JAMA Network Open

Original Investigation | Health Policy

Medicare Risk Arrangement and Use and Outcomes Among Physician Groups

Ken R. Cohen, MD; Boris Vabson, PhD; Jennifer Podulka, MPAff; Nathan J. Smith, PhD; Erica Everhart, JD; Omid Ameli, MD, DrPH; Kierstin Catlett, PhD; Megan S. Jarvis, MS; Caroline Goldzweig, MD, MSHS; Julie H. Kuo, PhD; Susan Dentzer, MS

Abstract

IMPORTANCE Many physician groups are in 2-sided risk payment arrangements with Medicare Advantage plans (at-risk MA). Analysis of quality and health resource use under such arrangements may inform ongoing Medicare policy concerning payment and service delivery.

OBJECTIVE To compare quality and efficiency measures under 2 payment models: at-risk MA and fee-for-service (FFS) MA.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional study used Medicare encounter and enrollment data from 2016 to 2019 covering 17 physician groups, 15 488 physicians, and 35 health insurers to compare quality and health resource use for Medicare beneficiaries within the same physician groups. The data were analyzed between August 4 and October 30, 2024.

EXPOSURES Care delivered under at-risk MA and FFS MA payment arrangements by the same physicians and medical groups.

MAIN OUTCOMES AND MEASURES Twenty quality and efficiency measures across 4 domains of patient care (hospital care, avoidance of the emergency department [ED], avoidance of disease-specific admissions, and outpatient care) were examined using logistic regression analysis.

RESULTS The overall sample comprised 5 278 717 person-years (37.7% at-risk MA and 62.3% FFS MA). The mean (SD) age of beneficiaries was 73.6 (9.2) years in the at-risk MA group (56.8% women) and 71.8 (10.4) years in the FFS MA group (57.4% women). For at-risk MA compared with FFS MA, inpatient admissions and 30-day readmissions per 1000 were 10.03 (95% CI, −10.61 to −9.44) and 1.95 (95% CI, −2.18 to −1.73) lower. ED use measures per 1000 ranged from 2.95 (95% CI, −3.28 to −2.63) lower for avoidable ED visits to 26.02 (95% CI, −26.92 to −25.12) lower for overall ED visits. Avoidance of disease-specific admissions per 1000 ranged from 0.24 (95% CI, −0.35 to −0.13) lower for composite diabetes-related admissions to 2.18 (95% CI, −2.43 to −1.94) lower for the composite of chronic disease–related admissions. High-risk drug use per 1000 was 14.26 (95% CI, −14.85 to −13.67) lower. Overall, compared with FFS MA, at-risk MA was associated with higher quality and efficiency in 18 of 20 measures after adjusting for differences in demographics, Hierarchical Condition Categories Risk Adjustment Factor scores, and other health characteristics.

CONCLUSIONS AND RELEVANCE In this cross-sectional study, at-risk MA payment arrangements managed by physician groups were associated with higher quality and efficiency compared with FFS MA managed by the same groups. The population and methods used provide robust evidence that at-risk payment arrangements in MA may improve health care delivery for the MA population.

Key Points

Question Is care delivered by physician groups under 2-sided risk payment arrangements in Medicare Advantage (at-risk MA) associated with higher quality and efficiency compared with care delivered by the same physician groups under fee-for-service MA payment arrangements?

Findings In this cross-sectional study of 2016-2019 claims and enrollment data covering 5 278 717 person-years, the marginal risk differences across 4 domains of patient care (hospital care, avoidance of the emergency department, avoidance of disease-specific admissions, and outpatient care) favored higher quality and efficiency in at-risk MA compared with fee-for-service MA in 18 of 20 quality and health resource use measures.

Meaning These findings suggest that at-risk payment arrangements may improve health care delivery for MA beneficiaries.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

JAMA Network Open. 2025;8(1):e2456074. doi:10.1001/jamanetworkopen.2024.56074

Introduction

More than half of Medicare beneficiaries opt into Medicare Advantage (MA),[1] which includes out-of-pocket spending caps and supplemental benefits (eg, dental, hearing, vision) that are not available in the traditional Medicare (TM) program.[2] A growing number of studies have indicated that MA enrollment is associated with superior quality outcomes, reductions in total cost of care, and lower out-of-pocket spending.[3-6]

Medicare Advantage plans differ in how they contract with health care professionals.[7] They may pay physicians through fee-for-service arrangements (FFS MA) or contract with physician groups under delegated 2-sided risk arrangements, under which the financial risk of delivering health care services is transferred wholly or in large part to the group (at-risk MA). These physician groups may retain financial surpluses or incur financial deficits related to the quality and efficiency of care they provide. To minimize financial risk while delivering optimal care, physician groups under at-risk payment arrangements have incentives to develop a population health management infrastructure to improve care and reduce high-cost health resource use. At-risk payment arrangements exist for some TM patients through the Accountable Care Organization Realizing Equity, Access, and Community Health model and the Medicare Shared Savings Program. However, at-risk MA incorporates a substantially greater risk than these models and gives physicians a greater range of tools with which to manage care.[8]

Studying at-risk MA compared with FFS MA therefore provides a method for evaluating the quality and health resource use of these at-risk payment arrangements. Studies have found that at-risk MA payment models are associated with higher quality and efficiency, specifically in the inpatient setting, compared with both TM[9] and FFS MA.[10] In this study, we examined a broad array of quality and efficiency measures encompassing 4 domains of patient care and studied a large sample of at-risk physician groups and primary care physicians (PCPs). We also examined risk contracts from the universe of various MA payers with which these groups contract, which are more reflective of the high-risk global capitation models that are currently prevalent.

Methods

This cross-sectional study examined the association of at-risk MA physician arrangements with quality and health care resource use. We compared at-risk MA to FFS MA for patients cared for within the same physician groups, which allowed us to isolate the extent to which MA's performance might be driven by at-risk payment arrangements and the resultant care management infrastructure built by physician groups participating in these arrangements. This study was approved by Solutions IRB, an external institutional review board. Since the study design involved a retrospective analysis of preexisting, deidentified data, it qualified as non–human participants research under institutional review board protocol and was exempted from further review and the need for informed consent. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

Study Data

The study used publicly available MA encounter data from the Centers for Medicare & Medicaid Services (CMS), as well as nonpublic data on at-risk payment arrangements across a subset of 17 physician groups. The study covered the period from January 1, 2016, to December 31, 2019.

CMS Medicare data tracks health resource use and outcomes for beneficiaries in MA. Prior to our sample restrictions, the original dataset covered 100% of all MA beneficiaries, including all beneficiaries in at-risk as well as FFS payment arrangements. To address potential concerns about Medicare encounter data completeness, we included inpatient-related outcomes for which encounter data have been shown to be highly accurate. We further mitigated potential data completeness issues by focusing solely on MA patients; because the at-risk and FFS cohorts were

both tracked in encounter data, any comparison between them should not have been biased by encounter data completeness.

The physician groups dataset (eTable 1 in Supplement 1) tracked the universe of at-risk MA payment arrangements across all 17 groups that elected to participate and submit data for the study. These 17 physician groups varied in terms of size and geographic location, collectively treated a substantial fraction of all Medicare patients nationwide, and appeared to be a representative sample of physician groups broadly. For example, the physician groups were at risk for approximately 35% of their attributed MA patients compared with a rate of 24% across all groups nationwide.[11]

The physician group dataset tracked MA plans for which each group was at risk on a year-by-year basis. For each at-risk arrangement, the data tracked the specific MA plan to which the arrangement pertained, including the characteristics of that plan (eg, carrier, plan type, contract identifier, and plan identifier). The data also tracked the scope of each at-risk arrangement, specifically whether the arrangement involved a full risk for professional services only, full professional risk with shared institutional risk, or global full-risk arrangement covering all services. Most at-risk arrangements in our study were global in nature, and all but 1 physician group had meaningful risk exposure in terms of having at least one 2-sided risk arrangement covering a minimum of professional services. We were able to track all of the individual PCPs who were subject to each group's at-risk arrangements based on physician roster data obtained from the groups, which tracked the physicians affiliated with or employed by each group.

Sample and Cohorts

Our sample was restricted to the set of 17 physician groups participating in the study. To link beneficiaries to PCPs and their associated physician groups, we first attributed beneficiaries to an individual PCP using the Medicare Shared Savings Program attribution methodology, as an equivalent or near-equivalent methodology is typically used by MA plans for at-risk payment attribution.[12] We conducted attributions separately for each year on a concurrent basis to reflect each beneficiary's predominant PCP in a given calendar year and to capture year-over-year changes in PCPs. We then tied individual PCPs to participating groups based on group-provided roster data. We further limited our sample to beneficiary-year combinations in which a beneficiary had used primary care.

To avoid confounding related to disruptions during the COVID-19 pandemic, we restricted our sample to the years 2016 through 2019. We then restricted beneficiary-year combinations to individuals enrolled in both Medicare Part A and Part B for all 12 months of that year. Our sample included patients eligible for Medicare and Medicaid (dually eligible), not dually eligible, and aged 64 years or younger and 65 years or older. For pharmacy-based measures, we further restricted the sample to beneficiaries with Part D coverage for all 12 months of the measurement year. Finally, we restricted the sample to beneficiaries enrolled in MA for the entire calendar year.

We constructed 2 distinct cohorts for each calendar year: (1) at-risk MA and (2) FFS MA. The at-risk MA cohort was defined as beneficiaries whose attributed physician group was at risk for the beneficiary's MA plan for that calendar year. If a beneficiary was enrolled in multiple MA plans in a given year, we used the MA plan in which they were enrolled the longest. The FFS MA and TM cohorts were defined using an analogous approach.

Outcomes

Using MA encounter data, we calculated 20 quality and health resource use measures across 4 domains of patient care: hospital care, avoidance of emergency department (ED) care, avoidance of disease-specific admissions, and outpatient care. Outpatient measures used the Healthcare Effectiveness Data and Information Set pharmacy measures. Outcomes were defined at an individual claim level and subsequently aggregated up to a person-year level.

We tracked inpatient and ED visit volume, focusing on visit types that reflected overall care quality, such as 30-day all-cause inpatient readmissions and primary care–treatable ED visits. We also

tracked avoidable inpatient visits based on the Agency for Health Research and Quality prevention quality indicator (PQI) definitions,[13] including avoidable admissions for acute and/or chronic complications for the following conditions: diabetes, chronic obstructive pulmonary disease, hypertension, heart failure, bacterial pneumonia, and urinary tract infections. Finally, we tracked measures of outpatient care quality, including pharmacy measures of medication adherence and high-risk drug use (eMethods in Supplement 1).

Statistical Analysis

Between August 4 and October 30, 2024, we compared the at-risk MA and FFS MA cohorts over the same period and within the same physician groups. To identify the association of these different forms of coverage and mitigate potential confounding from patient mix differences, we used a set of controls including age; sex; self-reported race and ethnicity (based on Research Triangle Institute race code [American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, Hispanic, non-Hispanic White, other racial, or unknown]); dual-eligibility status; calendar year; Hierarchical Condition Category (HCC) Risk Adjustment Factor score, composite version 24; and prevalence indicators for different high-level disease categories (based on high-level HCC groupings). Race and ethnicity were included as disparities exist in health outcomes and racial and ethnic differences may exist in MA enrollment and risk exposure within MA, statistically necessitating their inclusion. The HCCs are sets of medical codes linked to specific clinical diagnoses and used by the CMS for risk adjustment of individuals with serious acute or chronic conditions. The CMS used version 24 to calculate risk adjustment scores for MA plans during the years of this study. We also included an indicator for the physician group of the attributed PCP, which allowed us to mitigate potential confounding from physician differences by comparing payment arrangements within a specific physician group. We additionally restricted our analysis to the 17 physician groups participating in the study, each of which had exposure to both at-risk and FFS MA patients. Finally, we accounted for differences in MA plan mix, specifically health maintenance organization (HMO) vs preferred provider organization, between at-risk MA and FFS MA arrangements by including a control for MA HMO status.

We used a multivariable logistic regression model representing all measures as binary indicators rather than using counts, given the relatively low odds or prevalence of 0 values. As an additional robustness check, to assess the sensitivity of associations to coding intensity, we ran models adjusting for HCC, version 28 scores and groupings in place of those using version 24. Version 28 is the latest HCC version effective in 2023 and was intended to reduce the impact of coding intensity by removing revenue associated with 2294 *International Statistical Classification of Diseases, Tenth Revision* codes. Results are reported as marginal risk differences. All analyses were performed using SAS Enterprise Guide, version 7.15 (SAS Institute Inc). A 2-sided $P < .05$ by Wald χ^2 test was considered significant for the regression estimates.

Results

The final cohort of beneficiaries represented 5 278 717 person-years, of which 37.7% were in at-risk MA and 62.3% in FFS MA (eFigure in Supplement 1). The beneficiary cohort was associated with 15 488 different PCPs and 35 different health plans. The mean (SD) age of beneficiaries was 73.6 (9.2) years in the at-risk MA group and 71.8 (10.4) years in the FFS MA group. In at-risk MA and FFS MA, women comprised 56.8% and 57.4% of each group, respectively, compared with men (43.2% and 42.6%, respectively), while Non-Hispanic White beneficiaries constituted 49.2% and 36.4%, respectively, compared with 0.1% each of American Indian or Alaska Native, 5.6% and 5.0% for Asian or Pacific Islander, 8.1% and 9.9% Black or African American, 35.2% and 47.5% Hispanic, 1.1% and 0.6% other race, and 0.7% and 0.5% unknown race and ethnicity, respectively. The Pacific region had the greatest number of beneficiaries in the entire sample (28.2%). The mean (SD) HCC, version 24 score was 1.40 (1.09) for at-risk MA and 1.46 (1.14) for FFS MA (**Table 1**).

Unadjusted rates and a marginal effect risk difference comparison of study outcomes across at-risk MA and FFS MA are shown in **Table 2**, the **Figure**, and **Table 3**. At-risk MA beneficiaries were observed to have more favorable outcomes across 18 of 20 measures of quality and health resource use among the 4 domains of patient care (Figure). With respect to hospital care, acute inpatient

Table 1. Descriptive Characteristics of Sample, 2016-2019

Characteristic and level	Study group, No. (%)		
	All	At-risk MA	FFS MA
Total No. of person-years	5 278 717	1 990 869	3 287 848
Age, mean (SD), y	72.5 (10.0)	73.6 (9.2)	71.8 (10.4)
Age groups, y			
≤64	715 392 (13.6)	187 125 (9.4)	528 267 (16.1)
65-69	1 136 602 (21.5)	441 092 (22.2)	695 510 (21.2)
70-74	1 312 548 (24.9)	511 668 (25.7)	800 880 (24.4)
75-79	949 223 (18.0)	371 315 (18.7)	577 908 (17.6)
≥80	1 164 952 (22.1)	479 669 (24.1)	685 283 (20.8)
Sex			
Female	3 017 791 (57.2)	1 130 493 (56.8)	1 887 298 (57.4)
Male	2 260 926 (42.8)	860 376 (43.2)	1 400 550 (42.6)
Race and ethnicity			
American Indian or Alaska Native	5041 (0.1)	2715 (0.1)	2326 (0.1)
Asian or Pacific Islander	276 323 (5.2)	112 473 (5.6)	163 850 (5.0)
Black or African American	485 141 (9.2)	160 845 (8.1)	324 296 (9.9)
Hispanic	2 263 648 (42.9)	700 306 (35.2)	1 563 342 (47.5)
Non-Hispanic White	2 177 070 (41.2)	980 153 (49.2)	1 196 917 (36.4)
Other[a]	42 392 (0.8)	21 356 (1.1)	21 036 (0.6)
Unknown	29 102 (0.6)	13 021 (0.7)	16 081 (0.5)
Census division			
East North	45 184 (0.9)	15 725 (0.8)	29 459 (0.9)
East South	568 138 (10.8)	148 724 (7.5)	419 414 (12.8)
Mid-Atlantic	102 046 (1.9)	24 007 (1.2)	78 039 (2.4)
Mountain	166 201 (3.1)	68 522 (3.4)	97 679 (3.0)
New England	35 784 (0.7)	27 108 (1.4)	8676 (0.3)
Other, noncontiguous	1 274 094 (24.1)	173 087 (8.7)	1 101 007 (33.5)
Pacific	1 487 728 (28.2)	931 704 (46.8)	556 024 (16.9)
South Atlantic	747 295 (14.2)	123 889 (6.2)	623 406 (19.0)
West North	3064 (0.1)	771 (0.0)	2293 (0.1)
West South	849 183 (16.1)	477 332 (24.0)	371 851 (11.3)
Dually eligible	1 024 510 (19.4)	304 445 (15.3)	720 065 (21.9)
HMO plan type	4 523 492 (85.7)	1 975 815 (99.2)	2 547 677 (77.5)
HCC, version 24 score, mean (SD)	1.43 (1.13)	1.40 (1.09)	1.46 (1.14)
HCC groupings			
Blood: 2, 46, 48	569 820 (10.8)	246 163 (12.4)	323 657 (9.8)
CVD: 82, 83, 84, 85, 86, 87, 88, 96, 99, 100, 107, 108	2 585 565 (49.0)	984 116 (49.4)	1 601 449 (48.7)
Diabetes: 17, 18, 19	2 129 592 (40.3)	756 165 (38.0)	1 373 427 (41.8)
Injury: 166, 167, 168	102 154 (1.9)	40 034 (2.0)	62 120 (1.9)
Kidney: 134, 135, 136, 137, 138	1 047 855 (19.9)	431 529 (21.7)	616 326 (18.7)
Liver: 27, 28	63 905 (1.2)	25 465 (1.3)	38 440 (1.2)
Lung: 111, 112, 114, 115	1 052 529 (19.9)	387 738 (19.5)	664 791 (20.2)
Neoplasm: 8, 9, 10, 11, 12	458 647 (8.7)	164 025 (8.2)	294 622 (9.0)
Psychiatric: 57, 58, 59, 60	1 268 054 (24.0)	450 390 (22.6)	817 664 (24.9)
Substance abuse: 54, 55, 56	506 059 (9.6)	175 309 (8.8)	330 750 (10.1)
Skin: 157, 158, 159, 161, 162	108 083 (2.0)	36 593 (1.8)	71 490 (2.2)

Abbreviations: at-risk MA, Medicare Advantage beneficiaries cared for under fully accountable care organization models; CVD, cardiovascular disease; FFS MA, Medicare Advantage beneficiaries cared for under fee-for service models; HCC, Hierarchical Condition Category; HMO, health maintenance organization.

[a] Other category includes racial and ethnic minority groups other than Asian, Black, Hispanic, or American Indian.

admissions and 30-day readmission rates per 1000 were lower by 10.03 (95% CI, −10.61 to −9.44; *P* < .001) and 1.95 (95% CI, −2.18 to −1.73; *P* < .001), a difference relative to FFS MA of −8.7% and −12.9%, respectively. On the 4 measures of avoidance of ED use, ED admissions per 1000 ranged from 2.95 (95% CI, −3.28 to −2.63; *P* < .001) lower for avoidable ED visits to 26.02 (95% CI, −26.92 to −25.12; *P* < .001) lower for overall ED visits, a difference relative to FFS MA of −10.7% and −8.7%, respectively. The 9 measures of avoidance of disease-specific admissions per 1000 ranged from 0.24 (95% CI, −0.35 to −0.13; *P* < .001) lower for the PQI-93 composite of diabetes-related admissions to 2.18 (95% CI, −2.43 to −1.94; *P* < .001) lower for the PQI-92 composite of chronic disease–related admissions, a difference relative to FFS MA of −7.8% and −13.0%, respectively. Finally, looking at the 5 measures of outpatient care per 1000, high-risk drug use was 14.26 (95% CI, −14.85 to −13.67; *P* < .001) lower, and medication adherence was 3.47 (95% CI, 2.21-4.74; *P* < .001) higher for statin medications and 5.69 (95% CI, 4.49-6.89; *P* < .001) higher for antihypertensive medications. The FFS MA had higher diabetes medication adherence by 4.46 (95% CI, −6.75 to −2.17; *P* < .001) per 1000, and at-risk MA and FFS MA were statistically equivalent on the measure for diabetes-related lower extremity amputation.

