohort study with a difference-in-differences analysis of 1082 Medicare beneficiaries, during beneficiaries' first year of Medicare coverage, there was a large differential reduction in institutional (Part A) health care service use and spending for beneficiaries choosing Medicare Advantage relative to those choosing traditional Medicare. Changes in professional (Part B) health care service use and spending were similar between the 2 groups.

Meaning Medicare Advantage was associated with reductions in hospital use and spending.

+ Supplemental content

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Introduction

Proposals to expand Medicare[1] or to create a novel public insurance option[2] have revived the decades-long debate on the relative roles government and private firms should play in the provision of health insurance. The Medicare program, which offers both government-administered and privately administered insurance products, provides a case study in these contrasting policy strategies. Government-administered traditional Medicare (TM) has operated historically under a fee-for-service reimbursement model, though in recent years an increasing portion of payment has been tied to alternative payment models.[3] In contrast with TM, the Medicare Advantage (MA) program (Medicare Part C) consists of private plans that are financed by capitated government payments. These private insurance plans use additional tools of managed care such as health care networks, utilization review, and flexible contracts with health care professionals and organizations that include alternatives to fee-for-service reimbursement. Medicare Advantage has grown considerably over time. As of August 2021, MA accounted for nearly half of Medicare beneficiaries who were enrolled in both Medicare's hospital and medical benefits.[4] Understanding how health care utilization and spending differ between MA and TM could inform the current policy debate on the role of private insurance plans in Medicare or in other insurance coverage expansions.[1,5,6]

Comparing the performance of MA and TM has posed challenges to researchers. First, the availability of insurance claims data for MA plans has been historically limited. Second, even when data are available, simple comparisons of spending and utilization between MA and TM are confounded by differences in beneficiary characteristics between the 2 programs. Diagnosis-based risk adjustment is not a fully adequate solution for this problem, both because patient diagnoses are not documented with equal intensity in MA and TM[7] and because some dimensions of risk are not measurable in existing data.[8]

Researchers have used various strategies to overcome these challenges, producing studies that generally show that MA lowers health care utilization and health care spending, though not necessarily overall government spending.[9] Several studies in the 2000s compared health care utilization between MA health maintenance organization (HMO) beneficiaries and geographically matched TM beneficiaries, finding lower utilization of many services in MA, including half as many emergency department visits and fewer hospitalizations in the last 6 months of life, but higher rates of appropriate breast cancer screening, diabetes care, and cholesterol testing.[10-14] Recently, a comprehensive study estimated that MA lowers spending by 9% relative to TM in an analysis that accounted not only for differences in beneficiary risk scores, but also for mortality differences, which reflect risk dimensions not captured in such scores.[8] Another recent study showed that involuntary beneficiary transitions from MA to TM, prompted by exits of MA plans, increased hospitalizations in New York.[15] A recent systematic review of studies comparing MA and TM found that few studies used quasi-experimental methods that address unmeasured differences in health risk between MA and TM.[9]

In this cohort study, we examined the role of MA vs TM by examining how health care utilization and spending change differentially for beneficiaries as they enter these 2 Medicare programs. The study design used data on health care use and spending immediately prior to Medicare eligibility, which allowed us to address the problem of differences in beneficiary risk between MA and TM.

Methods

Study Oversight

The research protocol was deemed nonhuman participant research by the external institutional review board for Aetna and therefore exempt from approval. Use of protected health information was deemed to pose no more than minimal risk to participants.

Data Sources and Sample Population

The study design relied on several sources of claims data from a large insurance company, Aetna. Aetna sells insurance plans to both employers and individuals in the commercial market; in the Medicare market, they sell MA plans for MA beneficiaries and Medicare Supplement plans for TM beneficiaries. After merging these data, we tracked individuals insured with Aetna prior to their Medicare enrollment and observed how their spending and use of services changed as they transitioned from commercial insurance to either MA or TM.