As a robustness test, we conducted our main analyses on an alternative sample, which included at-risk and not-at-risk MA beneficiaries who died over the course of the year. We found that these results were effectively equivalent to those in our original analysis, indicating that the results from our original sample are robust to survivorship bias (eTables 3 and 4 in Supplement 1).

Table 2. Unadjusted Comparison of Efficiency and Quality Outcome Measures, Measurement Year 2019[a]

	Events per 1000, mean (SD)		
Domain and outcome measure	All	At-risk MA	FFS MA
Hospital care			
Acute inpatient admissions	163.6 (563.4)	142.3 (508.8)	177.3 (595.5)
30-d Readmissions	20.5 (209.4)	16.4 (178.6)	23.1 (226.9)
Avoidance of ED			
ED visits	609.7 (1689.2)	517.5 (1360.4)	668.9 (1867.7)
Avoidable ED visits	36.2 (284.4)	30.2 (243.2)	40.0 (307.9)
Primary care–treatable ED	88.9 (433.0)	67.6 (343.7)	102.6 (481.1)
Inpatient admission through ED	108.1 (459.1)	105.2 (437.6)	110.0 (472.4)
Avoidance of disease-specific admission			
COPD or asthma, older adult (≥40 y)	6.3 (99.2)	4.4 (83.0)	7.5 (108.4)
Hypertension	1.5 (41.8)	1.2 (36.2)	1.6 (45.0)
Heart failure	9.3 (126.2)	8.0 (111.2)	10.2 (134.9)
Bacterial pneumonia	4.1 (68.5)	3.2 (59.4)	4.7 (73.8)
Urinary tract infection	3.6 (65.4)	2.8 (57.1)	4.1 (70.2)
Diabetes lower extremity amputation	0.7 (29.8)	0.5 (26.1)	0.8 (32.0)
PQI-91 acute composite	7.8 (95.4)	6.0 (83.0)	8.9 (102.6)
PQI-92 chronic composite	21.3 (193.0)	16.9 (166.2)	24.1 (208.4)
PQI-93 diabetes composite	4.2 (85.3)	3.4 (75.7)	4.8 (90.9)
Outpatient care			
High-risk drug use	73.0 (260.1)	61.4 (240.0)	80.5 (272.0)
Office visits	8778.1 (7047.5)	7785.9 (6432.7)	9414.9 (7345.1)
Medication adherence			
RAS	857.4 (349.7)	881.6 (323.1)	843.0 (363.8)
Diabetes	719.2 (449.4)	735.8 (440.9)	709.5 (454.0)
Statin	845.5 (361.5)	875.9 (329.7)	826.8 (378.4)

Abbreviations: at-risk MA, Medicare Advantage beneficiaries cared for under fully accountable care organization models; COPD, chronic obstructive pulmonary disease; ED, emergency department; FFS MA, Medicare Advantage beneficiaries cared for under fee-for-service models; PQI, prevention quality indicator; RAS, renin-angiotensin system.

[a] The 2019 data included are representative. eTable 2 in Supplement 1 shows all 4 years of data.

Discussion

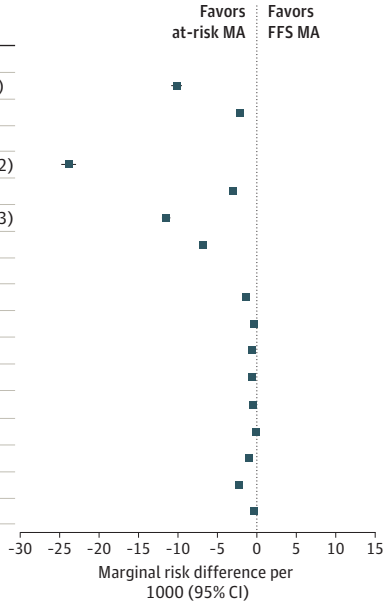
This cross-sectional study found that beneficiaries in at-risk MA experienced more favorable quality and health resource use outcomes across 4 domains of patient care compared with FFS MA beneficiaries, even after adjusting for variations in patient mix. These results are clinically and economically meaningful given that these outcomes reflect common conditions and major drivers of use,[14] including preventable inpatient admissions for multiple acute and chronic diseases.

A challenge for prior work was differences in patient mix across payment models, making the identification of causal associations difficult. We adjusted for differences in patient mix by using demographic and health risk score controls and accounted for potential differences in physician mix across different payment types by ensuring that both beneficiary cohorts received care from the same physicians and physician groups. We also accounted for differences in payer mix across payment models, specifically HMO vs preferred provider organization, between at-risk and FFS MA arrangements by including a control for MA HMO status.

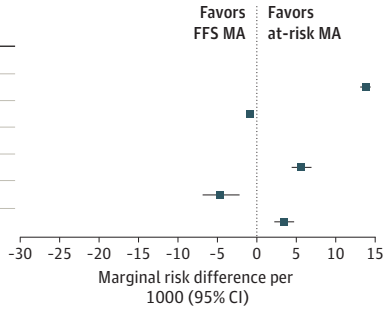
The differences observed in this study could be explained by the mix of physician groups, as groups that are taking meaningful risk may be more experienced in managing that risk than other groups previously studied. The differences might also be explained by risk-based contracts in our sample being global and all being full risk, implying that more comprehensive and stringent risk-based contracts may have more pronounced associations with outcomes.

Figure. Adjusted Risk Differences Between At-Risk Medicare Advantage (At-Risk MA) and Fee-for-Service Medicare Advantage (FFS MA) for 20 Outcome Metrics

Measure	Marginal risk difference per 1000 (95% CI)
Hospital care	
Acute IP admissions	−10.03 (−10.61 to −9.44)
30-d Readmission	−1.95 (−2.18 to −1.73)
Avoidance of ED	
ED visits	−26.02 (−26.92 to −25.12)
Avoidable ED visits	−2.95 (−3.28 to −2.63)
Primary care-treatable ED	−11.34 (−11.85 to −10.83)
IP through ED	−6.75 (−7.21 to −6.28)
Avoidance of disease-specific admissions	
COPD or asthma, older adult (aged ≥40 y)	−1.33 (−1.48 to −1.18)
Hypertension	−0.25 (−0.32 to −0.18)
Heart failure	−0.56 (−0.72 to −0.39)
Bacterial pneumonia	−0.51 (−0.64 to −0.37)
Urinary tract infection	−0.49 (−0.61 to −0.37)
Diabetes lower-extremity amputation	0.04 (0.00 to 0.09)
PQI-91 acute disease composite	−0.97 (−1.15 to −0.80)
PQI-92 chronic disease composite	−2.18 (−2.43 to −1.94)
PQI-93 diabetes composite	−0.24 (−0.35 to −0.13)



Measure	Marginal risk difference per 1000 (95% CI)
Outpatient care	
High-risk drug use	14.26 (13.67 to 14.85)
Office visits	−0.79 (−1.06 to −0.53)
Medication adherence	
RAS	5.69 (4.49 to 6.89)
Diabetes	−4.46 (−6.75 to −2.17)
Statin	3.47 (2.21 to 4.74)



Adjusted risk difference from logistic regression models for marginal effects. The probability of all outcomes were modeled in the overall cohort. Due to low event rates, risks and risk differences are reported per 1000. All models were adjusted for age groups; sex; race and ethnicity; dual-eligibility status; health maintenance organization plan type (for MA); physician groups; calendar year; and Hierarchical Condition Category score, version 24 and the following high-level groupings: blood (2, 46, 48), cardiovascular disease (82, 83, 84, 85, 86, 87, 88, 96, 99, 100, 107, 108), diabetes (17, 18, 19), injury (166, 167, 168), kidney (134, 135, 136, 137, 138), liver (27, 28), lung (111, 112, 114, 115), neoplasm (8, 9, 10, 11, 12), psychiatric (57, 58, 59, 60), substance abuse (54, 55, 56), and skin (157, 158, 159, 161, 162). COPD indicates chronic obstructive pulmonary disease; ED, emergency department; IP, inpatient; PQI, prevention quality indicator; RAS, renin-angiotensin system.

Our finding of higher quality and efficiency associated with at-risk MA compared with FFS MA is consistent with the limited data from other studies that examined outcomes associated with these payment models.[10,15] Such findings suggest that it is the at-risk payment arrangement that underpins this clinical performance and is a reminder that all of MA is not monolithic, since many MA contracts continue to pay physician groups and physicians in FFS arrangements. Furthermore, our findings suggest that these at-risk payment arrangements are a key driver through which MA achieves this clinical performance compared with other FFS models, including TM.[16]

We propose 2 key explanations for how at-risk payment arrangements achieve improved outcomes. First, physicians in at-risk MA may evolve practice patterns that support these improved outcomes, including a focus on preventive care, selective referral to high-performing specialists and efficient sites of service, attention to evidence-based medicine, and reduction in low-value care. Second is the infrastructure built to manage at-risk MA, examples of which may include population risk stratification, physician performance reporting and feedback, intensive case management, social worker and community health worker support to address health-related social needs, integrated behavioral health care and pharmacy services, and disease management programs.

Limitations

Our approach to adjusting for population differences across payment arrangements to isolate the associations of these arrangements relies on observable measures of health, demographics, and clinical risk. Despite including a broad range of measures, we may still have failed to account for residual, unobservable differences between the populations.

Table 3. Adjusted Risk for At-Risk MA vs FFS MA and Between-Group Risk Differences for 20 Outcome Metrics, 2016-2019[a,b]

Outcome	Marginal risk per 1000, mean (SE)[c]		% Difference (relative to FFS MA)	Risk difference *P* value
	At-risk MA	FFS MA		
Hospital care				
Acute inpatient admissions	105.83 (0.22)	115.86 (0.17)	−8.7	<.001
30-d Readmissions	13.16 (0.08)	15.11 (0.06)	−12.9	<.001
Avoidance of ED				
ED visits	274.52 (0.34)	300.53 (0.25)	−8.7	<.001
Avoidable ED visits	24.52 (0.12)	27.47 (0.09)	−10.7	<.001
Primary care–treatable ED	58.37 (0.19)	69.70 (0.14)	−16.3	<.001
Inpatient admission through ED	70.58 (0.16)	77.32 (0.14)	−8.7	<.001
Avoidance of disease-specific admission				
COPD or asthma, older adult (≥40 y)	4.83 (0.06)	6.17 (0.04)	−21.6	<.001
Hypertension	1.11 (0.03)	1.36 (0.02)	−18.4	<.001
Heart failure	6.38 (0.06)	6.94 (0.05)	−8.1	<.001
Bacterial pneumonia	3.60 (0.05)	4.10 (0.04)	−12.4	<.001
Urinary tract infection	2.98 (0.05)	3.47 (0.03)	−14.1	<.001
Diabetes lower extremity amputation	0.51 (0.02)	0.47 (0.01)	8.5	.07
PQI-91 acute composite	6.52 (0.07)	7.49 (0.05)	−13.0	<.001
PQI-92 chronic composite	14.65 (0.09)	16.83 (0.07)	−13.0	<.001
PQI-93 diabetes composite	2.83 (0.04)	3.07 (0.03)	−7.8	<.001
Outpatient care				
High risk drug use	78.94 (0.22)	93.20 (0.16)	−15.3	<.001
Office visits	984.32 (0.09)	985.11 (0.08)	−0.1	<.001
Medication adherence				
RAS	833.86 (0.48)	828.17 (0.30)	0.7	<.001
Diabetes	694.15 (0.90)	698.61 (0.60)	−0.6	<.001
Statin	810.60 (0.51)	807.13 (0.32)	0.4	<.001

Abbreviations: at-risk MA, Medicare Advantage beneficiaries cared for under fully accountable care organization models; COPD, chronic obstructive pulmonary disease; ED, emergency department; FFS MA, Medicare Advantage beneficiaries cared for under fee-for-service models; PQI, prevention quality indicator; RAS, renin-angiotensin system.

[a] Probability of all outcomes were modeled in the overall cohort. Due to rare event rates, risks and risk differences are reported in per 1000.

[b] All models were adjusted for age groups; sex; race and ethnicity; dual-eligibility status; health maintenance organization plan type (for MA); physician groups; calendar year; and Hierarchical Condition Category score, version 24 and the following high-level groupings: blood (2, 46, 48), cardiovascular disease (82, 83, 84, 85, 86, 87, 88, 96, 99, 100, 107, 108), diabetes (17, 18, 19), injury (166, 167, 168), kidney (134, 135, 136, 137, 138), liver (27, 28), lung (111, 112, 114, 115), neoplasm (8, 9, 10, 11, 12), psychiatric (57, 58, 59, 60), substance abuse (54, 55, 56), and skin (157, 158, 159, 161, 162).

[c] Adjusted risk parameters from logistic regression models for marginal effects.

To address one potential source of unobserved population differences, we focused on an MA-only population, given that differences in coding and enrollment composition have primarily been documented between MA and TM rather than within MA itself. Moreover, we took steps to account for possible coding and reporting differences between at-risk MA and FFS MA. First, we ran sensitivity analyses, adjusting for risk using HCC, version 28–based instead of version 24–based scores. The effects remained robust and statistically significant when based on version 28, even though results were partially attenuated compared with version 24 results (eTables 3 and 4 in Supplement 1). Given the Medicare Payment Advisory Commission's findings that chart reviews accounted for approximately half of the coding intensity differences between MA and TM during our sample period,[17] we excluded all chart reviews when generating Risk Adjustment Factor scores and other disease-related indicators. As any component of coding intensity would be expected to be similar for at-risk MA and FFS MA, we examined the difference in mean HCC scores and found that this difference was only 4%, with at-risk MA having the lower score. This small difference suggests that coding intensity was not a factor in our results.

Because at-risk MA beneficiaries have been shown to have more socioeconomic disadvantages compared with FFS MA beneficiaries, the remaining unobserved differences may attenuate rather than amplify our results.[7,18] Furthermore, when physicians enter into at-risk contracts, they do so at an MA plan or MA contract level and, consequently, accept risk for all patients in a given MA plan. These physicians are unable to select patients at an individual level, which reduces the potential opportunity for selection bias. Considering these factors, any unobserved health and coding differences between the study populations would also likely narrow rather than magnify our estimates.[19]

Conclusions

In this cross-sectional study, the at-risk MA payment arrangement model, compared with the FFS MA model, was associated with higher quality and efficiency outcomes across 4 major domains of patient care when care was delivered by the same physician groups operating under both payment arrangements. While this study was not designed to assess causality, the results provide further evidence for the benefits associated with at-risk payment models and the possibility that they lead to higher quality and more efficient use of health care resources. These findings support the vision of a health care system where particular physician payment arrangements incentivize care that results in higher quality and more efficient use of health care resources.

ARTICLE INFORMATION

Accepted for Publication: November 16, 2024.

Published: January 23, 2025. doi:10.1001/jamanetworkopen.2024.56074

Corresponding Author: Ken R. Cohen, MD, Optum Health, 11000 Optum Cir, Eden Prairie, MN 33554 (ken.cohen@optum.com).

Author Affiliations: Optum Center for Research and Innovation, Minnetonka, Minnesota (Cohen, Ameli, Catlett, Jarvis); Department of Health Care Policy, Harvard Medical School, Boston, Massachusetts (Vabson); America's Physician Groups, Washington, DC (Podulka, Dentzer); CareJourney by Arcadia, Arlington, Virginia (Smith, Everhart); Cedars-Sinai Medical Network, Los Angeles, California (Goldzweig); Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, California (Goldzweig); Hill Physicians Medical Group, San Ramon, California (Kuo).

Author Contributions: Dr Smith had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Cohen, Vabson, Podulka, Everhart, Ameli, Catlett, Jarvis, Goldzweig, Dentzer.

Acquisition, analysis, or interpretation of data: Cohen, Vabson, Podulka, Smith, Everhart, Ameli, Catlett, Jarvis, Kuo.

Drafting of the manuscript: Cohen, Vabson, Podulka, Ameli, Catlett, Jarvis, Dentzer.

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

Statistical analysis: Vabson, Smith, Ameli.

Obtained funding: Cohen, Dentzer.

Administrative, technical, or material support: Vabson, Podulka, Everhart, Catlett, Jarvis, Dentzer.

Supervision: Cohen, Vabson, Podulka, Dentzer.

Conflict of Interest Disclosures: Dr Cohen reported being a full-time employee of Optum Health during the conduct of the study. Mr Vabson reported receiving personal fees from Verily Life Sciences and Veeva Systems and nonfinancial support from Inovalon and CareJourney outside the submitted work. Dr Smith reported receiving consulting fees from America's Physician Groups Data/Analytics during the conduct of the study. Dr Ameli reported being a full-time employee of Optum Health during the conduct of the study. Dr Catlett reported owning stock in UnitedHealth Group Inc. Ms Jarvis reported being a full-time employee and owning stock in UnitedHealth Group Inc during the conduct of the study. No other disclosures were reported.

Funding/Support: This study was funded by Optum.

Role of Funder/Sponsor: The funder had no role in the design and conduct of the study; the collection, management, analysis, or interpretation of the data; the preparation, review, or approval of the manuscript; and the decision to submit the manuscript for publication.

Data Sharing Statement: See Supplement 2.

Additional Contributions: Amy Okaya, MPH, MBA (independent contractor to Optum Health) provided editorial services for this manuscript and was compensated for her work.

REFERENCES

1. Neuman T, Freed M, Fuglesten Biniek J. 10 Reasons why Medicare Advantage enrollment is growing and why it matters. Kaiser Family Foundation. January 30, 2024. Accessed February 6, 2024. https://www.kff.org/medicare/issue-brief/10-reasons-why-medicare-advantage-enrollment-is-growing-and-why-it-matters/

2. Standardized benefits in Medicare Advantage plans. Medicare Payment Advisory Commission. June 15, 2023. Accessed February 6, 2024. https://www.medpac.gov/wp-content/uploads/2023/06/Jun23_Ch3_MedPAC_Report_To_Congress_SEC.pdf

3. Agarwal R, Connolly J, Gupta S, Navathe AS. Comparing Medicare Advantage and traditional Medicare: a systematic review. *Health Aff (Millwood)*. 2021;40(6):937-944. doi:10.1377/hlthaff.2020.02149

4. Curto V, Einav L, Finkelstein A, Levin J, Bhattacharya J. Health care spending and utilization in public and private Medicare. *Am Econ J Appl Econ*. 2019;11(2):302-332. doi:10.1257/app.20170295

5. Duggan M, Gruber J, Vabson B. The consequences of health care privatization: evidence from Medicare Advantage exits. *Am Econ J Econ Policy*. 2018;10(1):153-186. doi:10.1257/pol.20160068

6. Drzayich Antol D, Schwartz R, Caplan A, et al. Comparison of health care utilization by Medicare Advantage and traditional Medicare beneficiaries with complex care needs. *JAMA Health Forum*. 2022;3(10):e223451. doi:10.1001/jamahealthforum.2022.3451

7. Teigand C, Brot-Goldberg Z, Bilder S, et al. Harvard-Inovalon Medicare study: the importance of plan design in Medicare Advantage. Inovalon. 2024. Accessed April 16, 2024. https://www.inovalon.com/wp-content/uploads/2024/04/INS-24-0112-Payer-Insights-Harvard-Campaign-Whitepaper-4-Final.pdf

8. Shared Savings Program participation options for performance year 2024. Centers for Medicare & Medicaid Services. 2023. Accessed September 21, 2024. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/ssp-aco-participation-options.pdf

9. Cohen K, Ameli O, Chaisson CE, et al. Comparison of care quality metrics in 2-sided risk Medicare Advantage vs fee-for-service Medicare programs. *JAMA Netw Open*. 2022;5(12):e2246064. doi:10.1001/jamanetworkopen.2022.46064

10. Gondi S, Li Y, Drzayich Antol D, Boudreau E, Shrank WH, Powers BW. Analysis of value-based payment and acute care use among Medicare Advantage beneficiaries. *JAMA Netw Open*. 2022;5(3):e222916. doi:10.1001/jamanetworkopen.2022.2916

11. Measuring progress: adoption of alternative payment models in commercial, Medicaid, Medicare Advantage, and traditional Medicare programs. Health Care Payment Learning & Action Network. October 30, 2023. Accessed October 30, 2024. https://hcp-lan.org/apm-measurement-effort/2023-apm/

12. Medicare Shared Savings Program. Shared savings and losses and assignment methodology, version 9. Centers for Medicare & Medicaid Services. February 2021. Accessed September 21, 2024. https://www.cms.gov/files/document/medicare-shared-savings-program-shared-savings-and-losses-and-assignment-methodology-specifications.pdf-0

13. Technical specifications for prevention quality indicators in inpatient settings, version 2023. Agency for Healthcare Research and Quality. August 2023. Accessed February 26, 2024. https://qualityindicators.ahrq.gov/measures/PQI_TechSpec

14. Most frequent principal diagnoses for inpatient stays in U.S. hospitals, 2018. Statistical Brief 277. Healthcare Cost and Utilization Project. July 2021. Accessed August 18, 2024. https://hcup-us.ahrq.gov/reports/statbriefs/sb277-Top-Reasons-Hospital-Stays-2018.pdf

15. Mandal AK, Tagomori GK, Felix RV, Howell SC. Value-based contracting innovated Medicare Advantage healthcare delivery and improved survival. *Am J Manag Care*. 2017;23(2):e41-e49.

16. Tiegland C, Pulungan Z, Su Y, et al. Harvard-Inovalon Medicare study: utilization and efficiency under Medicare Advantage vs. Medicare fee-for-service. Inovalon. November 2023. Accessed October 30, 2024. https://www.inovalon.com/wp-content/uploads/2023/11/PAY-23-1601-Insights-Harvard-Campaign-Whitepaper_FINAL.pdf

17. The Medicare Advantage program: status report. Medicare Payment Advisory Commission. March 15, 2021. Accessed October 30, 2024. https://www.medpac.gov/wp-content/uploads/2021/10/mar21_medpac_report_ch12_sec.pdf

18. Bilder S, Brot-Goldberg Z, Jones B, et al. Harvard-Inovalon Medicare study: who enrolls in Medicare Advantage vs. Medicare fee-for-service. Inovalon. June 2023. Accessed October 30, 2024. https://www.inovalon.com/wp-content/uploads/2023/06/Harvard-Inovalon-Medicare-Study.pdf

19. Report to the Congress: Medicare payment policy. Medicare Payment Advisory Commission. March 15, 2024. Accessed April 19, 2024. https://www.medpac.gov/wp-content/uploads/2024/03/Mar24_MedPAC_Report_To_Congress_SEC.pdf

SUPPLEMENT 1.

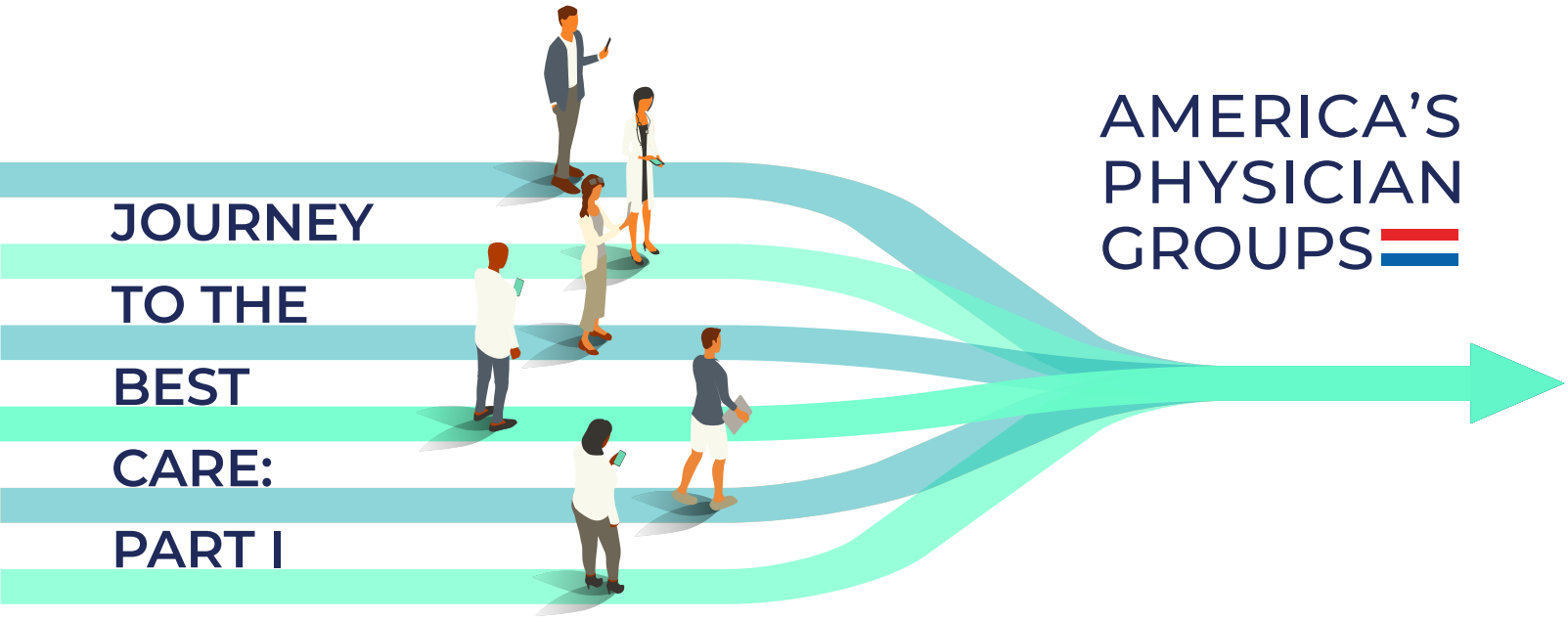
eMethods.
eFigure. Attrition Table and STROBE Diagram
eTable 1. 17 Participating Physician Groups
eTable 2. Unadjusted Comparison of Efficiency and Quality Outcome Measures, All Years
eTable 3. Sensitivity Analysis Including Beneficiaries Who Died Over the Course of the Year
eTable 4. Mortality by Plan Type by Year
eTable 5. Sensitivity Analysis: Distribution of Version 28 HCC Groups Across At-Risk Medicare Advantage (At-Risk MA) and Fee-for-Service MA (FFS MA)
eTable 6. Sensitivity Analysis Using Version 28 HCCs for Risk Adjustment

SUPPLEMENT 2.

Data Sharing Statement

JOURNEY TO THE BEST CARE: PART I

AMERICA'S PHYSICIAN GROUPS



Q How can patients' health care journeys turn out differently based on the relationship between their doctors' group and patients' Medicare Advantage plans?

A A newly published study[1] shows that these accountable arrangements between MA plans and physician groups yield superior results for patients. Comparing MA patients receiving care from APG groups under two different arrangements, researchers found that patients in accountable care arrangements were:

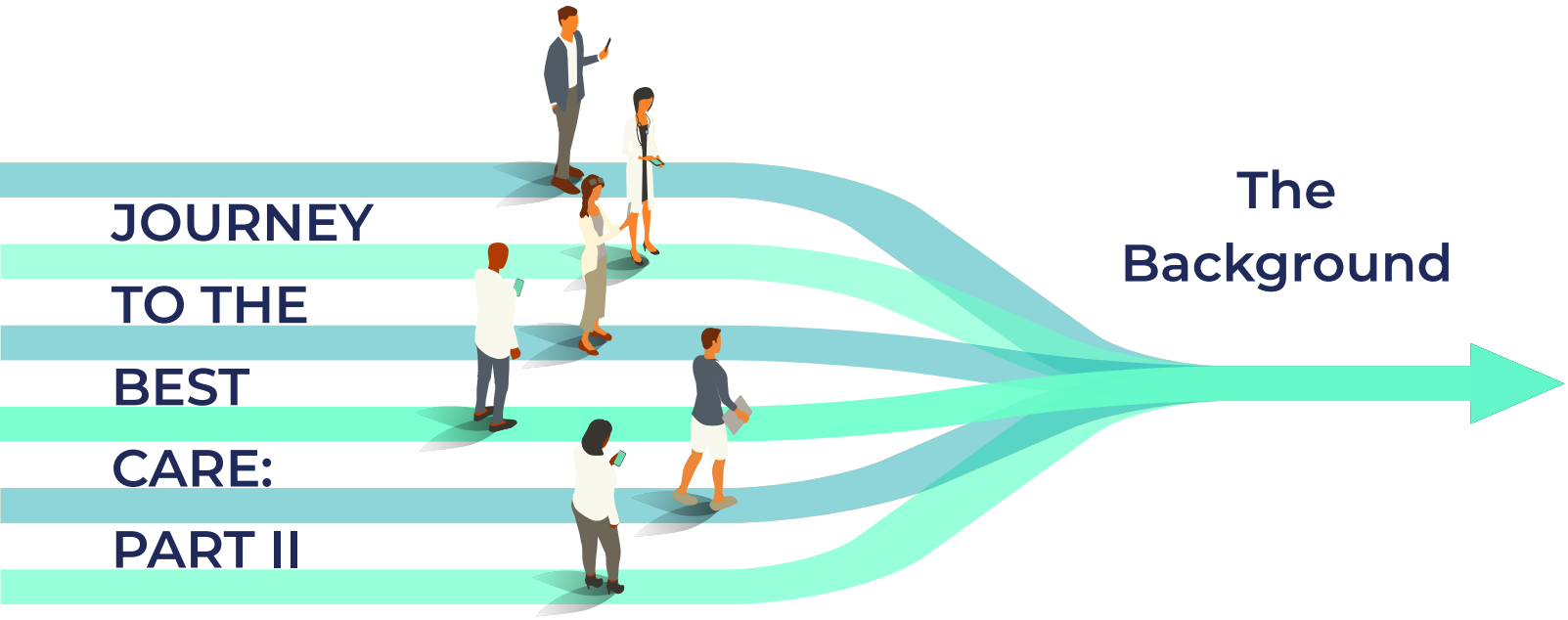
8.7% **less likely** to undergo acute hospital admissions overall

8.7% **less likely** to visit hospital emergency departments

15% **less likely** to have use of high-risk medications – drugs that can cause serious adverse effects or death if used incorrectly or in combination with other medications

8-22% **less likely** to be admitted to the hospital for chronic conditions, such as diabetes, high blood pressure, chronic obstructive pulmonary disease, and heart failure

[1] *Cohen K. et al, Medicare Risk Arrangement and Use and Outcomes Among Physician Groups.* JAMA Network Open. *2025; 8(1):e2456074. January 23, 2025.*



JOURNEY TO THE BEST CARE: PART II

The Background

More than half of all Medicare beneficiaries—more than 34 million people—are enrolled today in Medicare Advantage plans.[2] Here's how plan arrangements work.

1

MA plans obtain payment from the federal government to provide core Medicare benefits to each MA enrollee – specifically, those benefits available under Medicare Part A, mainly for hospital inpatient care, and Part B, mainly for physician and other outpatient care.

2

MA plans themselves don't provide care to Medicare beneficiaries; instead, out of the proceeds of what they are paid by the government, they pay physician groups, hospitals, and others that provide the care.

3

MA plans pay providers in different ways, however. Most pay them according to pre-agreed rates for each service provided to patients. But some physician groups and other providers form closer partnerships with MA plans to shape the care and services that they will provide to enrollees.

4

In these arrangements, once the MA plans obtain payments from the federal government, the plans hand over most of the money to these physician groups, enabling them to decide how best to deliver care.

5

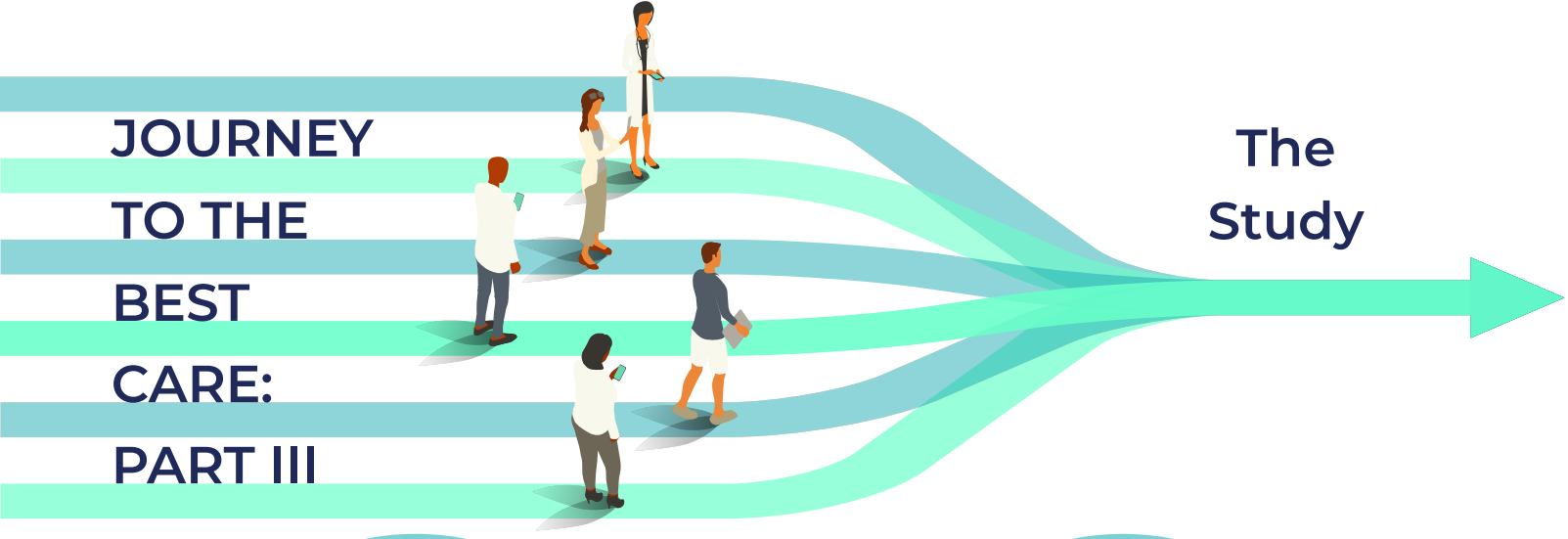
These arrangements mean that the physician groups are "at risk" for the quality and cost of the care they provide. They have the opportunity to earn profits while also customizing care to best meet their patients' needs.

6

By contrast, they can lose money — and their partnerships with MA plans — if they don't care well for their patients or don't manage costs by keeping patients as healthy as possible. Thus, they are accountable for the quality and cost of care.

[2] *https://data.cms.gov/summary-statistics-on-beneficiary-enrollment/medicare-and-medicaid-reports/medicare-monthly-enrollment*

JOURNEY TO THE BEST CARE: PART III



The Study

1

Researchers examined data involving the care of more than 1 million patients annually over three years, who were cared for by 17 large physician groups with more than 15,000 physicians.

2

These physician groups — all of them members of America's Physician Groups — contracted with 35 different MA health insurance plans.

3

About 4 in 10 of the patients, who had an average age of about 74, were cared for by physician groups that were paid a lump sum annually to care for each MA patient and thus were at risk — or accountable — for the quality and cost of these MA patients' care.

4

The remaining 6 in 10 patients, who had an average age of about 72, were enrolled in MA plans that paid these physician groups on a conventional fee-for-service basis, reimbursing them for the individual services that they provided rather than through the lump sum arrangement.

5

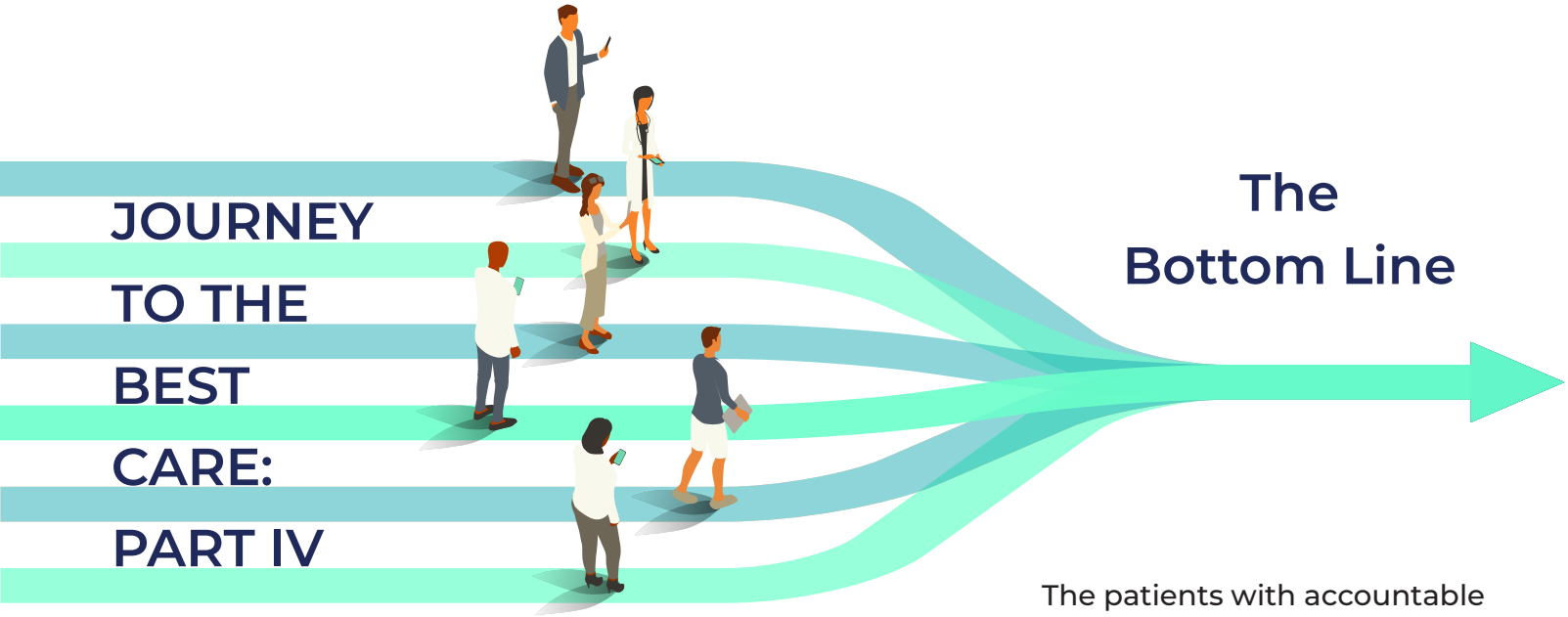
Researchers examined the care provided to these two different groups of patients and assessed it according to 20 measures across 4 major categories: hospital inpatient care; care received in hospital emergency departments; avoiding hospitalization due to various diseases; and outpatient care, such as regular doctors' visits to ensure that patients are taking needed medication.

6

Avoiding costly and unnecessary hospitalization and ED visits — particularly for patients with chronic conditions such as diabetes, high blood pressure, and heart failure — is a sign that patients are being well cared for by their primary care doctors and other clinicians.