The proprietary data were drawn from 3 types of Aetna health plans: commercial non-Medicare plans, MA plans, and Medicare Supplement plans. Medicare Supplement plans, also called Medigap plans, cover some of the cost sharing in TM; in 2017, 41% of all beneficiaries either purchased such a policy outright or had supplementary insurance from an employer-provided retiree health plan.[3,16] For brevity, in the remainder of the article, we refer to beneficiaries with TM and an Aetna Supplement plan simply as TM beneficiaries.

We constructed a cohort of commercially insured Aetna beneficiaries who, on enrolling in Medicare between June 2018 and December 2018, chose either an Aetna MA plan or the combination of TM along with an Aetna Medicare Supplement individual plan. We required the study sample to have 1 year of enrollment in their commercial plan prior to moving to Medicare and 1 year of enrollment in Medicare subsequently. This was the maximum time span possible given that Aetna had not retained earlier data on Part A spending and utilization.

We restricted the cohort to beneficiaries who transitioned to Medicare between 65 and 70 years old, at or soon after the age of Medicare eligibility. The purpose of this restriction was to isolate insurance plan transitions that were primarily due to the age-related change in insurance eligibility. We excluded beneficiaries with greater than a 6-month lag between commercial and Medicare enrollment, without 1 year of continuous enrollment before or after the insurance transition, or with an overlap between commercial and Medicare enrollment. All beneficiaries who died during the study period were excluded based on these criteria. We excluded beneficiaries of union plans because of their different cost-sharing structures, and we excluded beneficiaries of California HMOs or plans acquired by Aetna when it purchased Coventry Health Plan because Aetna lacked complete claims data for these plans. We excluded beneficiaries with claims for end-stage renal disease services owing to missing data related to these services. Finally, we also excluded 2 members who had hospice claims during the commercial period owing to the lack of hospice data in MA claims data.

To improve baseline balance, we trimmed the cohort further using propensity score matching, specifically nearest neighbor matching using a width of 0.2 of the SD of the logit of the propensity score. Matching variables included members' Symmetry Episode Risk Groups prospective and retrospective risk scores, age, gender, switching lag from commercial to Medicare, urban vs rural location, region (Northeast, Central, Southeast, West), and prognostic health conditions from the pre-Medicare commercially insured period (history of cancer or current cancer, chronic kidney failure, diabetes, metabolic syndrome, rheumatoid arthritis, and depression). We avoided matching on utilization or spending variables because doing so can induce bias in difference-in-differences research designs via regression to the mean.[17,18] A flow diagram of sample construction is included in eFigure 1 in the Supplement.

Outcomes

We used approved insurance claims to construct the primary outcome variables, aggregate spending per beneficiary for institutional (Part A) claims and professional (Part B) claims, and to construct utilization rates for specific service categories. To ensure comparability of outcomes across the different data sources, we excluded certain categories of spending and utilization from the analysis. In particular, we excluded institutional claims from skilled nursing facilities because there were no Medicare Supplement claims for stays of 20 days or fewer, which TM covers in full. Also, we necessarily excluded other services that qualify for full coverage under TM, namely clinical laboratory procedures, hospice care, home health care, and certain preventive services, because there are no

Medicare Supplement claims for those services and hence we had no information about them.[19] See eTable 5 in the Supplement for the complete list of excluded services. In addition, we had no information on drugs covered through Part D for the TM group and so did not examine Part D drug spending. We included all services that were provided but not reimbursed because of a deductible in both Medicare groups.

Spending outcomes were per member per month allowable charges for institutional and professional services. We winsorized spending variables at the 99.9th percentile to mitigate the influence of outliers. We used actual rather than standardized prices for 2 reasons. First, because the basis of payment (ie, whether a service is reimbursed independently or as part of a bundled or prospective payment) can differ between MA and TM claims, price standardization would not have produced comparable spending figures between these groups. Even for reimbursements with a standardized basis of payment, such as diagnosis-related group payments for hospital admissions, a lack of substantial overlap between cohorts in diagnosis-related groups precluded accurate price standardization. Second, although unit price differences between MA and TM are small, estimates using actual prices reflect both price and utilization differences between MA and TM.