The Results

- The researchers' analysis showed that MA patients cared for under the accountable payment arrangements with physicians had better outcomes in 18 of the 20 measures after adjusting for patients' characteristics, such as age. They had between 8 and 22 percent fewer avoidable hospital admissions for a range of chronic diseases than patients in the comparison group.
- The MA patients cared for physicians in fee-for-service Medicare fared better than those in accountable relationships in just one measure: being adherent to their diabetes medications. For another measure, having diabetes-related amputations, there was equivalency between the two groups.



JOURNEY TO THE BEST CARE: PART IV

The Bottom Line

Q Why did the MA patients experiencing the more accountable physician care see these more favorable health care outcomes?

A Physician groups operating in these models are likey to have the resources to focus on preventive care; monitor patients' conditions/ care needs closely and coordinate across settings; have mental/behavioral health care specialists and pharmacists on their care teams; and work with social workers, community health workers and others to address patients' non-medical care needs, such as food and transportation. These groups can use resources that they don't spend on unnecessary hospital stays or ED use, allowing funding of far more robust systems of primary care.

The patients with accountable physician care were:

8.7% **less likely** to be admitted as an inpatient from a hospital emergency department

13% **less likely** to be admitted to a hospital within 30 days of being discharged from a prior hospital stay

These groups can use the resources that they don't spend on unneccessary hospital stays or ED use to create far more robust systems of primary care and take better care of patients.

About APG

APG is a national organization of primary care and multispecialty medical groups that take accountability for the quality and cost of health care. Our approximately 360 physician groups comprise 170,000 physicians, as well as thousands of other clinicians, providing care to nearly 90 million patients, including about 1 in 3 Medicare Advantage enrollees.

APG's motto, 'Taking Responsibility or America's Health', represents our members' commitment to clinically integrated, coordinated, value-based health care in which physician groups are accountable for the quality and cost of patient care.

Visit us at www.apg.org.

Potential Spillover Effects on Traditional Medicare When Physicians Bear Medicare Advantage Risk

Boris Vabson, PhD; Kenneth Cohen, MD; Omid Ameli, MD, DrPH; Jennifer Podulka, MPAff; Nathan Smith, PhD; Kierstin Catlett, PhD; Megan S. Jarvis, MS; Jane Sullivan, MPH; Samuel A. Skootsky, MD; and Susan Dentzer, MS

Two-sided risk payment models are those that include both upside and downside risk; providers can receive bonuses if they meet performance targets but may also be required to pay the health plan if costs exceed those targets. As such, they place providers at substantial financial risk for cost and quality of care. These payment models are key to implementing value-based care, with CMS having a stated goal of all CMS beneficiaries being in 2-sided risk arrangements by 2030. These payment models are common in Medicare Advantage (MA) but less so under traditional Medicare (TM) and other insurance settings. In 2022, 24% of MA beneficiaries were covered under 2-sided risk arrangements compared with only 9.8% of TM beneficiaries.[1] Furthermore, 2-sided risk arrangements under MA involve much more uncapped financial risk than even the most stringent of such arrangements for TM beneficiaries (eg, the Accountable Care Organization Realizing Equity, Access, and Community Health Model). Past studies have documented the substantial benefits of 2-sided risk payment models in MA for beneficiaries directly subject to them.[2-4] Unfortunately, no studies have looked specifically at the association between exposure to 2-sided MA risk payment arrangements and outcomes for non-MA patients.

This gap in the literature is regrettable given that much of the value of MA risk payment models could come from their spillover benefits to Medicare beneficiaries outside MA. The overall magnitude of this broader impact could thus be especially significant considering that patients cared for under MA risk payment models already constitute a meaningful share of many physicians' patient panels.[2]

The association between MA risk payment arrangements and TM outcomes could arise at the level of individual physicians whose treatment patterns may exhibit convergence across patients. This tendency of individual physicians to treat different patients similarly could result in spillover effects from one patient population and payment model to another.[5] However, spillover effects on TM beneficiaries may be less pronounced than their effects on covered MA beneficiaries given that certain benefits relate to the infrastructure of MA risk models. For example, chronic disease care management and social worker and community health worker

ABSTRACT

OBJECTIVE: The relationship between Medicare Advantage (MA) risk payment arrangements and outcomes for patients in traditional Medicare (TM) has not been empirically examined. The objective of this study was to determine whether providers with greater exposure to MA risk payments are associated with superior outcomes for their TM patients.

STUDY DESIGN: Retrospective, cross-sectional regression analysis.

METHODS: Using 2016-2019 Medicare claims, this analysis of TM beneficiaries compared quality and efficiency when care is provided by physicians with high exposure to MA risk payments vs physicians with lower risk exposure. The exposure was physician group exposure to MA risk payments, and the main outcomes were 26 quality and efficiency measures.

RESULTS: Our overall sample comprised 22,257,955 TM beneficiary-years. After we adjusted for demographic differences and risk scores, receiving care from a physician with high risk exposure was associated with higher quality and efficiency across 22 of 26 measures. Improvements in the 22 measures ranged from 3% to 82%.

CONCLUSIONS: Our study is the first to examine the association between providers' exposure to MA risk payments and the outcomes they achieve beyond MA, specifically for their TM patients. We found that quality and efficiency outcomes for TM patients were higher under physician groups with high MA risk exposure. Although our study is not causal in nature, to the extent that such a relationship exists, it suggests that the benefits of MA risk payment arrangements extend beyond MA. Consequently, if more MA lives become subject to risk payment arrangements, the magnitude of potential benefits to the TM program could further increase.

Am J Manag Care. 2025;31(8):*In Press*

support to address health-related social needs will not necessarily extend to those in TM. Specifically, much of this care management infrastructure that drives success in MA models is restricted to beneficiaries within these MA contracts because TM does not cover the cost of this infrastructure for its beneficiaries.

To examine the relationship between MA payment arrangements and outcomes for the broader TM population, we compared a TM population cared for by physicians with high MA risk exposure with a TM population cared for by other physicians with lower MA risk exposure. We compared health resource utilization and quality of care across these 2 cohorts to quantify the association between physicians' MA risk exposure and the outcomes they achieve for their TM patients. Although our study is not causal in nature, our findings provide some preliminary evidence and lay the groundwork for further analysis on this topic.

TAKEAWAY POINTS

- Quality and efficiency of care for traditional Medicare (TM) beneficiaries may differ when provided by physicians with high Medicare Advantage (MA) risk payment exposure. We examined care by these physicians compared with those with lower MA risk exposure.
- Among TM beneficiaries, care by physicians with high MA risk exposure was associated with higher quality and efficiency outcomes across 22 of 26 measures encompassing 4 domains of patient care compared with care by TM physicians with lower MA risk exposure.
- High levels of MA risk exposure among physicians were associated with higher quality and efficiency outcomes for their TM patients.

METHODS

Study Oversight

This study was approved by an external institutional review board (IRB), Solutions IRB. Because the study design involved retrospective analysis of preexisting deidentified data, it qualified as non–human subjects research under IRB protocol and was exempt from further review.

Study Data

The study used standard deidentified Medicare claims from CMS as well as a proprietary data set of physician groups (**eAppendix Table 1** [eAppendix available at **ajmc.com**]) that tracked MA risk payment arrangements. Data covered the 2016 to 2019 calendar years.

The CMS Medicare data tracked health resource utilization and outcomes for TM beneficiaries across the full spectrum of Medicare paid services across inpatient, outpatient, pharmaceutical, and postacute settings.

The physician group data set tracked the level of MA risk exposure of primary care physicians (PCPs) from 17 physician groups participating in our study. From these data, we identified a subset of 9 physician groups (5046 PCPs) that had at least 50% of their MA patients under 2-sided risk contracts and defined that as our PCP cohort with high MA risk exposure. We then identified the TM beneficiaries attributed to these PCPs with high risk exposure. Using detailed information we obtained on the risk makeup for each of these groups with high risk exposure, we quantified the specific degree of risk exposure that the groups were subject to and how much more pronounced this exposure was relative to the cohort with lower risk exposure.

Sample and Cohorts

We restricted our cohort of TM beneficiaries to the 20% Medicare sample of those covered in 2016 to 2019 to avoid confounding related to utilization and disruptions experienced during the COVID-19 pandemic. We then restricted beneficiary-year combinations to individuals enrolled in both Medicare Part A and Part B for all 12 months of those years. Our sample included patients eligible for Medicare and Medicaid (dually eligible), non–dually eligible patients, and those both younger and older than 65 years. We next limited our sample to those staying in TM throughout the entire calendar year. Additionally, we limited the sample to beneficiaries for whom there was at least 1 primary care visit—a prerequisite for successfully attributing a beneficiary to a PCP (**eAppendix Figure**).

To construct patient cohorts, we first attributed patients to individual PCPs using standard Medicare Shared Savings Program methodology. We then identified individual patients cared for by a physician group with higher MA risk payment exposure based on whether their attributed PCP was on the roster of the 9 physician groups with high risk exposure that we identified. Finally, we constructed 2 distinct patient cohorts: those attributed to 1 of the 9 physician groups with high risk exposure, and a 20% random sample of TM beneficiaries receiving care from all other physicians (the lower risk-exposure cohort). The expected differential in MA risk payment exposure between these 2 cohorts was substantial: We found 71% of MA beneficiaries in the high risk-exposure cohort to be under global, 2-sided risk contracts compared with an average of 24% across MA generally.[1] We would expect the share of MA risk beneficiaries in our lower risk-exposure comparison group to generally mirror the 24% across all of MA.

Statistical Methodology

Using a cross-sectional study design, we compared the TM beneficiary cohort served by physicians with high risk exposure against a 20% random sample of TM beneficiaries served by all other physicians from 2016 to 2019. To reduce potential confounding from patient-mix differences across the 2 cohorts, we used a robust set of patient-level controls. These controls included age, sex, race, dual-eligibility status, state of residence, composite Hierarchical Condition Category (HCC) version 24 risk adjustment factor score, and indicators for different high-level disease categories (based on high-level HCC groupings). We were unable to control for differences in physician mix across the 2 cohorts beyond basic characteristics such as state.

For our primary analysis, we employed a binary logistic model, representing all measures as binary indicators rather than using

their original value given the relatively low odds of the measures. For our secondary analyses, we ran regressions on the original values using a zero-inflated negative binomial model. All models were adjusted for age groups, sex, race/ethnicity, state of residence, dual-eligibility status, calendar year, HCC score, and high-level HCC groupings for blood, cardiovascular disease, diabetes, injury, kidney, liver, lung, neoplasm, psychiatric, skin, and substance use disorder.

RESULTS

The final study cohort comprised 22,257,955 TM beneficiary-years (**Table 1**), of which 6% were covered by physician groups with high risk exposure and 94% by physician groups with lower risk exposure. The mean patient ages in these cohorts were 73 and 72 years, respectively. The mean HCC score was 1.40 for the higher risk-exposure cohort and 1.29 for the lower risk-exposure cohort.

We grouped the outcome measures into 4 domains of patient care: avoidance of disease-specific admissions, outpatient care, emergency department (ED) care, and inpatient care (all measure definitions in **eAppendix Methods**). In regression analyses that adjusted for patient-mix differences across the cohorts, we found that TM beneficiaries cared for by physicians with high risk exposure were associated with superior utilization and quality outcomes across 22 of 26 measures compared with the lower risk-exposure cohort. For the 4 remaining measures, the 2 cohorts had effectively equivalent outcomes (**Table 2** and **Figure**).

For avoidance of disease-specific admissions, the odds of inpatient admission in the high risk-exposure cohort compared with the lower risk-exposure cohort for heart failure, chronic obstructive pulmonary disease exacerbation, urinary tract infection, and bacterial pneumonia were 9% to 18% lower. The odds of preventable acute and chronic admissions were 13% and 11% lower, respectively. The odds of preventable admission for diabetes were 11% lower. For outpatient care measures, in the high risk-exposure cohort, the odds of an annual wellness visit were 82% higher; the odds of adherence to drugs for hypertension, diabetes, and hyperlipidemia were 9% to 13% higher; and the odds of office visits were 61% higher. In the high risk-exposure cohort, the odds of being prescribed a high-risk drug were 5% lower. For ED care, the odds of ED utilization across 4 measures ranged from 3% to 21% lower in the high risk-exposure cohort. For inpatient measures, the odds of acute inpatient admission and 30-day readmission were 10% and 12% lower, respectively, for the high risk-exposure cohort. There was no statistically significant difference between the cohorts for 4 outcomes: inpatient admissions for hypertension, surgical admission count, elective surgical admission count, and nonelective surgical admission count.

DISCUSSION

We found that TM beneficiaries cared for by physicians with high MA risk exposure were associated with meaningfully better quality and utilization outcomes compared with those whose care was provided by physicians in the lower risk-exposure cohort. These results persisted even after adjusting for differences in patient-level characteristics. Our study does not fully establish causality because we were unable to fully adjust for differences in physician characteristics across the 2 cohorts. However, to the extent that we identified a causal relationship, our results point to potential spillover effects of MA risk-based payments. The results also suggest broader benefits of MA risk payment arrangements than estimated by previous studies, which accounted only for benefits to MA beneficiaries and not the broader TM population.[2-4]

One explanation for possible spillover effects from MA risk payment arrangements could be an associated improvement in practice skills, which would also benefit TM beneficiaries. Such improvements could include increased focus on preventive care, the use of evidence-based medicine to drive care decisions, selective referral to high-performing specialists and facilities, and reduction in low-value care. Previous studies have provided theoretical and empirical support for this explanation and for physicians adopting relatively uniform standards of care across patients, with improvements in care to one group consequently spilling over to other patients.[5] Empirical support for this concept has been found across several different contexts, including Medicaid vs private-pay patients in the context of nursing homes[6] and health maintenance organization (HMO) vs non-HMO patients in the context of overall treatment intensity.[7] Our study contributes to this existing literature and suggests that physicians with greater MA risk payment arrangements adopt a distinct set of care standards that also extend to their TM populations.

The benefit of MA risk payments on MA beneficiaries appears to be substantially greater than these potential spillover benefits to the TM beneficiaries based on past studies.[2,4] This difference is also consistent with existing literature showing a substantial gap in outcomes persisting between risk-based MA and fee-for-service MA beneficiaries as well as between risk-based MA and TM beneficiaries.[2,8-10] The difference could be due to the substantial infrastructure that gets built around these risk-based payment systems, to which beneficiaries covered by these arrangements would have access but TM beneficiaries would not. This infrastructure includes, but is not limited to, population risk stratification to inform chronic disease care management, provider performance reporting and feedback, intensive case management, social worker and community health worker support to address health-related social needs, and integrated behavioral health care and pharmacy services. Two-sided risk payment effectively finances these supports and interventions, but only for the MA population.

Our study also contributes to the broader literature on MA risk payments and around spillover effects. Past studies have found evidence of superior quality and cost outcomes under MA compared with TM[9] and suggest that a major driver of MA's superior performance comes from its use of 2-sided risk-based payment arrangements with providers.[2] Past literature has also shown that reductions in

TABLE 1. Descriptive Characteristics of Sample

Characteristics	Study groups		
	All patients	TM patients cared for by physicians with high MA risk exposure	All other TM patients
Cohort: total member-years, n (%)	22,257,955 (100.0%)	1,399,635 (100.0%)	20,858,320 (100.0%)
Age in years, mean (SD)	72.24 (11.64)	73.39 (10.95)	72.16 (11.68)
Age groups in years, n (%)			
< 64	3,230,564 (14.5%)	155,746 (11.1%)	3,074,818 (14.7%)
65-69	4,779,975 (21.5%)	296,048 (21.2%)	4,483,927 (21.5%)
70-74	5,051,555 (22.7%)	324,181 (23.2%)	4,727,374 (22.7%)
75-79	3,732,757 (16.8%)	247,856 (17.7%)	3,484,901 (16.7%)
≥ 80	5,463,104 (24.5%)	375,804 (26.9%)	5,087,300 (24.4%)
Sex, n (%)			
Female	12,677,884 (57.0%)	804,105 (57.5%)	11,873,779 (56.9%)
Male	9,580,071 (43.0%)	595,530 (42.5%)	8,984,541 (43.1%)
Race/ethnicity, n (%)			
American Indian/Alaska Native	124,801 (0.6%)	1608 (0.1%)	123,193 (0.6%)
Asian/Pacific Islander	644,089 (2.9%)	166,222 (11.9%)	477,867 (2.3%)
Black or African American	1,859,274 (8.4%)	73,030 (5.2%)	1,786,244 (8.6%)
Hispanic	1,309,873 (5.9%)	262,452 (18.8%)	1,047,421 (5.0%)
Non-Hispanic White	17,807,879 (80.0%)	849,843 (60.7%)	16,958,036 (81.3%)
Other	174,251 (0.8%)	23,373 (1.7%)	150,878 (0.7%)
Unknown	337,788 (1.5%)	23,107 (1.7%)	314,681 (1.5%)
Census divisions, n (%)			
East North Central	3,432,493 (15.4%)	62,945 (4.5%)	3,369,548 (16.2%)
East South Central	1,395,976 (6.3%)	1029 (0.1%)	1,394,947 (6.7%)
Mid-Atlantic	2,719,955 (12.2%)	2564 (0.2%)	2,717,391 (13.0%)
Mountain	1,416,696 (6.4%)	13,320 (1.0%)	1,403,376 (6.7%)
New England	1,286,882 (5.8%)	37,849 (2.7%)	1,249,033 (6.0%)
Other[a]	73,089 (0.3%)	493 (0.0%)	72,596 (0.3%)
Pacific	3,335,505 (15.0%)	1,044,354 (74.6%)	2,291,151 (11.0%)
South Atlantic	4,555,202 (20.5%)	4653 (0.3%)	4,550,549 (21.8%)
West North Central	1,604,151 (7.2%)	3729 (0.3%)	1,600,422 (7.7%)
West South Central	2,438,006 (11.0%)	228,699 (16.3%)	2,209,307 (10.6%)
Dually eligible, n (%)	4,508,960 (20.3%)	409,902 (29.3%)	4,099,058 (19.7%)
HCC version 24 score, mean (SD)	1.29 (1.24)	1.40 (1.33)	1.29 (1.23)
HCC groups, n (%)			
Blood (HCCs 2, 46, 48)	1,796,764 (8.1%)	146,447 (10.5%)	1,650,317 (7.9%)
CVD (HCCs 82-88, 96, 99, 100, 107, 108)	8,072,700 (36.3%)	531,836 (38.0%)	7,540,864 (36.2%)
Diabetes (HCCs 17-19)	6,309,320 (28.3%)	432,429 (30.9%)	5,876,891 (28.2%)
Injury (HCCs 166-168)	626,258 (2.8%)	41,229 (2.9%)	585,029 (2.8%)
Kidney (HCCs 134-138)	3,103,486 (13.9%)	239,071 (17.1%)	2,864,415 (13.7%)
Liver (HCCs 27, 28)	236,775 (1.1%)	18,490 (1.3%)	218,285 (1.0%)
Lung (HCCs 111, 112, 114, 115)	3,498,602 (15.7%)	201,958 (14.4%)	3,296,644 (15.8%)
Neoplasm (HCCs 8-12)	2,920,962 (13.1%)	188,765 (13.5%)	2,732,197 (13.1%)
Psychiatric (HCCs 57-60)	2,770,929 (12.4%)	212,491 (15.2%)	2,558,438 (12.3%)
Skin (HCCs 157-159, 161, 162)	748,762 (3.4%)	47,482 (3.4%)	701,280 (3.4%)
Substance use disorder (HCCs 54-56)	741,735 (3.3%)	53,262 (3.8%)	688,473 (3.3%)

CVD, cardiovascular disease; HCC, Hierarchical Condition Category; MA, Medicare Advantage; TM, traditional Medicare.

[a]"Other" category includes racial and ethnic minority groups other than Black, Hispanic, Asian, or North American Natives.

TABLE 2. Unadjusted Comparison of Efficiency and Quality Outcome Measures, Measurement Year 2019[a]

Domain	Outcome measure	All patients	TM patients cared for by physicians with high MA risk exposure	All other TM patients
		Per thousand, mean (SD)		
Dis	COPD/asthma IP admissions: older adult	7.0 (106.6)	5.1 (88.6)	7.2 (107.8)
Dis	Hypertension IP admissions	1.7 (46.1)	1.7 (46.0)	1.7 (46.1)
Dis	Heart failure IP admissions	13.7 (154.1)	12.6 (152.3)	13.8 (154.2)
Dis	Bacterial pneumonia IP admissions	5.9 (80.9)	4.4 (69.4)	6.0 (81.7)
Dis	Urinary tract infection IP admissions	5.2 (78.9)	4.8 (74.8)	5.2 (79.1)
Dis	Diabetes lower-extremity amputation	0.9 (34.3)	0.7 (33.4)	0.9 (34.4)
Dis	PQI-91 acute composite	11.1 (114.0)	9.2 (102.9)	11.3 (114.8)
Dis	PQI-92 chronic composite	27.9 (226.4)	24.7 (215.5)	28.1 (227.1)
Dis	PQI-93 diabetes composite	5.4 (99.7)	5.3 (97.1)	5.4 (99.9)
ED	ED visits	683.7 (1724.4)	609.7 (1652.3)	689.2 (1729.5)
ED	Avoidable ED visits	40.6 (288.7)	32.2 (234.9)	41.2 (292.2)
ED	Primary care–treatable ED	82.5 (400.7)	71.4 (386.2)	83.3 (401.7)
ED	IP through ED	181.3 (628.9)	187.4 (655.7)	180.8 (626.9)
IP	Acute IP admissions	247.9 (726.3)	237.9 (727.9)	248.6 (726.1)
IP	30-day readmissions	38.2 (313.8)	37.5 (326.9)	38.2 (312.8)
IP	IP discharge status count: SNF	49.8 (286.8)	45.2 (280.7)	50.1 (287.3)
IP	IP: surgery type count	81.2 (315.5)	75.8 (305.9)	81.5 (316.2)
IP	IP: medical type count	178.9 (637.0)	173.9 (645.0)	179.3 (636.4)
IP	Surgery: IP nonelective claim count	30.2 (188.6)	30.6 (191.5)	30.2 (188.4)
IP	Surgery: IP elective claim count	51.0 (240.3)	45.2 (225.9)	51.4 (241.4)
OP	High-risk drug use	102.2 (302.9)	96.2 (294.8)	102.6 (303.5)
OP	Office visits	9415.8 (7923.5)	10,502.2 (8726.5)	9335.4 (7854.8)
OP	Annual wellness visits	323.1 (467.6)	402.5 (490.4)	317.2 (465.4)
OP	Medication adherence: RAS[b]	87.4 (33.2)	87.0 (33.6)	87.5 (33.1)
OP	Medication adherence: diabetes[b]	74.6 (43.5)	75.1 (43.2)	74.6 (43.5)
OP	Medication adherence: statin[b]	87.4 (33.2)	87.1 (33.5)	87.4 (33.2)

COPD, chronic obstructive pulmonary disease; Dis, avoidance of disease-specific admissions; ED, avoidance of emergency department; IP, inpatient hospital care; OP, outpatient care; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; SNF, skilled nursing facility; TM, traditional Medicare.

[a]2019 data included as representative. See eAppendix Table 2 for all 4 years of data.

[b]Medication adherence in %.

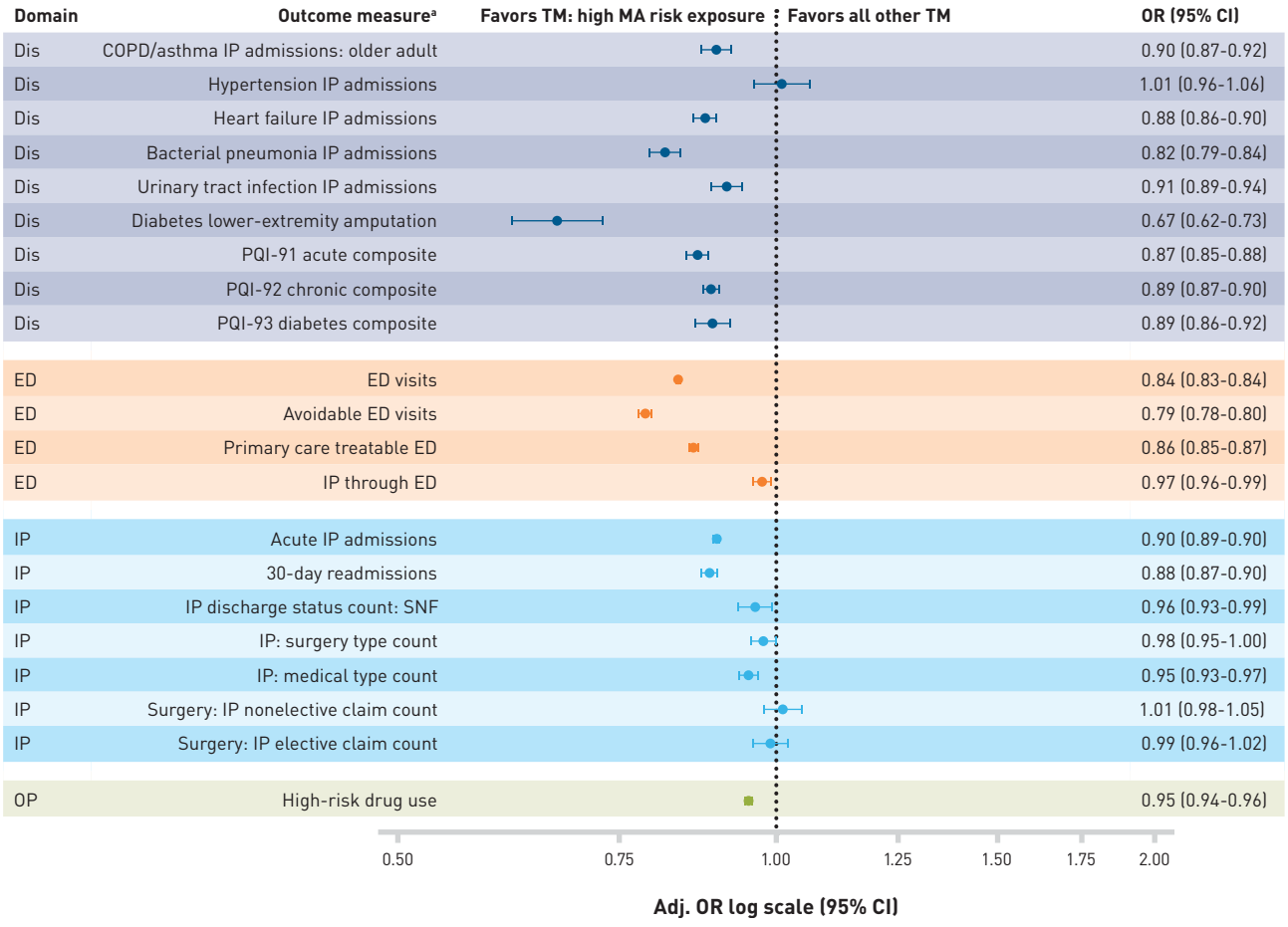
hospital and postacute care utilization in MA patients end up spilling over to TM,[5,11] suggesting that a naive comparison between MA and TM would understate the benefit of MA. We add to this literature by examining the association between MA payment arrangement and TM outcomes for one specific program component: 2-sided risk payment arrangements. Our study findings are consistent with other work that has shown the broader benefits of alternative payment arrangements that extend beyond just the population subject to them.[12,13]

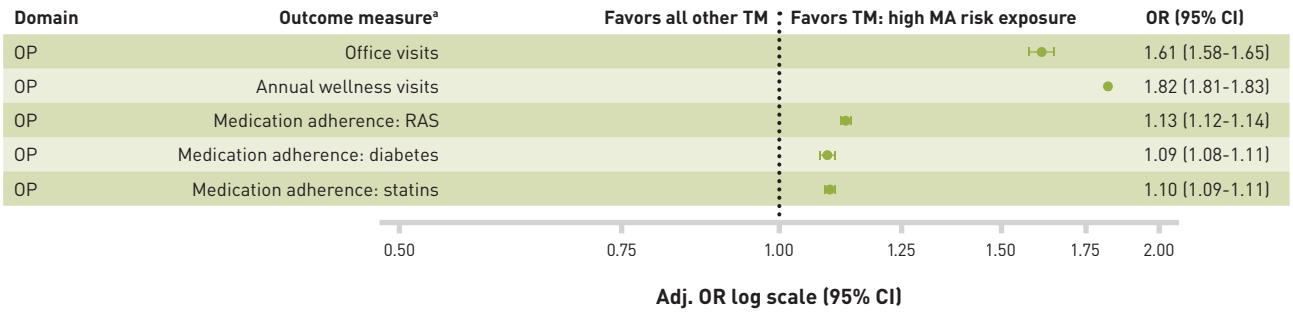
Our study has several important policy implications. To the extent that spillover benefits from MA risk payments exist, the magnitude of these benefits could be expected to increase due to ongoing increases in 2-sided risk payment arrangements within MA itself as well as in MA's expanding share of Medicare enrollment. Because 2-sided risk MA arrangements include a PCP assignment, our results also point to the valuable role of PCP-centric care. Our results also add to existing evidence of superior outcomes under MA risk payment arrangements because a prerequisite to there being spillover effects on non-MA patients is the existence of substantial effects on MA patients themselves. Importantly, because both patient cohorts in this study were receiving care under TM, issues potentially biasing estimates of the effects of MA risk payments on clinical outcomes, such as coding intensity, chart reviews, or favorable selection, should not impact our estimates. Altogether, our results provide additional suggestive evidence around the benefits of MA risk payment arrangements.

Limitations

As noted above, a key limitation to our study is that it captures the association between MA risk payment arrangements and TM outcomes but does not capture the causal impact of one on the other. Instead, our results could reflect the impact not just of MA

FIGURE. Forest Plot of Adjusted ORs for 26 Outcome Metrics: TM Patients Cared For by Physicians With High MA Risk Exposure vs All Other TM Patients





AOR, adjusted OR; CVD, cardiovascular disease; Dis, avoidance of disease-specific admissions; ED, avoidance of emergency department; HCC, Hierarchical Condition Category; IP, inpatient hospital care; MA, Medicare Advantage; OP, outpatient care; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; SNF, skilled nursing facility; TM, traditional Medicare.

[a]All outcomes, except for pharmacy-based measures, were modeled as probability of an event in the total cohort; therefore, the denominator was 1,399,635 for TM patients cared for by physicians with higher risk exposure and 20,858,320 for all other TM patients. High-risk drug use was modeled as probability of event in the subcohort with Part D coverage. Adherence measures were modeled as probability of having 80% or more adherence in the subsets who had Part D coverage and filled at least 1 prescription for the corresponding medication.

All models were adjusted for age groups, sex, race/ethnicity, state of residence, dual-eligibility status, calendar year, HCC version 24 score, and the following high-level HCC groupings: blood (HCCs 2, 46, 48), CVD (HCCs 82-88, 96, 99, 100, 107, 108), diabetes (HCCs 17-19), injury (HCCs 166-168), kidney (HCCs 134-138), liver (HCCs 27, 28), lung (HCCs 111, 112, 114, 115), neoplasm (HCCs 8-12), psychiatric (HCCs 57-60), skin (HCCs 157-159, 161, 162), and substance use disorder (HCCs 54-56).

risk payment arrangements but also of other differences between these 2 sets of physicians correlated with their risk payment adoption. Although we controlled for some physician characteristics, such as the geographic area where they practice, our controls are not necessarily exhaustive. This work provides a foundation for future research into the baseline characteristics of risk-bearing as opposed to non–risk-bearing physician groups. In addition, although we attempted to control for patient-mix differences between the 2 physician cohorts using a robust set of patient-level characteristics, some residual differences may remain unaccounted for.

Furthermore, although our estimates capture the impact of higher vs lower risk payment exposure, they do not capture the difference between having risk payment exposure vs not having it at all. This is because the lower risk-exposure cohort made up of other TM physicians will also have some MA risk payment exposure, with 24% of their MA payments expected to be under global 2-sided risk arrangements if their average mirrors that of all MA.[1] Meanwhile, for our cohort of physicians with high risk exposure, 71% of all MA beneficiaries are under global, 2-sided risk arrangements. Consequently, our results may reflect only the TM outcome difference associated with a 47–percentage point differential in MA risk exposure and thereby understate the TM outcome difference for patients of physicians who do not participate in 2-sided risk-based payments at all.

Finally, we did not account for differences across physicians in the share of their patient panel that MA broadly constitutes, and we effectively assumed that it is uniform. This is a limitation because MA's share of the patient panel could vary by physician.

CONCLUSIONS

Physicians with high MA risk exposure achieved superior quality and efficiency outcomes for their TM beneficiaries compared with all other TM physicians. Although our study does not prove causality, any relationship that exists may be indicative of a spillover effect of MA risk payment arrangements. Our study is the first to directly quantify the association between MA risk payment arrangements and quality and efficiency outcomes across the broader Medicare program. Therefore, to the extent that spillover effects exist, they would imply even greater benefits from MA risk arrangements than previously estimated. The policy implications of this are significant especially because any spillover effects would be expected to increase in the years ahead due to the increasing prevalence of risk payments within MA as well as the overall expansion of MA. Finally, our results add to existing evidence on better outcomes under MA risk payment arrangements given that a prerequisite to there being effects on non-MA patients is the existence of benefits to the MA patients themselves. ■

Author Affiliations: Harvard Medical School (BV), Boston, MA; Optum Center for Research and Innovation (KCo, OA, KCa, MSJ, JS), Minnetonka, MN; America's Physician Groups (JP, SD), Washington, DC; CareJourney by Arcadia (NS), Arlington, VA; Department of Medicine, David Geffen School of Medicine, University of California, Los Angeles (SAS), Los Angeles, CA.

Source of Funding: America's Physician Groups and Optum Health.

Author Disclosures: Dr Vabson received personal fees from Optum to compensate him for his personal time in preparing this manuscript. Drs Cohen and Catlett, Ms Jarvis, and Ms Sullivan are employees of Optum Health and own stock in UnitedHealth Group, which participates in Medicare Advantage. Ms Podulka is employed by America's Physician Groups (APG). Ms Dentzer is employed as president and CEO of APG, where she also serves on the APG Board of Directors; this study is based on results of APG's members, and Ms Dentzer has spoken in general terms about this study at APG and other conferences without disclosing any results. The remaining authors report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

Authorship Information: Concept and design (BV, KCo, OA, JP, MSJ); acquisition of data (KCo, OA, JP, NS); analysis and interpretation of data (BV, KCo, OA, JP, NS, KCa, MSJ, JS, SAS, SD); drafting of the manuscript (BV, KCo, OA, JP, KCa, MSJ, JS, SAS); critical revision of the manuscript for important intellectual content (BV, KCo, OA, JP, KCa, SAS, SD); statistical analysis (OA, NS); obtaining funding (SD); administrative, technical, or logistic support (KCo, KCa, MSJ, JS, SD); and supervision (BV, KCo).

Address Correspondence to: Kenneth Cohen, MD, Optum Health, 11000 Optum Circle, Eden Prairie, MN 33554. Email: ken.cohen@optum.com.

REFERENCES

1. 2023 APM measurement. Health Care Payment Learning and Action Network. Accessed October 9, 2024. https://hcp-lan.org/apm-measurement-effort/2023-apm/2023-infographic/
2. Cohen K, Ameli O, Chaisson CE, et al. Comparison of care quality metrics in 2-sided risk Medicare Advantage vs fee-for-service Medicare programs. *JAMA Netw Open*. 2022;5(12):e2246064. doi:10.1001/jamanetworkopen.2022.46064
3. Boudreau E, Schwartz R, Schwartz AL, et al. Comparison of low-value services among Medicare Advantage and traditional Medicare beneficiaries. *JAMA Health Forum*. 2022;3(9):e222935. doi:10.1001/jamahealthforum.2022.2935
4. Gondi S, Li Y, Drzayich Antol D, Boudreau E, Shrank WH, Powers BW. Analysis of value-based payment and acute care use among Medicare Advantage beneficiaries. *JAMA Netw Open*. 2022;5(3):e222916. doi:10.1001/jamanetworkopen.2022.2916
5. Baker LC. Managed care spillover effects. *Annu Rev Public Health*. 2003;24:435-456. doi:10.1146/annurev.publhealth.24.100901.141000
6. Grabowski DC, Gruber J, Angelelli JJ. Nursing home quality as a common good. *Rev Econ Stat*. 2008;90(4):754-764. doi:10.1162/rest.90.4.754
7. Glied S, Zivin JG. How do doctors behave when some (but not all) of their patients are in managed care? *J Health Econ*. 2002;21(2):337-353. doi:10.1016/s0167-6296(01)00131-x
8. Mandal AK, Tagomori GK, Felix RV, Howell SC. Value-based contracting innovated Medicare Advantage healthcare delivery and improved survival. *Am J Manag Care*. 2017;23(2):e41-e49.
9. Agarwal R, Connolly J, Gupta S, Navathe AS. Comparing Medicare Advantage and traditional Medicare: a systematic review. *Health Aff (Millwood)*. 2021;40(6):937-944. doi:10.1377/hlthaff.2020.02149
10. Baicker K, Chernew ME, Robbins JA. The spillover effects of Medicare managed care: Medicare Advantage and hospital utilization. *J Health Econ*. 2013;32(6):1289-1300. doi:10.1016/j.jhealeco.2013.09.005
11. Geng F, Lake D, Meyers DJ, et al. Increased Medicare Advantage penetration is associated with lower postacute care use for traditional Medicare patients. *Health Aff (Millwood)*. 2023;42(4):488-497. doi:10.1377/hlthaff.2022.00994
12. Barnett ML, Olenski A, Sacarny A. Common practice: spillovers from Medicare on private health care. *Am Econ J Econ Policy*. 2023;15(3):65-88. doi:10.1257/pol.20200553
13. Einav L, Finkelstein A, Ji Y, Mahoney N. Randomized trial shows healthcare payment reform has equal-sized spillover effects on patients not targeted by reform. *Proc Natl Acad Sci U S A*. 2020;117(32):18939-18947. doi:10.1073/pnas.2004759117

Visit **ajmc.com/link/89686** to download PDF and eAppendix

AMERICA'S PHYSICIAN GROUPS

JOURNEY TO THE BEST CARE

"SPILLOVER" EFFECTS FROM MEDICARE ADVANTAGE TO MEDICARE

Q A prior study[1] in this series showed how Medicare Advantage (MA) patients' health can turn out differently — and better — depending on how MA plans paid these patients' physicians. But who else may benefit from the capabilities of physician groups operating under two-sided risk payment arrangements in Medicare Advantage?