We measured the count of annual inpatient days and the count of annual inpatient stays from institutional service claims. We measured annual physician visits per member per year and injectable drug procedures per member per year from professional service claims. Physician visits were defined using unique counts of physician visit procedure codes, which we grouped by beneficiary and service date to avoid multiple counting. Injectable drug procedures were identified based on the presence of Healthcare Common Procedure Coding System J codes.

Statistical Analysis

For the primary analysis, we used a difference-in-differences study design comparing the changes in outcomes that occurred during the transition to Medicare between beneficiaries entering MA vs TM in the propensity-matched cohort. See eMethods in the Supplement for the regression equations. Because diagnosis documentation can differ substantially between MA and TM,[7] we did not use diagnoses in the Medicare period to adjust spending and utilization. We used robust SEs clustered at the beneficiary level and report 95% CIs for regression estimates.[20] We tested for parallel trends in outcomes during the commercial period (eMethods and eTable 4 in the Supplement).[21] All analyses were conducted using R, version 3.5.0 (The R Foundation), and 2-sided $P < .05$ was considered statistically significant.

Results

Study Sample

The sampling and matching procedure yielded a cohort of 1082 matched beneficiaries (541 who entered MA and 541 who entered TM with a Medicare Supplement plan) from a prematching cohort of 1448 beneficiaries. Of the matched beneficiaries, 585 (54.1%) were female, and the mean (SD) age at Medicare enrollment was 66 (1.4) years. **Table 1** summarizes additional baseline characteristics of the 2 cohorts, including spending and utilization during the commercial insurance period, before and after matching. After matching, the TM and MA samples had similar values for 42 of 43 variables (eTable 1 in the Supplement); in the case of the 43rd variable, the proportion of the sample from the Central United States, there was a minor excess in the MA sample (n = 67 [12.4%] vs n = 50 [9.2%]; $P = .09$). Among TM beneficiaries, all of whom purchased an Aetna Medicare Supplement plan, the majority enrolled in Plan G (n = 359 [66.4%]), followed by Plan F (n = 89 [16.5%]), Plan N (n = 80 [14.8%]), and other plans (n = 13 [2.4%]). Plans G and F are the 2 most comprehensive Medicare Supplement plans. See eTable 2 in the Supplement for a comparison of the study cohort to the broader Aetna MA population.