A Enrollees in the traditional Medicare program also benefit. A new study[2] shows that the superior patient care practices adopted by physicians working under two-sided MA risk arrangements "spill over" to help their traditional Medicare patients — so that even these individuals who aren't enrolled in MA achieve better health outcomes as well. As a result, the traditional Medicare patients cared for by these physicians were:

82% **more likely** to have annual wellness visits with their physicians

UP TO 21% **less likely** to use emergency departments

9-18% **less likely** to be admitted to inpatient hospitals for chronic conditions such as heart failure, chronic obstructive pulmonary disease, urinary tract infections, and bacterial pneumonia

9-13% **more likely** to be adherent to their medications for hypertension, diabetes, and high cholesterol

[1] *Cohen KR, Vabson B, Podulka J, et al, Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. JAMA Netw Open. 2025; 8(1):e2456074. 10.1001/jamanetworkopen.2024.56074*

[2] *Vabson B, Cohen K, Ameli O, et al. Potential spillover effects on traditional Medicare when physicians bear Medicare Advantage risk. Am J Manag Care. Published online February 26, 2025. doi:10.37765/ajmc.2025.89686.*

THE STUDY

"SPILLOVER" EFFECTS FROM MEDICARE ADVANTAGE TO MEDICARE

1

Researchers first identified 9 large physician organizations — all members of America's Physician Groups — with at least half of their Medicare Advantage patients being cared for under two-sided risk contracts. In fact, as it turned out, 71% of these MA enrollees were cared for under two-sided risk arrangements.

2

The researchers then identified the traditional Medicare enrollees who were also being cared for by these same physician groups and their more than 5,000 primary care physicians. These patients were called the "high risk exposure" traditional Medicare patients. The sample size was the equivalent of ~1.4 million "patient-years," and the average age was 73.

3

The researchers then identified a random sample of traditional Medicare patients who were being cared for by all other physicians who typically care for far fewer if any patients through two-sided risk arrangements in MA. These patients were called "low risk exposure patients" [~21 million patient-years; average age 72].

4

The researchers then compared the care provided to the two groups between 2016 and 2019, adjusting for various factors including age, sex, and health conditions.

THE RESULTS

"SPILLOVER" EFFECTS FROM MEDICARE ADVANTAGE TO MEDICARE

- The study showed a clear link between (1) the fact that many traditional Medicare patients were cared for by physician groups heavily engaged in two-sided risk arrangements in Medicare Advantage and (2) the superior health care outcomes that these patients achieved, compared to the other traditional Medicare patients cared for by physicians operating with much lower levels of MA risk.
- These outcomes were captured in 26 measures that fell into four domains: avoidance of disease-specific admissions, outpatient care, emergency department (ED) care, and inpatient care.
- In 22 of 26 measures, traditional Medicare beneficiaries cared for by physicians who also had high proportions of MA patients in two-sided risk arrangements saw better outcomes than the comparison group.
- For four of the 26 measures, the outcomes for the two groups – traditional Medicare beneficiaries cared for by physicians engaged in high versus low levels of two-sided risk – were essentially the same.
- The superior outcomes signified both higher care quality and efficiency, in that they demonstrated better use of health care resources, and, in effect, more value for the money spent on health care (although the study did not measure actual costs of care).

The results for the high-risk exposure traditional Medicare patients included these:

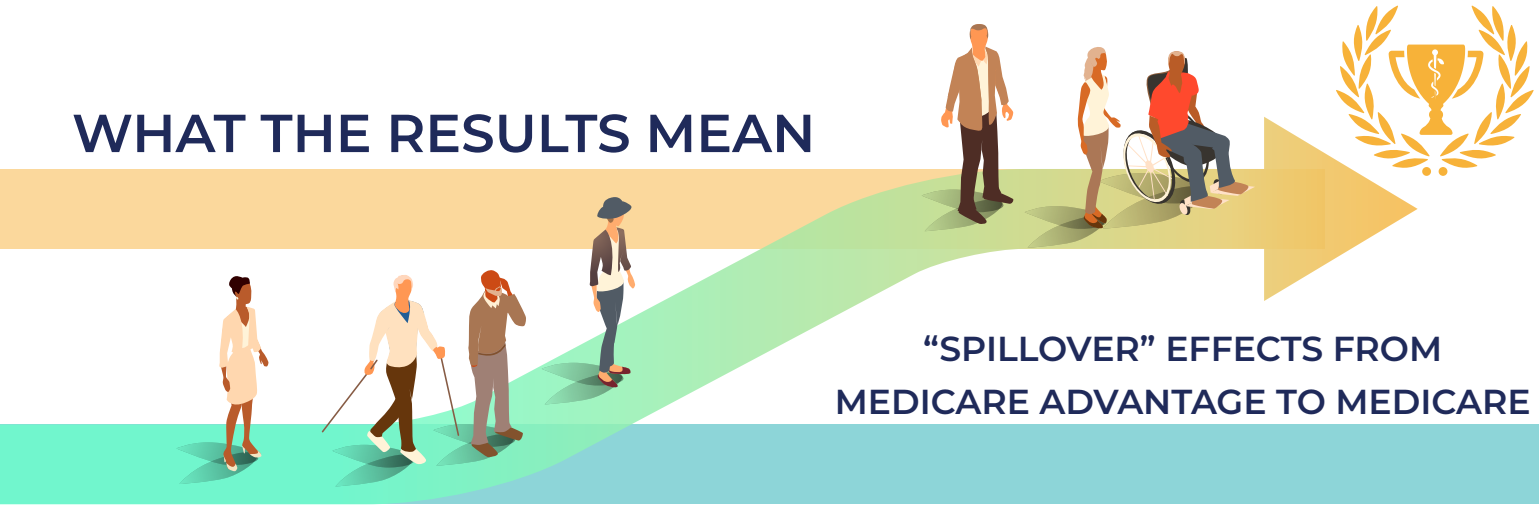
10% **less likely** to undergo acute hospital inpatient admissions, one of the costliest forms of health care

11% **less likely** to undergo admission to hospitals for preventable episodes of chronic illness

12% **less likely** to be readmitted to hospitals within 30 days of a previous hospital stay

12% **less likely** to be prescribed a high-risk medication that could be dangerous if used incorrectly

WHAT THE RESULTS MEAN



"SPILLOVER" EFFECTS FROM MEDICARE ADVANTAGE TO MEDICARE

Q What could explain the finding that the "high risk exposure" traditional Medicare patients in this study experienced better health outcomes compared to the "low risk exposure" group of traditional Medicare patients?

A **Physicians operating in two-sided risk arrangements in MA adopt advanced care practices designed to keep their MA patients as healthy as possible and out of hospitals (see more detail below). These special care practices may then be extended to benefit other patients, including those in the traditional Medicare program. In effect, the benefits of better care "spill over" to these other patients.**

1 There are distinct differences between physician practices operating in two-sided risk arrangements in Medicare Advantage versus those operating in the conventional fee-for-service payment system that characterizes traditional Medicare.

2 These practices can lose money if patients undergo costly care and achieve worse health outcomes, so they have incentives to keep patients as healthy as possible. Due to extra payments earned through MA program features, including payments tailored to patients' health risks, these practices have more resources to devote to patient care.

3 These incentives and resources help them to focus more on preventive care; use more evidence-based medicine to drive care decisions; selectively refer patients to high-performing specialists and facilities; and reduce the provision of low-value care that could earn money for practices but could also be wasted on or even harm patients.

4 Because most physicians don't practice differently based on their patients' insurance status, the techniques that they use to both maintain their MA patients' health and manage their care efficiently ultimately benefit their other Medicare patients as well.

About APG

APG is a national organization of primary care and multispecialty medical groups that take accountability for the quality and cost of health care. Our approximately 360 physician groups comprise 170,000 physicians, as well as thousands of other clinicians, providing care to nearly 90 million patients, including about 1 in 3 Medicare Advantage enrollees.

APG's motto, 'Taking Responsibility or America's Health', represents our members' commitment to clinically integrated, coordinated, value-based health care in which physician groups are accountable for the quality and cost of patient care. Visit us at www.apg.org.

Health Outcomes Under Full-Risk Medicare Advantage vs Traditional Medicare

Kenneth Cohen, MD; Boris Vabson, PhD; Jennifer Podulka, MPAff; Omid Ameli, MD, DrPH; Kierstin Catlett, PhD; Nathan Smith, PhD; Megan S. Jarvis, MS; Jane Sullivan, MPH; Caroline Goldzweig, MD, MSHS; and Susan Dentzer, MS

ABSTRACT

OBJECTIVES: To compare quality and health resource utilization among beneficiaries under 2-sided risk Medicare Advantage (MA) payment arrangements (at-risk MA) vs traditional Medicare (TM).

STUDY DESIGN: Retrospective cross-sectional regression analyses of claims and enrollment data from 2016 to 2019 examining 20 performance measures. All patients were cared for by the same 17 physician groups and 15,488 physicians across 35 health insurers.

METHODS: Logistic regressions adjusted for demographics, geography, and comorbidities for 20 quality and utilization measures across 4 domains of care. Estimates were reported using marginal risk and marginal risk difference per 1000 across the study period.

RESULTS: The sample comprised 6,564,538 person-years (30.3% at-risk MA and 69.7% TM). Sixteen of the 20 measures favored at-risk MA, including lower acute inpatient admissions, lower 30-day readmissions, avoidance of emergency department utilization across 4 measures, avoidance of disease-specific inpatient admissions in 7 of 9 measures, lower high-risk medication use and office visits, and higher medication adherence to renin-angiotensin system drugs. The other 4 measures were statistically equivalent.

CONCLUSIONS: Given the CMS goal of moving all beneficiaries to fully accountable care arrangements by 2030, it is critical to understand the differences in quality and health resource utilization between at-risk MA and fee-for-service TM to inform policies on payment and service delivery. Although the associations are not causal, in this cross-sectional study, at-risk MA relative to TM was associated with 11.3% to 54.0% higher quality and efficiency in 16 of 20 measures after adjusting for differences in demographics, comorbidities, and other health characteristics.

Am J Manag Care. 2025;31(10): In Press

Medicare Advantage (MA) enrollment now represents 54% of all Medicare-eligible beneficiaries.[1] MA beneficiaries receive additional benefits—such as dental, hearing, and vision services—that are not available in traditional Medicare (TM).[2] Recent studies suggest that MA enrollment compared with TM is predominantly associated with higher quality outcomes, reductions in total cost of care, and lower out-of-pocket spending.[3-6] Several of these studies focused on broad MA and TM comparisons; however, MA plans vary in how they contract with providers.[7]

An increasing number of MA plans contract with physician groups under delegated 2-sided risk arrangements in which the financial risk of providing health care services is transferred wholly or in large part to the group (*at-risk MA*). Physician groups in these arrangements may retain financial surplus or incur financial deficits related to the quality and efficiency of care they provide. Therefore, these physician groups are encouraged to provide optimal care while minimizing financial losses and have incentives to develop population health management infrastructure to improve care and reduce high-cost health resource utilization (eg, avoidable inpatient admissions). Limited at-risk arrangements exist for some TM beneficiaries through the recent Accountable Care Organization Realizing Equity, Access, and Community Health Model and the Medicare Shared Savings Program (MSSP), but they incorporate substantially less risk than 2-sided–risk MA models.[8]

A prior study observed that 2-sided MA risk arrangements were associated with higher quality and efficiency in the inpatient setting compared with TM.[9] We expand this previous work by including a larger array of quality and efficiency measures across 4 domains of patient care. This study also examines a broader sample of physician groups in 2-sided risk arrangements and primary care physicians (PCPs) contracted with many different payers, which are more reflective of current at-risk global capitation models.

METHODS

We compared quality and efficiency measures for patients in at-risk MA or TM arrangements cared for by the same physician groups.

Analyses within a large sample of the same physician groups managing both MA and TM patients enabled us to assess the association of at-risk MA provider payment arrangements with quality and utilization and to explore how MA's performance might be enabled by at-risk payment arrangements and the associated care management infrastructure that medical groups create.

TAKEAWAY POINTS

- Payment in Medicare Advantage (MA) may be 2-sided risk–based (at-risk MA) or fee-for-service.
- There are limited data on the quality and health resource utilization of at-risk MA compared with traditional Medicare (TM).
- In this retrospective analysis of claims and enrollment data from 2016 to 2019, at-risk MA vs TM was associated with 11% to 54% higher quality and efficiency in 16 of 20 measures across 4 domains of patient care when care was provided by the same physicians and physician groups.
- At-risk MA was associated with higher quality and lower health resource utilization compared with TM.

Study Oversight

Solutions IRB, an external institutional review board (IRB), approved this study. Because the study design involved retrospective analysis of preexisting deidentified data, it qualified as non–human subjects research under IRB protocol and was exempted from further review. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology reporting guideline (**eAppendix Figure** [eAppendix available at **ajmc.com**]).

Study Data

We used deidentified Medicare claims from CMS MA encounter data and the CMS Virtual Research Data Center as well as a nonpublic data set of physician groups that participated in the study and provided information about their risk-based MA contract arrangements. The public CMS Medicare data tracked health resource utilization and outcomes for MA and TM beneficiaries. MA encounter data tracked MA utilization, and fee-for-service (FFS) claims tracked TM utilization. To ensure data completeness in the MA encounter data, we focused on inpatient-related encounters, for which encounter data have been shown to be highly accurate. Outpatient pharmacy data used the pharmacy measures from the Healthcare Effectiveness Data and Information Set. Data covered the period from 2016 through 2019 and were analyzed from January 2024 to October 2024.

The physician group data set comprised 17 groups with MA plans in at-risk arrangements (**eAppendix Table 1**), which included MA insurance carriers, plan types, contract identifiers, plan identifiers, and whether each at-risk arrangement was a professional-only, professional-with-shared-institutional, or global arrangement for each group in each study year. During the analysis period, all at-risk MA groups except 1 took full 2-sided risk at a minimum for professional services. Using roster data obtained from the groups, we linked each group's risk arrangements to constituent PCPs and then linked the PCPs' National Provider Identifiers to the patients in the CMS Medicare data asset. We then attributed beneficiaries to an individual PCP using MSSP attribution methodology because an equivalent or near-equivalent methodology is typically used by MA plans for at-risk payment attribution.[10] We assigned patient-to-PCP attribution separately for each year to reflect each beneficiary's predominant PCP in a given calendar year and to capture year-over-year changes in PCPs. Lastly, we tied individual PCPs to participating groups based on group-provided roster data.

This approach allowed us to create a cohort of MA beneficiaries in 2-sided risk arrangements and to compare them with TM beneficiaries who were all served by the same physician groups.

Sample and Cohorts

The study sample included beneficiaries attributed to a participating physician group for each calendar year from 2016 to 2019. We did not include subsequent years in order to avoid confounding effects related to disruptions experienced during the COVID-19 pandemic. We limited beneficiary-year combinations to individuals enrolled in both Medicare Part A and Part B for 12 continuous months in each measurement year. Our sample included patients eligible for Medicare and Medicaid (dual eligible), non–dual eligibles, and those younger than and at least 65 years. For pharmacy-based measures, we further restricted the sample to beneficiaries with Part D coverage for all 12 months of the measurement year. Because CMS does not track Medigap coverage, we were unable to identify TM beneficiaries with Medigap in our study.

Beneficiaries who switched between MA and TM within a calendar year were excluded, and we limited the sample to beneficiary-year combinations in which beneficiaries used primary care at least once in the given year—a prerequisite for successfully attributing a beneficiary to a PCP.

Lastly, we constructed 2 distinct cohorts for each calendar year: at-risk MA and TM. An analogous approach assigned TM beneficiaries to physician groups.

Outcomes

We calculated 20 quality and health resource utilization measures across 4 domains of patient care: acute hospital care, avoidance of unnecessary emergency department (ED) use, avoidance of disease-specific inpatient admissions, and outpatient care (**eAppendix Table 2**). Outcomes were defined at an individual claim level and then aggregated up to a person-year level for analysis.

For acute hospital care, we tracked acute inpatient admissions and 30-day readmissions. For the avoidance of unnecessary ED use, we measured 4 outcomes: ED visits, avoidable ED visits, primary care–treatable ED visits, and inpatient admissions through an ED. For the avoidance of disease-specific inpatient admissions, we used Agency for Healthcare Research and Quality Prevention

TABLE 1. Descriptive Characteristics of Sample

Characteristics	Study groups		
	All	At-risk MA[a]	TM
Cohort: total member-years, n (%)	6,564,538 (100%)	1,990,869 (100%)	4,573,669 (100%)
Age in years, mean (SD)	73.27 (10.25)	73.59 (9.16)	73.13 (10.70)
Age groups in years, n (%)			
< 64	709,243 (10.8%)	187,125 (9.4%)	522,118 (11.4%)
65-69	1,420,450 (21.6%)	441,092 (22.2%)	979,358 (21.4%)
70-74	1,591,432 (24.2%)	511,668 (25.7%)	1,079,764 (23.6%)
75-79	1,195,570 (18.2%)	371,315 (18.7%)	824,255 (18.0%)
≥ 80	1,647,843 (25.1%)	479,669 (24.1%)	1,168,174 (25.5%)
Sex, n (%)			
Female	3,741,186 (57.0%)	1,130,493 (56.8%)	2,610,693 (57.1%)
Male	2,823,348 (43.0%)	860,376 (43.2%)	1,962,972 (42.9%)
Race/ethnicity, n (%)			
American Indian/Alaska Native	9260 (0.1%)	2715 (0.1%)	6545 (0.1%)
Asian/Pacific Islander	424,214 (6.5%)	112,473 (5.6%)	311,741 (6.8%)
Black or African American	545,319 (8.3%)	160,845 (8.1%)	384,474 (8.4%)
Hispanic	1,263,129 (19.2%)	700,306 (35.2%)	562,823 (12.3%)
Non-Hispanic White	4,174,231 (63.6%)	980,153 (49.2%)	3,194,078 (69.8%)
Other	74,385 (1.1%)	21,356 (1.1%)	53,029 (1.2%)
Unknown	74,000 (1.1%)	13,021 (0.7%)	60,979 (1.3%)
Census divisions, n (%)			
East North Central	105,769 (1.6%)	15,725 (0.8%)	90,044 (2.0%)
East South Central	918,509 (14.0%)	148,724 (7.5%)	769,785 (16.8%)
Mid-Atlantic	139,695 (2.1%)	24,007 (1.2%)	115,688 (2.5%)
Mountain	257,203 (3.9%)	68,522 (3.4%)	188,681 (4.1%)
New England	75,090 (1.1%)	27,108 (1.4%)	47,982 (1.0%)
Other	245,161 (3.7%)	173,087 (8.7%)	72,074 (1.6%)
Pacific	2,583,493 (39.4%)	931,704 (46.8%)	1,651,789 (36.1%)
South Atlantic	1,168,649 (17.8%)	123,889 (6.2%)	1,044,760 (22.8%)
West North Central	11,112 (0.2%)	771 (0.0%)	10,341 (0.2%)
West South Central	1,059,857 (16.1%)	477,332 (24.0%)	582,525 (12.7%)
Dually eligible, n (%)	1,260,626 (19.2%)	304,445 (15.3%)	956,181 (20.9%)
In MSSP, n (%)	1,648,127 (25.1%)	0 (0.0%)	1,648,127 (36.0%)
Plan type: HMO, n (%)	1,975,815 (30.1%)	1,975,815 (99.2%)	0 (0.0%)
HCC version 24 score, mean (SD)	1.35 (1.19)	1.40 (1.09)	1.33 (1.23)

(continued)

Quality Indicator (PQI) definitions[11] to measure admissions for 9 conditions that are acute and/or chronic complications of the following: diabetes, chronic obstructive pulmonary disease (COPD), hypertension, heart failure, bacterial pneumonia, and urinary tract infections. In the domain of outpatient care, we looked at 5 measures: (1) high-risk medication use; medication adherence for (2) hypertension-related renin-angiotensin system (RAS) antagonists (including angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, and direct renin inhibitors), (3) diabetes medications, and (4) statins; and (5) total office visit count.