Table 1. Characteristics of the Study Cohorts

Characteristic	Cohort, No. (%)			
	Before matching		After matching	
	Medicare Advantage	Traditional Medicare	Medicare Advantage	Traditional Medicare
No.	714	734	541	541
Age at Medicare enrollment, mean (SD), y	66.0 (1.3)	65.9 (1.4)	65.9 (1.3)	65.9 (1.4)
Gender				
Female	375 (52.5)[a]	423 (57.6)[a]	295 (54.5)	290 (53.6)
Male	339 (47.5)[a]	219 (42.4)[a]	246 (45.5)	251 (46.4)
Area				
Rural	251 (35.2)[a]	348 (47.4)[a]	224 (41.4)	204 (37.7)
Urban	253 (35.4)[a]	168 (22.9)[a]	149 (27.5)	164 (30.3)
Suburban	210 (29.4)	218 (29.7)	168 (31.2)	173 (32.0)
Region				
Central	76 (10.6)[a]	103 (14.0)[a]	67 (12.4)[a]	50 (9.2)[a]
Southeast	198 (27.7)[a]	140 (19.1)[a]	126 (23.3)	130 (24.0)
West	187 (26.2)	189 (25.7)	134 (24.8)	150 (27.7)
Northeast	252 (35.3)[a]	300 (40.9)[a]	213 (39.4)	210 (38.8)
Other	1 (0.1)	2 (0.3)	1 (0.2)	1 (0.2)
Commercial plan type				
Fully insured	129 (18.1)[a]	165 (22.5)[a]	107 (19.8)	100 (18.5)
Self-insured	578 (81.0)[a]	564 (76.8)[a]	430 (79.5)	436 (80.6)
Diagnoses				
High cholesterol	336 (47.1)[a]	298 (40.6)[a]	248 (45.8)	240 (44.4)
Hypertension	332 (46.5)	319 (43.5)	250 (46.2)	233 (43.1)
Ischemic heart disease	38 (5.3)	37 (5.0)	26 (4.8)	31 (5.7)
Low-back pain	37 (5.2)	35 (4.8)	30 (5.5)	23 (4.3)
Obesity	52 (7.3)	48 (6.5)	38 (7.0)	39 (7.2)
Glaucoma	50 (7.0)	45 (6.1)	28 (5.2)	34 (6.3)
Depression	45 (6.3)	39 (5.3)	31 (5.7)	34 (6.3)
Cataract	59 (8.3)	49 (6.7)	41 (7.6)	42 (7.8)
Diabetes	111 (15.5)	103 (14.0)	77 (14.2)	84 (15.5)
Any cancer	54 (7.6)	67 (9.1)	44 (8.1)	46 (8.5)
Risk score, mean (SD)				
Prospective	2.3 (1.7)	2.5 (2.3)	2.3 (1.7)	2.4 (1.7)
Retrospective	2.3 (2.5)	2.5 (3.0)	2.2 (2.4)	2.3 (2.5)
Medicare Supplement plan				
F	NA	127 (17.3)	NA	89 (16.5)
G	NA	490 (66.8)	NA	359 (66.4)
N	NA	100 (13.6)	NA	80 (14.8)
Other	NA	17 (2.3)	NA	13 (2.4)
Time between commercial insurance and Medicare, mo				
<1	518 (72.5)[a]	576 (78.5)[a]	425 (78.6)	418 (77.3)
<3	668 (93.6)[a]	669 (91.1)[a]	506 (93.5)	508 (93.9)
Commercial spending or utilization				
Spending per member per mo, mean (SD), $				
Institutional	150.8 (733.1)	142.9 (682.6)	173.5 (784.7)	115.7 (563.7)
Professional	365.3 (684.3)[a]	463.3 (1180.3)[a]	389.0 (757.6)	397.3 (906.7)
Utilization per thousand members per y, mean (SD)				
Inpatient stays	63.0 (295.3)	64.0 (281.3)	73.9 (319.3)	55.5 (259.4)
Inpatient days	238.1 (1429.8)	246.6 (1491.4)	284.7 (1587.1)	179.3 (1156.0)
Physician visits	6381.0 (5309.5)	6457.8 (5230.6)	6301.3 (5318.0)	6190.4 (4786.1)
Injectable drugs	579.8 (1617.7)	748.0 (2837.7)	600.7 (1733.0)	561.9 (1485.2)

Abbreviation: NA, not applicable.

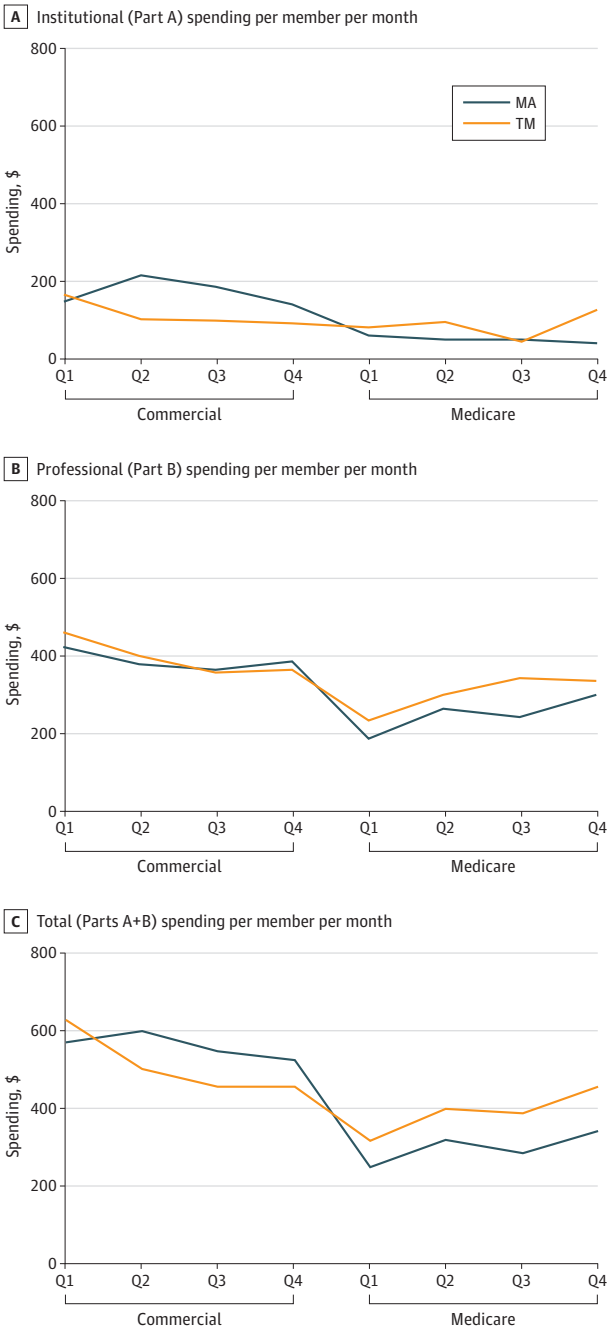
[a] $P < .10$ or standardized mean difference greater than 0.1.

Spending and Utilization

Figure 1 presents unadjusted trends in institutional (Part A) and professional (Part B) spending before and after the transition to Medicare for the TM and MA groups. **Figure 2** presents corresponding trends in utilization outcomes. For both spending and utilization outcomes, the statistical tests failed to detect any nonparallel trends in these outcomes during the commercial period (eFigure 2 and eTable 4 in the Supplement).

The spending trends demonstrate a larger fall in institutional spending for beneficiaries entering MA than for beneficiaries entering TM during the transition to Medicare. Although baseline institutional spending was greater for the cohort entering MA, this difference was not statistically

Figure 1. Spending Trends During the Transition From Commercial Insurance to Year 1 of Medicare