Statistical Analysis

Using a cross-sectional study design, we compared the at-risk MA and TM cohorts over the same period and within the same physician groups across all 17 participating groups. To mitigate potential confounding from patient-mix differences, we adjusted for age, sex, race and ethnicity (using the Research Triangle Institute race code [American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, Hispanic, non-Hispanic White, other, or unknown]), dual eligibility status, calendar year, Hierarchical Condition Category (HCC) version 24 risk adjustment factor (RAF) score, and prevalence indicators for different high-level disease categories (based on high-level HCC groupings). We also included an indicator for the physician group of the attributed PCP, which allowed us to mitigate potential confounding from physician differences by comparing payment arrangements within a specific physician group.

We employed a multivariable logistic model representing all measures as binary indicators rather than using counts, given relatively low odds or prevalence of zero values. To assess the sensitivity of associations to coding intensity, we ran models adjusting for the updated HCC version 28 scores (which dropped 2294 codes) and groupings in place of those using version 24 (**eAppendix Table 3**). Results were reported as marginal risk differences (MRDs). We used SAS Enterprise Guide 7.15 HF9 (SAS Institute Inc).

RESULTS

The final cohort of beneficiaries was associated with 15,488 PCPs and 35 health plans and represented 6,564,538 person-years (**Table 1**), of which 30.3% were in at-risk MA and 69.7% in TM. Thirty-six percent of the TM cohort was in the MSSP. The mean age of beneficiaries was 73.6 years in the at-risk MA group and 73.1 years in the TM group. Women made up 56.8% and 57.1% of the at-risk MA and TM groups, respectively, and non-Hispanic White beneficiaries constituted 49.2% and 69.8%. The Pacific region had the greatest proportion of beneficiaries in the sample, with 46.8% and 36.1%, respectively. The mean HCC version 24 score was 1.40 in at-risk MA and 1.33 in TM.

Unadjusted rates and a marginal effect risk difference comparison of study outcomes for the 2019 measurement year across at-risk MA and TM are displayed in **Table 2**, the **Figure**, and **Table 3** (**eAppendix Table 4** presents results for 2016-2019).

Overall, the MRDs indicated that for 16 of the 20 measures, at-risk MA patients had outcomes indicative of higher quality and lower health resource utilization compared with TM patients. No significant differences between at-risk MA and TM were observed for 4 measures.

Domain 1: Hospital Care

The marginal risks (MRs) per 1000 for acute inpatient admission and 30-day readmission were lower by 30.03 (MRD 95% CI, −34.84 to −25.21) and 9.07 (MRD 95% CI, −11.41 to −6.74) for at-risk MA vs TM, respectively, suggesting that patients in at-risk MA were 20.0% less likely to experience acute admission and 38.8% less likely to experience a 30-day hospital readmission. Both outcomes were statistically significant ($P \leq .0001$) (Table 3).

Domain 2: Avoidance of Unnecessary ED Use

The 4 outcomes examined were ED visits, avoidable ED visits, primary care–treatable ED visits, and inpatient admissions through an ED. The MRs per 1000 for these outcomes were lower by 35.03 (MRD 95% CI, −41.84 to −28.22), 5.47 (MRD 95% CI, −8.27 to −2.66), 11.42 (MRD 95% CI, −15.45 to −7.40), and 26.13 (MRD 95% CI, −30.44 to −21.83), respectively, in at-risk MA vs TM. Across the 4 measures, at-risk MA patients were 11.3% to 22.2% less likely to experience unnecessary ED utilization. All comparisons in domain 2 were statistically significant ($P \leq .0001$) (Table 3).

Domain 3: Avoidance of Disease-Specific Inpatient Admissions

Using PQI definitions, we calculated 9 outcomes for avoidance of disease-specific inpatient admissions. Seven of the 9 metrics were statistically significant, favoring at-risk MA compared with TM. The MRs per 1000 for these 7 metrics were lower by 2.91 (MRD 95% CI, −4.50 to −1.32; $P < .0001$) for COPD/asthma admissions, 3.16 (MRD 95% CI, −4.65 to −1.66; $P < .0001$) for heart failure admissions, 1.72 (MRD 95% CI, −2.96 to

TABLE 1. (*Continued*) Descriptive Characteristics of Sample

Characteristics	Study groups		
	All	At-risk MA[a]	TM
HCC groups, n (%)			
Blood (HCCs 2, 46, 48)	692,128 (10.5%)	246,163 (12.4%)	445,965 (9.8%)
CVD (HCCs 82-88, 96, 99, 100, 107, 108)	2,738,326 (41.7%)	984,116 (49.4%)	1,754,210 (38.4%)
Diabetes (HCCs 17-19)	2,176,843 (33.2%)	756,165 (38.0%)	1,420,678 (31.1%)
Injury (HCCs 166-168)	165,128 (2.5%)	40,034 (2.0%)	125,094 (2.7%)
Kidney (HCCs 134-138)	1,204,903 (18.4%)	431,529 (21.7%)	773,374 (16.9%)
Liver (HCCs 27, 28)	78,277 (1.2%)	25,465 (1.3%)	52,812 (1.2%)
Lung (HCCs 111, 112, 114, 115)	1,108,795 (16.9%)	387,738 (19.5%)	721,057 (15.8%)
Neoplasm (HCCs 8-12)	776,521 (11.8%)	164,025 (8.2%)	612,496 (13.4%)
Psychiatric (HCCs 57-60)	1,063,041 (16.2%)	450,390 (22.6%)	612,651 (13.4%)
Skin (HCCs 157-159, 161, 162)	176,303 (2.7%)	36,593 (1.8%)	139,710 (3.1%)
Substance use disorder (HCCs 54-56)	353,564 (5.4%)	175,309 (8.8%)	178,255 (3.9%)

CVD, cardiovascular disease; HCC, Hierarchical Condition Category; HMO, health maintenance organization; MA, Medicare Advantage; MSSP, Medicare Shared Savings Program; TM, traditional Medicare.

[a] *At-risk MA* indicates MA beneficiaries cared for under fully accountable care models.

TABLE 2. Unadjusted Comparison of Efficiency and Quality Outcome Measures, Measurement Year 2019[a]

Domain	Outcome measure	All	At-risk MA[b]	TM
		Per 1000, mean (SD)		
Dis	COPD/asthma IP admissions: older adult	5.8 (95.8)	4.4 (83.0)	6.4 (101.5)
Dis	Hypertension IP admissions	1.7 (46.2)	1.2 (36.2)	2.0 (50.4)
Dis	Heart failure IP admissions	11.5 (140.9)	8.0 (111.2)	13.3 (153.4)
Dis	Bacterial pneumonia IP admissions	4.3 (68.6)	3.2 (59.4)	4.9 (72.8)
Dis	UTI IP admissions	4.3 (71.4)	2.8 (57.1)	5.1 (77.5)
Dis	Diabetes lower-extremity amputation	0.7 (31.7)	0.5 (26.1)	0.8 (34.2)
Dis	PQI-91 acute composite	8.7 (99.9)	6.0 (83.0)	10.0 (107.2)
Dis	PQI-92 chronic composite	23.8 (206.6)	16.9 (166.2)	27.1 (223.8)
Dis	PQI-93 diabetes composite	4.7 (91.5)	3.4 (75.7)	5.4 (98.4)
ED	ED visits	586.4 (1527.7)	517.5 (1360.4)	620.6 (1603.0)
ED	Avoidable ED visits	33.1 (260.1)	30.2 (243.2)	34.6 (268.1)
ED	Primary care–treatable ED visits	72.0 (368.7)	67.6 (343.7)	74.2 (380.5)
ED	IP through ED	158.7 (579.5)	105.2 (437.6)	185.2 (636.5)
IP	Acute IP admissions	206.6 (653.8)	142.3 (508.8)	238.4 (712.7)
IP	30-day readmissions	29.6 (272.6)	16.4 (178.6)	36.1 (308.4)
OP	High-risk medication use	82.0 (274.4)	61.4 (240.0)	96.3 (295.0)
OP	Office visits	9467.7 (7805.0)	7785.9 (6432.7)	10,300.2 (8276.2)
OP	Medication adherence: RAS[c]	876.5 (329.0)	88.2 (32.3)	87.2 (33.4)
OP	Medication adherence: diabetes[c]	741.7 (437.7)	73.6 (44.1)	74.7 (43.5)
OP	Medication adherence: statin[c]	874.5 (331.3)	87.6 (33.0)	87.4 (33.2)

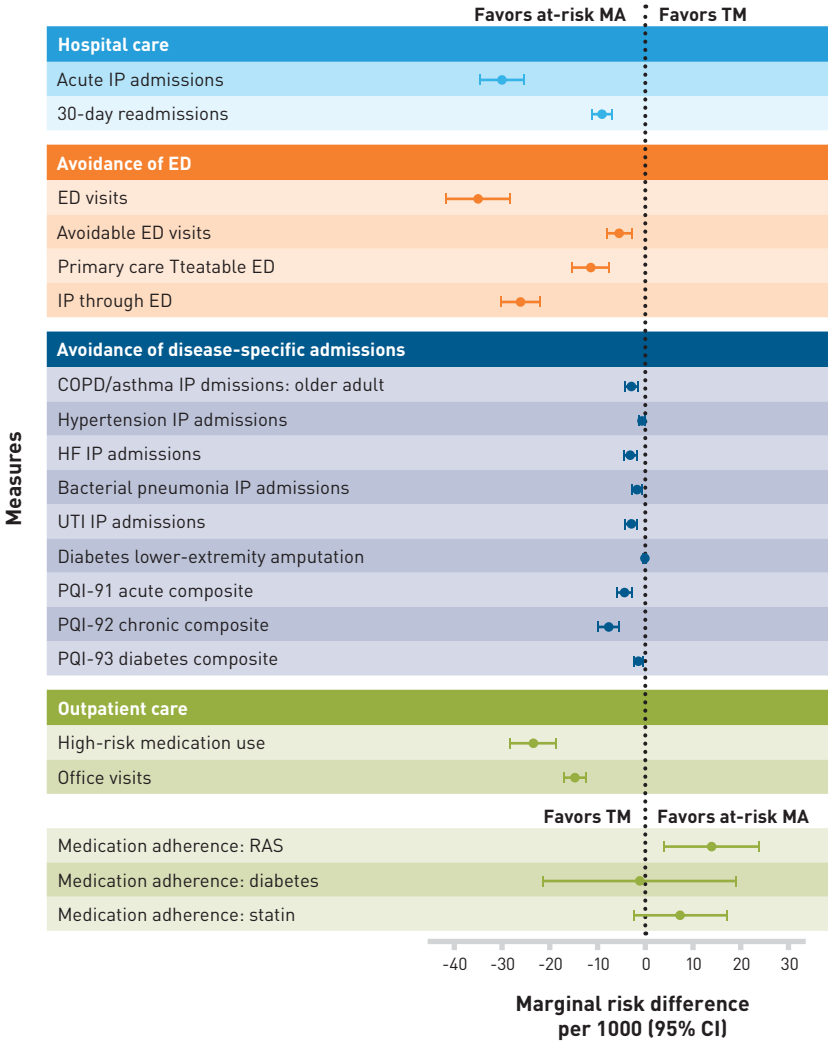
COPD, chronic obstructive pulmonary disease; Dis, disease-specific care; ED, emergency department; IP, inpatient; MA, Medicare Advantage; OP, outpatient care; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; TM, traditional Medicare; UTI, urinary tract infection.

[a] 2019 data included as representative. See eAppendix Table 4 for all 4 years of data.

[b] *At-risk MA* indicates MA beneficiaries cared for under fully accountable care models.

[c] Mean (SD) medication adherence per 1000.

FIGURE 1. Forest Plot of Adjusted Risk Differences Between At-Risk MA[a] vs TM for 20 Outcome Metrics: Adjusted Risk Difference From Logistic Regression Models for Marginal Effects (2016-2019 Data)[b]



COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease; ED, emergency department; HF, heart failure; IP, inpatient; MA, Medicare Advantage; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; TM, traditional Medicare; UTI, urinary tract infection.

[a]*At-risk MA* indicates MA beneficiaries cared for under fully accountable care models.

[b]Probability of all outcomes were modeled in the overall cohort. Due to rare event rates, risks and risk differences are reported in per 1000 scale. All measures are summarized as annual risk representing the 12-month probability of an outcome.

All models were adjusted for age groups, sex, race/ethnicity, dual status, health maintenance organization plan type (for MA), provider groups, calendar year, HCC version 24 score, and the following high-level HCC groupings: blood (HCCs 2, 46, 48), CVD (HCCs 82-88, 96, 99, 100, 107, 108), diabetes (HCCs 17-19), injury (HCCs 166-168), kidney (HCCs 134-138), liver (HCCs 27, 28), lung (HCCs 111, 112, 114, 115), neoplasm (HCCs 8-12), psychiatric (HCCs 57-60), skin (HCCs 157-159, 161, 162), and substance use disorder (HCCs 54-56).

−0.48; $P < .0001$) for bacterial pneumonia admissions, 2.91 (MRD 95% CI, −4.34 to −1.47; $P < .0001$) for urinary tract infection admissions, 4.35 (MRD 95% CI, −6.16 to −2.54; $P < .0001$) for PQI-91 acute composite admissions, 7.65 (MRD 95% CI, −9.98 to −5.31; $P < .0001$) for PQI-92 chronic composite admissions, and 1.44 (MRD 95% CI, −2.61 to −0.28; $P = .015$) for PQI-93 diabetes composite admissions. Overall, at-risk MA patients compared with TM patients were 32% to 54% less likely to be admitted as inpatients for these 7 outcomes (Table 3). The MRs per 1000 comparing at-risk MA and TM for the hypertension inpatient admission metric and diabetes lower-extremity amputation metric were statistically equivalent (see Figure and Table 3).

Domain 4: Outpatient Care

Five outcome measures were calculated. The MRs per 1000 results for 3 of the outcomes—23.45 (MRD 95% CI, −28.49 to −18.42) lower for high-risk medication use, 13.91 (MRD 95% CI, 3.77-24.06) higher for adherence to RAS antagonist medications, and 14.74 (MRD 95% CI, −17.28 to −12.20) lower for office visits—were statistically significant ($P \leq .01$), favoring at-risk MA. At-risk MA patients were 22.6% less likely to exhibit high-risk medication use, 1.6% more likely to adhere to RAS antagonist medications, and 1.5% less likely to have an office visit. Comparing at-risk MA with TM, the MR results for diabetes and statin medication adherence were statistically equivalent (Figure and Table 3).

DISCUSSION

We analyzed 2 large cohorts of patients, all managed by the same physicians and physician groups, across 35 health insurers. Of the 20 measures calculated, we found that patients in at-risk MA payment arrangements were more likely to experience higher-quality care and lower health resource utilization in 16 of the outcomes compared with TM beneficiaries across the 4 domains studied. No differences were found for 4 measures.

The measures considered in this study reflect common conditions and significantly impact health outcomes.[12] They are clinically and economically meaningful. However, many of these measures are viewed as primarily relating to inpatient quality or utilization. It is important to note that the measures looking at avoidance of admissions, readmissions, and disease-specific inpatient admissions are of particular importance because they suggest higher-quality ambulatory care, which is a primary focus of the at-risk MA care model. The prevention of these admissions has important implications for overall patient care. Given the

TABLE 3. Adjusted Risk for At-Risk MA[a] vs TM and Between-Groups Risk Differences for 20 Outcome Metrics: Adjusted Risk Parameters From Logistic Regression Models for Marginal Effects (2016-2019 Data)[b]

Outcome	Average marginal risk		At-risk MA – TM risk difference	Percent difference (relative to TM)	Risk difference *P*
	At-risk MA	TM			
	Mean per 1000 (SE)	Mean per 1000 (SE)	Mean difference per 1000 (95% CI)		
Acute hospital care					
Acute IP admissions	120.07 (1.67)	150.10 (0.80)	−30.03 (−34.84 to −25.21)	−20.0%	< .0001
30-day readmissions	14.28 (0.72)	23.35 (0.48)	−9.07 (−11.41 to −6.74)	−38.8%	< .0001
Avoidance of ED use					
ED visits	273.84 (2.37)	308.87 (1.12)	−35.03 (−41.84 to −28.22)	−11.3%	< .0001
Avoidable ED visits	23.34 (0.93)	28.81 (0.50)	−5.47 (−8.27 to −2.66)	−19.0%	.0001
Primary care–treatable ED visits	50.91 (1.34)	62.34 (0.73)	−11.42 (−15.45 to −7.40)	−18.3%	< .0001
IP through ED	91.79 (1.48)	117.93 (0.72)	−26.13 (−30.44 to −21.83)	−22.2%	< .0001
Avoidance of disease-specific inpatient admissions					
COPD/asthma IP admissions: older adult	3.85 (0.46)	6.76 (0.36)	−2.91 (−4.50 to −1.32)	−43.0%	.0003
Hypertension IP admissions	1.04 (0.21)	1.72 (0.16)	−0.69 (−1.41 to 0.04)	−39.9%	.0632
Heart failure IP admissions	6.70 (0.48)	9.86 (0.29)	−3.16 (−4.65 to −1.66)	−32.0%	< .0001
Bacterial pneumonia IP admissions	3.33 (0.40)	5.05 (0.24)	−1.72 (−2.96 to −0.48)	−34.0%	.0065[c]
UTI IP admissions	2.47 (0.36)	5.38 (0.37)	−2.91 (−4.34 to −1.47)	−54.0%	< .0001
Diabetes lower-extremity amputation	0.50 (0.17)	0.57 (0.07)	−0.08 (−0.55 to 0.40)	−13.3%	.7532
PQI-91 acute composite	5.85 (0.53)	10.20 (0.39)	−4.35 (−6.16 to −2.54)	−42.6%	< .0001
PQI-92 chronic composite	13.67 (0.71)	21.32 (0.49)	−7.65 (−9.98 to −5.31)	−35.9%	< .0001
PQI-93 diabetes composite[d]	2.52 (0.34)	3.97 (0.25)	−1.44 (−2.61 to −0.28)	−36.4%	.0151[c]
Outpatient care					
High-risk medication use	80.35 (1.58)	103.80 (1.01)	−23.45 (−28.49 to −18.42)	−22.6%	< .0001
Office visits	970.00 (1.16)	984.74 (0.15)	−14.74 (−17.28 to −12.20)	−1.5%	< .0001
Medication adherence: RAS	858.20 (3.05)	844.29 (2.15)	13.91 (3.77-24.06)	1.6%	.0072[c]
Medication adherence: diabetes	718.17 (5.89)	719.30 (4.55)	−1.14 (−21.49 to 19.22)	−0.2%	.913
Medication adherence: statin	846.87 (3.12)	839.57 (1.96)	7.30 (−2.61 to 17.22)	0.9%	.149

COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease; Dis, disease-specific care; ED, emergency department; HCC, Hierarchical Condition Category; IP, inpatient; MA, Medicare Advantage; OP, outpatient care; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; TM, traditional Medicare; UTI, urinary tract infection.

[a]*At-risk MA* indicates MA beneficiaries cared for under fully accountable care models.

[b]Probability of all outcomes were modeled in the overall cohort. Due to rare-event rates, risks and risk differences are reported on a per-1000 scale. All measures are summarized as annual risk representing the 12-month probability of an outcome. All models, except for PQI-93, were adjusted for age groups, sex, race/ethnicity, dual status, health maintenance organization plan type (for MA), provider groups, calendar year, HCC score version 24, and the following high-level HCC groupings: blood (HCCs 2, 46, 48), CVD (HCCs 82-88, 96, 99, 100, 107, 108), diabetes (HCCs 17-19), injury (HCCs 166-168), kidney (HCCs 134-138), liver (HCCs 27, 28), lung (HCCs 111, 112, 114, 115), neoplasm (HCCs 8-12), psychiatric (HCCs 57-60), skin (HCCs 157-159, 161, 162), and substance use disorder (HCCs 54-56).