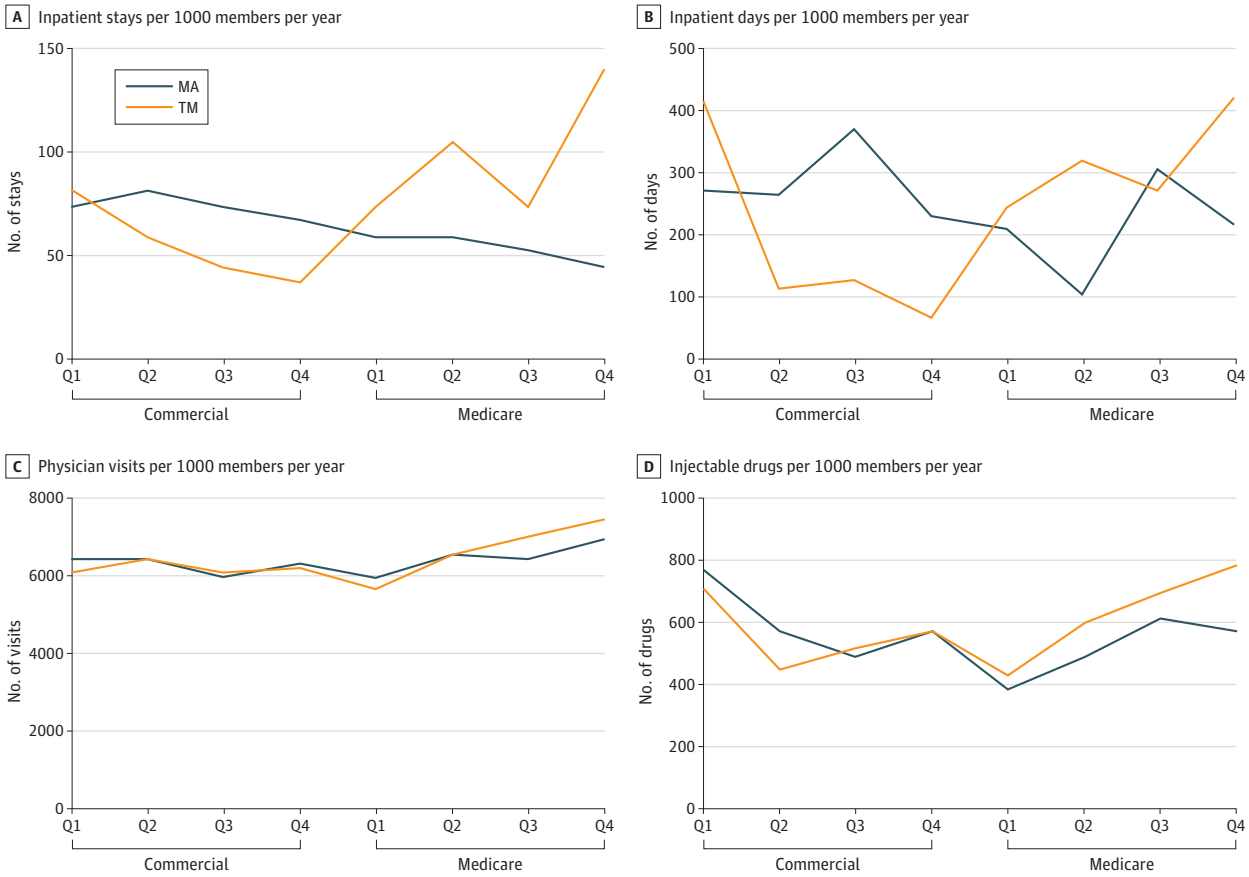


Q1 Through Q4 corresponds to quarterly 3-month intervals. MA indicates the Medicare Advantage cohort; TM, traditional Medicare cohort.

significant (mean [SD], $173.50 [$784.70] vs $115.70 [$563.70]; *P* = .16). The utilization trends suggest a differential increase in inpatient stays and inpatient days for beneficiaries entering TM.

Table 2 summarizes the difference-in-differences estimates of these trends in spending and utilization. There was a differential reduction in institutional spending of $95 (95% CI, $7-$183; *P* = .03) per member per month for MA relative to TM. These institutional spending reductions

Figure 2. Trends in Health Care Utilization During the Transition From Commercial Insurance to Year 1 of Medicare



Q1 Through Q4 corresponds to quarterly 3-month intervals. MA indicates the Medicare Advantage cohort; TM, traditional Medicare cohort.

Table 2. Difference-in-Differences Estimates of Changes in Spending and Utilization During Year 1 of Medicare

Outcome	Cohort, mean (SD)					Estimated effect of Medicare Advantage vs traditional Medicare (95% CI)	*P* value
	Before Medicare			After Medicare			
	Medicare Advantage	Traditional Medicare	Average	Medicare Advantage	Traditional Medicare		
Spending per member per mo, $							
Institutional (Part A)	173.5 (784.7)	115.7 (563.7)	144.6 (683.4)	50.6 (276.2)	87.7 (331.0)	−94.9 (−183 to −7)[a]	.03
Professional (Part B)	389.0 (757.6)	397.3 (906.7)	393.1 (835.1)	247.8 (445.6)	303.0 (642.2)	−46.9 (−145 to 51)	.35
Total (Parts A and B)	562.5 (1206.4)	512.9 (1185.3)	537.7 (1195.6)	298.4 (562.9)	390.7 (818.1)	−141.8 (−282 to 0)[a]	.048
Inpatient							
Stays per thousand members per y	73.9 (319.3)	55.5 (259.4)	64.7 (290.8)	53.6 (296.4)	98.0 (374.7)	−62.8 (−116 to −10)[a]	.02
Days per thousand members per y	284.7 (1587.1)	179.3 (1156.0)	232.0 (1388.7)	207.0 (1845.3)	314.2 (1554.3)	−212.5 (−467 to 43)[b]	.10
Physician visits per thousand members per y	6301.3 (5318.0)	6190.4 (4786.1)	6245.8 (5056.9)	6478.7 (5501.7)	6659.9 (6381.6)	−292.1 (−916 to 332)	.35
Injectable drugs per thousand members per y	600.7 (1733.0)	561.9 (1485.2)	581.3 (1613.2)	517.6 (1570.0)	626.6 (1977.9)	−147.9 (−384 to 89)	.22

[a] *P* < .05.

[b] *P* < .10.

coincided with differential reductions for the MA cohort in inpatient stays (stays per thousand members per year, −63; 95% CI −10 to −116; *P* = .02) and inpatient days (days per thousand members per year, −212; 95% CI, −43 to 467; *P* = .10). There was no statistically significant differential change in professional spending or utilization associated with entering MA. While the point estimates for professional spending and utilization outcomes are all consistent with differential reductions for the MA cohort, these estimates are imprecise, with 95% CIs wide enough to include null results as well as large reductions owing to MA. The differential reduction in overall spending for MA relative to TM was $142 (95% CI, $0–$282; *P* = .048) per member per month, which corresponds to 36% of TM spending.

In sensitivity analyses, the results were essentially unchanged by using an alternate causal forest difference-in-differences estimator that adjusts for remaining imbalance in the matched set.[22] Repeating the difference-in-differences analyses in the full unmatched cohort (n = 1448) using population-overlap weighting yielded directionally consistent results, though effect sizes were smaller than the main estimates and not statistically significant at the level of *P* < .05 (eTable 3 in the Supplement).

Discussion

We used a matched cohort of commercially insured persons as they transitioned to Medicare to assess the association between MA and health care use and spending. In effect, we used each beneficiary's outcomes when commercially insured prior to Medicare eligibility to mitigate the problem of nonrandom selection into TM vs MA. Furthermore, the analysis should be unaffected by differential intensity of coding diagnoses in MA vs TM[7]; although we did match beneficiaries based on diagnoses, these diagnoses were taken from the time when both groups were in commercial insurance.

We found that entering MA was associated with a differential reduction in Part A spending compared with entering TM during the year after the transition. This spending reduction was concentrated in inpatient hospital spending. Other components of institutional spending such as skilled nursing facility care, which was shown to be reduced substantially in MA,[8] could not be examined because of data incompleteness. The differential reduction in institutional spending was large compared with baseline levels and corresponded with large reductions in admissions, suggesting that utilization rather than prices was a substantial driver of the result. However, given the wide 95% CIs around the effect estimates, the results are somewhat imprecise; the true effects may be substantially smaller or larger. Because this analysis examines only the first year of Medicare coverage, the long-term effects on spending and utilization are unclear. The present results are broadly consistent with prior research suggesting that MA reduces hospital utilization.[8,10,15,23] However, addressing differences in beneficiary risk between MA and TM has been challenging for researchers. In this context, the present study is useful because we observe the same individual before and after Medicare enrollment, which mitigates selection bias. Thus, this approach reinforces the conclusions of these prior studies and demonstrates the feasibility of studying MA using transitions across types of health insurance.

These results echo certain findings of the RAND Health Insurance Experiment from the 1970s, which found a 39% reduction in inpatient admissions among a group of adults younger than 65 years who were randomized to a staff model HMO but no effect on their use of outpatient services.[24] Other more recent studies have found evidence that MA reduces hospitalizations,[8,15] though this result can depend on the methods used to account for patient health risk.[8] The present study is not the first to examine changes in spending as patients move from commercial to Medicare insurance. A recent study documented spending reductions as beneficiaries transitioned from commercial insurance into TM,[25] likely because of the higher prices paid by commercial insurers relative to TM.[26] That study did not examine MA beneficiaries, however.

The unique combination of data sources in this study allowed us to compare outcomes between TM and MA despite the high likelihood of unmeasured differences in health risks between these 2 groups of beneficiaries. However, certain dynamic differences in patient characteristics could have undermined the results. For example, if beneficiaries who were anticipating an inpatient procedure differentially opted for TM out of concern that the physician or hospital they desired might be out of network in MA, this phenomenon would have introduced bias. However, the excess spending we observed in Part A TM relative to MA was greatest in the final quarter of the year following enrollment in Medicare (eFigure 2 in the Supplement), later than short-term anticipation effects might be expected.

Limitations

This study has several limitations. First, the difference-in-differences analysis depends crucially on the assumption that anything that might have differentially affected spending and utilization in either the TM and MA cohorts other than the Medicare plans they chose remained constant over the period of observation. This assumption can be partially tested by examining whether trends in spending and utilization are parallel for the MA and TM cohorts when they are both enrolled in commercial insurance. Although our power to test this assumption is limited, to the degree trends are divergent in the commercial insurance period, the MA trend is rising relative to TM, suggesting the present findings may be understated (eTables 3 and 4 in the Supplement).

Second, our inferences would be biased if beneficiaries chose to enroll in MA vs TM because of changes in anticipated health care use after Medicare eligibility. A problematic scenario would be if beneficiaries put off the use of medical services until eligible for Medicare and then differentially chose TM or MA based on that expected use. Fortunately, this scenario does not seem particularly plausible; we doubt many beneficiaries with generous commercial insurance, which this sample had, would put off treatment until they became eligible for Medicare instead of pursing treatment while commercially insured. Furthermore, there was little reason for beneficiaries to differentially choose TM vs MA based on the actuarial value of Medicare coverage, which was 83% for both groups. Also, the time pattern of use that we observed after Medicare eligibility does not suggest such behavior (eFigure 2 in the Supplement). In addition, because we matched patients based on pre-Medicare characteristics, we mitigated bias from differential trends or time-varying confounding to the extent that these differences between TM and MA were predicted by measured patient characteristics.

Third, the sample size and time span of the study were limited by data availability. The main limiting factor was Part A TM data. A lack of historical Part A data from Aetna's data vendor limited the present cohort to beneficiaries who transitioned from commercial insurance to Medicare during a 6-month period and limited the outcomes data to a year before and after the transition. As a result, the sample size was insufficient to examine many outcomes. We examined a narrow range of utilization and spending outcomes that are not sufficient for evaluating the overall welfare effects of MA.

Fourth, these findings may not generalize beyond the Aetna beneficiary population. Examining beneficiaries within a single insurer allowed us to use the quasi-experimental research design that is a central contribution of the study, but the behavior of these individuals may not be representative of broader populations. Finally, as mentioned above, we could not study the use of services for which uniform data were lacking in TM and MA. For example, services with no cost sharing in TM are not consistently present in the supplemental insurance claims, and MA enrollees who elect hospice are covered by TM. We addressed this issue by excluding such services (ie, clinical laboratory procedures, hospice care, home health care, certain preventive services, prescription drugs) from this analysis. However, the estimates of the effect of MA on overall service use would be biased if MA effects differ for omitted services. If this data limitation introduced bias in the effect estimates, it is not clear whether the true effect is larger or smaller than the effect we estimated.

Conclusions

This retrospective cohort study of a single private insurer demonstrates a differential reduction in inpatient spending and utilization associated with entering MA rather than TM; this finding suggests that private MA plans may lower inpatient spending and utilization relative to TM during the first year of Medicare coverage. The research also illustrates the feasibility of combining multiple sources of health insurance claims to examine how health care outcomes change as individuals move across types of health insurance. This approach has broad potential applications to investigate the effects of health insurance type on various outcomes of interest to physicians and policy makers.

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Author Contributions: Mr Zlaoui and Dr Foreman had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: All authors.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Schwartz, Zlaoui.

Critical revision of the manuscript for important intellectual content: All authors.

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SUPPLEMENT.

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