[c]The main results are presented with *P* values not corrected for multiple comparisons. Applying a Bonferroni correction would alter the interpretation of the following 3 measures to nonsignificant: (1) bacterial pneumonia IP admissions, (2) PQI-93 diabetes composite, and (3) medication adherence: RAS.

[d]Diabetes was removed from the PQI-93 model because of collinearity with the outcome.

large patient sample treated by the same physicians and the use of statistical controls, the differences observed are likely due to the difference in MA payment arrangements relative to FFS payment arrangements. These results suggest that the at-risk MA infrastructure typically built to manage these arrangements is associated with significantly higher quality and lower health resource utilization.

This study found that at-risk MA patients were slightly less likely to have office visits. The implications of this are unclear. It is possible that at-risk MA may offer services that substitute for office visits and are not captured in claims, including care management and disease management touchpoints. However, if some of these visits were clinically indicated, this could have negative implications for the at-risk MA cohort. We lack

information to draw conclusions on this, and this measure warrants further exploration.

Because the TM cohort in this study had a higher proportion of dually eligible beneficiaries compared with the at-risk MA cohort (20.9% vs 15.3%), we conducted a subanalysis of both cohorts with the dually eligible population excluded (**eAppendix Table 5**). These results were minimally different and remained statistically significant across 15 of the 16 measures favoring at-risk MA, with 1 measure (PQI-93) becoming statistically equivalent. This suggests that the difference in dually eligible beneficiaries between the 2 cohorts did not bias the results of the primary analysis.

Most previous literature focused on broad comparisons of MA to TM. A limited body of research explored differences within the various MA payment arrangements—including 1-sided and 2-sided risk—and FFS models[13,14] (for model definitions, see **eAppendix Table 6**). These studies observed at-risk MA having higher quality and/or efficiency than FFS MA. For example, a recent analysis of quality and efficiency outcomes in at-risk MA compared with FFS MA demonstrated higher quality and efficiency in the at-risk MA cohort in 18 of the same 20 measures that we examined in this study.[15] However, the magnitude of the differences for most of the measures was significantly less than what was seen in the current study of at-risk MA vs TM. Only 1 study has compared at-risk MA with TM, and it found higher quality and efficiency in the at-risk MA arrangement across all 8 measures examined[9]; however, that study was not able to adjust for potential differences among physicians.[9] The data set used in this study is unique in that it relied on the collaborative efforts and willingness to share data among a large number of physician groups and PCPs. This current study finds much more pronounced effects than previous studies and other related work while accounting for potential physician differences, as both cohorts were treated by the same physician groups.

The magnitude of differences observed in this study could be explained by the mix of physician groups in our study, because these groups taking on meaningful risk may be more experienced at managing risk than groups in previous studies. Because both beneficiary cohorts were managed by the same physician groups, there are likely spillover effects from the at-risk MA cohort onto the TM cohort, as physicians tend to manage patients similarly despite different payment arrangements. Given these potential spillover effects, our estimates may understate how much the at-risk payment arrangements are associated with improved outcomes relative to what TM outcomes would be when physicians providing the care did not have substantial at-risk experience.

We propose 2 key explanations for the improved outcomes observed in at-risk payment arrangements. First, physicians in at-risk MA may have adapted their practices to prioritize preventive care, refer selectively to high-performing specialists and facilities, focus on evidence-based medicine, and reduce low-value care. Second, the infrastructure supporting at-risk MA, such as population risk stratification, provider performance feedback, intensive case management, and integrated support services (eg, social workers, behavioral health, pharmacy, and disease management), may be enhancing care delivery. There is heterogeneity in the types and intensity of these interventions across the 17 groups in this study. We did not have the granularity of data to explore these differences. Understanding which interventions are most impactful is an important area for future study.

Limitations

Differences in populations across payment arrangements may exist. Our approach to adjusting for this possibility used observable health, demographic, and clinical risk measures. However, despite including a broad range of factors, we may not have fully accounted for residual, unobservable differences between populations such as health-related social needs or upstream drivers of health status. Our results also may have limited geographical generalizability because the Pacific Division census region was disproportionately represented.

To address potential coding and reporting differences between MA and TM, we conducted a sensitivity analysis adjusting for risk using HCC version 28 instead of HCC version 24 (**eAppendix Table 7**). The effects remained strong and statistically significant, although slightly reduced compared with the version 24 results. Given that the Medicare Payment Advisory Commission (MedPAC) found that chart reviews account for approximately half of the coding differences between MA and TM,[16] we excluded chart reviews when generating RAF scores to improve comparability between the 2 programs. MedPAC has estimated that coding intensity contributed an 11% HCC-RAF score increase from 2016 through 2019 (the study period), inclusive of chart reviews.[17] In this study, the mean HCC-RAF difference between the 2 programs for HCC version 24, excluding chart reviews, was only 5%.

Beneficiaries in TM had a 5.6% higher dual-eligibility status compared with beneficiaries in at-risk MA. This could theoretically affect our analysis, but the subanalysis excluding the dual-eligible population did not support this difference having a significant impact on our results. Finally, given that the MA at-risk population has been shown to be more socioeconomically disadvantaged than the TM population, these socioeconomic differences would probably serve to attenuate rather than amplify our results.[7,18]

CONCLUSIONS

Compared with TM, at-risk MA was associated with higher quality and lower health resource utilization in 16 of 20 measures across 4 domains when care was delivered by the same physician groups practicing under both payment arrangements. These findings, although not causal, suggest that 2-sided–risk MA payment arrangements deliver higher quality and more efficient use of health care resources. As more MA health plans shift to 2-sided risk, this information may be useful to inform CMS policies on payment and service delivery. ■

Author Affiliations: Optum Center for Research and Innovation (KCo, OA, KCa, MSJ, JS), Minnetonka, MN; Department of Health Care Policy, Harvard Medical School (BV), Boston, MA; America's Physician Groups (JP, SD), Washington, DC; CareJourney by Arcadia (NS), Arlington, VA; Department of Medicine, Cedars Sinai Medical Center (CG), Los Angeles, CA.

Source of Funding: Optum.

Author Disclosures: Dr Cohen is an employee of Optum Health, which participates in both Medicare Advantage and traditional Medicare; he has also attended the America's Physician Groups Annual Conference. Ms Podulka is employed by America's Physician Groups and has attended the AHIP 2025 Medicare, Medicaid, Duals & Commercial Markets Forum. Dr Ameli and Dr Catlett are employees of Optum Health and own stock in UnitedHealth Group. Ms Jarvis is employed by Optum. Ms Dentzer is employed as president and CEO of America's Physician Groups. Drs Smith and Goldzweig report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article. **[Forms: BV, JS]**

Authorship Information: Concept and design (KCo, BV, JP, OA, KCa, NS, CG); acquisition of data (KCo, BV, OA, NS, MSJ); analysis and interpretation of data (KCo, BV, JP, OA, KCa, NS, SD); drafting of the manuscript (KCo, BV, JP, OA, KCa, MSJ, CG, SD); critical revision of the manuscript for important intellectual content (KCo, BV, JP, OA, KCa, NS, MSJ, CG, SD); statistical analysis (BV, OA, NS); provision of patients or study materials (CG); obtaining funding (); administrative, technical, or logistic support (KCo, KCa, MSJ, JS, SD); and supervision (KCo). **[Forms: BV, JS]**

Address Correspondence to: Kenneth Cohen, MD, Optum Health, 11000 Optum Circle, Eden Prairie, MN 33554. Email: ken.cohen@optum.com.

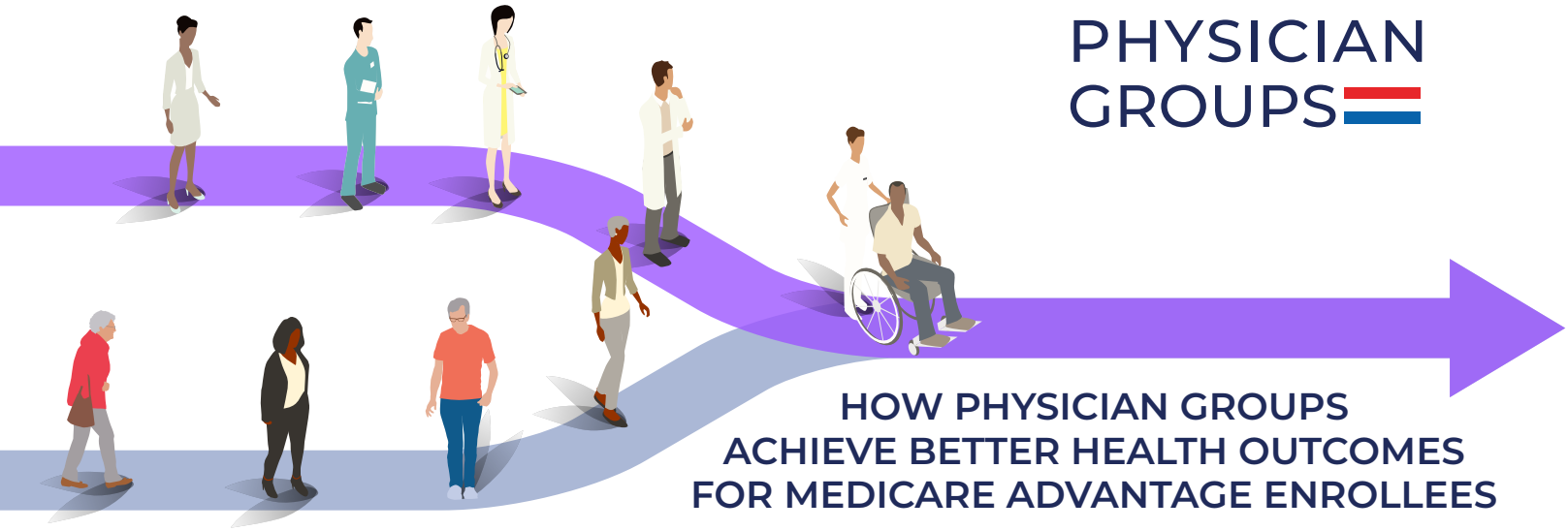
REFERENCES

1. Neuman T, Freed M, Fuglesten Biniek J. 10 reasons why Medicare Advantage enrollment is growing and why it matters. KFF. January 30, 2024. Accessed February 6, 2024. https://www.kff.org/medicare/issue-brief/10-reasons-why-medicare-advantage-enrollment-is-growing-and-why-it-matters/
2. *Report to the Congress: Medicare and the Health Care Delivery System*. Medicare Payment Advisory Commission; June 2023. Accessed February 6, 2024. https://www.medpac.gov/wp-content/uploads/2023/06/Jun23_MedPAC_Report_To_Congress_SEC.pdf
3. Agarwal R, Connolly J, Gupta S, Navathe AS. Comparing Medicare Advantage and traditional Medicare: a systematic review. *Health Aff (Millwood)*. 2021;40(6):937-944. doi:10.1377/hlthaff.2020.02149
4. Curto V, Einav L, Finkelstein A, Levin J, Bhattacharya J. Health care spending and utilization in public and private Medicare. *Am Econ J Appl Econ*. 2019;11(2):302-332. doi:10.1257/app.20170295
5. Duggan M, Gruber J, Vabson B. The consequences of health care privatization: evidence from Medicare Advantage exits. *Am Econ J Econ Policy*. 2018;10(1):153-186. doi:10.1257/pol.20160068
6. Drzayich Antol D, Schwartz R, Caplan A, et al. Comparison of health care utilization by Medicare Advantage and traditional Medicare beneficiaries with complex care needs. *JAMA Health Forum*. 2022;3(10):e223451. doi:10.1001/jamahealthforum.2022.3451
7. Teigland C, Brot-Goldberg Z, Bilder S, et al. Harvard-Inovalon Medicare study: the importance of plan design in Medicare Advantage. Inovalon white paper. 2024. Accessed April 16, 2024. https://www.inovalon.com/wp-content/uploads/2024/04/INS-24-0112-Payer-Insights-Harvard-Campaign-Whitepaper-4-Final.pdf
8. Comparison of BASIC track and ENHANCED track version 6: Shared Savings Program participation options for performance year 2024. CMS Medicare Shared Savings Program. March 2023. Accessed February 6, 2024. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/ssp-aco-participation-options.pdf
9. Cohen K, Ameli O, Chaisson CE, et al. Comparison of care quality metrics in 2-sided risk Medicare Advantage vs fee-for-service Medicare programs. *JAMA Netw Open*. 2022;5(12):e2246064. doi:10.1001/jamanetworkopen.2022.46064
10. *Shared Savings and Losses and Assignment Methodology*. CMS. February 2021. Accessed February 6, 2024. https://www.cms.gov/files/document/medicare-shared-savings-program-shared-savings-and-losses-and-assignment-methodology-specifications.pdf-0
11. Prevention Quality Indicators technical specifications—version v2023. Agency for Healthcare Research and Quality. August 2023. Accessed February 26, 2024. https://web.archive.org/web/20231206195346/https://qualityindicators.ahrq.gov/measures/PQI_TechSpec
12. McDermott KW, Roemer M. Most frequent principal diagnoses for inpatient stays in U.S. hospitals, 2018. Healthcare Cost and Utilization Project statistical brief 277. July 2021. Accessed February 6, 2024. https://hcup-us.ahrq.gov/reports/statbriefs/sb277-Top-Reasons-Hospital-Stays-2018.pdf
13. Mandal AK, Tagomori GK, Felix RV, Howell SC. Value-based contracting innovated Medicare Advantage healthcare delivery and improved survival. *Am J Manag Care*. 2017;23(2):e41-e49.
14. Gondi S, Li Y, Drzayich Antol D, Boudreau E, Shrank WH, Powers BW. Analysis of value-based payment and acute care use among Medicare Advantage beneficiaries. *JAMA Netw Open*. 2022;5(3):e222916. doi:10.1001/jamanetworkopen.2022.2916
15. Cohen KR, Vabson B, Podulka J, et al. Medicare risk arrangement and use and outcomes among physician groups. *JAMA Netw Open*. 2025;8(1):e2456074. doi:10.1001/jamanetworkopen.2024.56074
16. The Medicare Advantage program: status report. In: *Report to the Congress: Medicare Payment Policy*. Medicare Payment Advisory Commission; March 2021:353-403. Accessed October 30, 2024. https://www.medpac.gov/wp-content/uploads/2021/10/mar21_medpac_report_ch12_sec.pdf
17. *Report to the Congress: Medicare Payment Policy*. Medicare Payment Advisory Commission; March 2024. Accessed April 19, 2024. https://www.medpac.gov/wp-content/uploads/2024/03/Mar24_MedPAC_Report_To_Congress_SEC.pdf.
18. Bilder S, Brot-Goldberg Z, Jones B, et al. Harvard-Inovalon Medicare study: who enrolls in Medicare Advantage vs. Medicare fee-for-service. Inovalon white paper. 2023. Accessed October 30, 2024. https://www.inovalon.com/wp-content/uploads/2023/06/Harvard-Inovalon-Medicare-Study.pdf

Visit **ajmc.com/link/89740** to download PDF and eAppendix

JOURNEY TO THE BEST CARE

AMERICA'S PHYSICIAN GROUPS



HOW PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR MEDICARE ADVANTAGE ENROLLEES

Q Prior studies have shown how superior patient care practices adopted by physician groups — all working under two-sided risk arrangements in Medicare Advantage (MA) — help their MA patients achieve improved health outcomes.[1,2] How do these outcomes compare to those of the traditional Medicare patients cared for by these same physician groups?

A Care outcomes for the groups' MA patients cared for in two-sided risk arrangements were far better than those for traditional Medicare patients across 16 of 20 measures.[3] The results suggest that operating in "At-Risk MA" affords extra resources for physician groups to undertake preventive care, intensive case management, and other strategies that improve overall care delivery for older adult populations.

As a result, compared to the traditional Medicare patients cared for by these physician groups, the MA patients they cared for were:

36-43% **less likely** to be admitted to hospitals for composite sets of acute and chronic conditions

39% **less likely** to be readmitted to hospitals within 30 days of a prior hospital stay

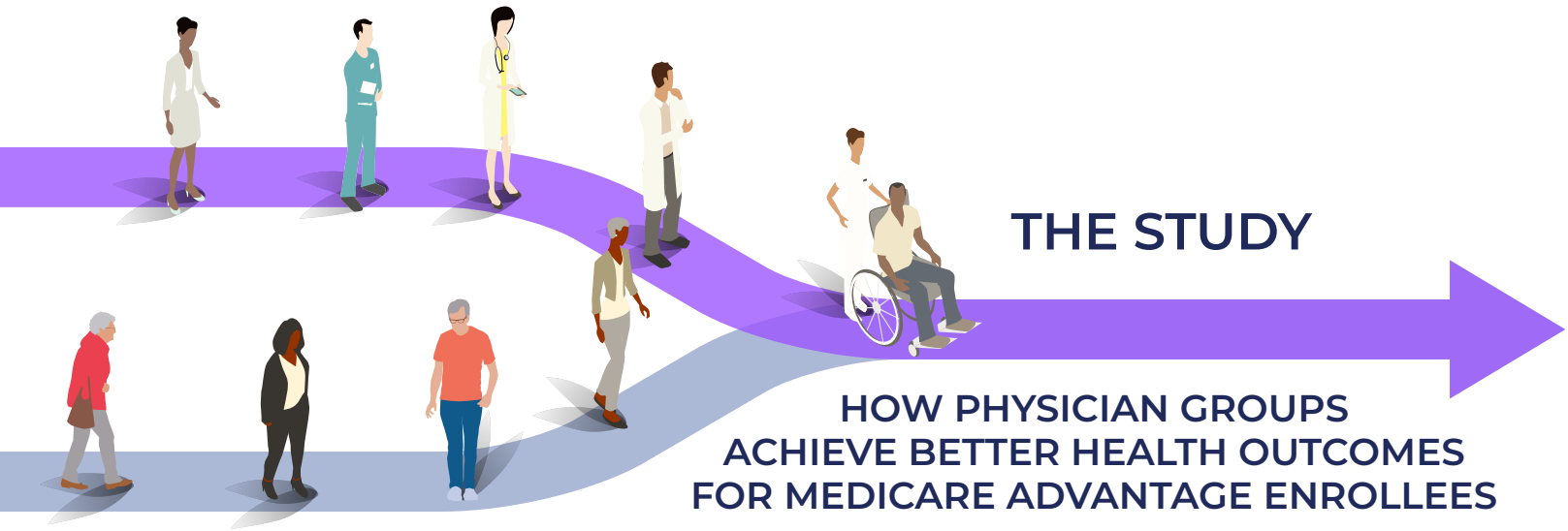
19% **less likely** to undergo avoidable emergency department visits

23% **less likely** to use high-risk medications

[1] *Cohen KR, Vabson B, Podulka J, et al, Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. JAMA Netw Open. 2025; 8(1):e2456074. 10.1001/jamanetworkopen.2024.56074*

[2] *Vabson B, Cohen K, Ameli O, et al. Potential spillover effects on traditional Medicare when physicians bear Medicare Advantage risk. Am J Manag Care. Published online February 26, 2025. doi:10.37765/ajmc.2025.89686.*

[3] *Cohen K, Vabson B, Podulka J, et al. Health outcomes under full-risk Medicare Advantage vs traditional Medicare. Am J Manag Care. Published online May 9, 2025. doi:10.37765/ajmc.2025.89740*



THE STUDY

HOW PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR MEDICARE ADVANTAGE ENROLLEES

1

Researchers first identified 17 large physician organizations — all members of America's Physician Groups — that had full two-sided risk arrangements with Medicare Advantage plans. The 17 groups included more than 15,000 physicians and contracted with 35 different MA health insurers.

2

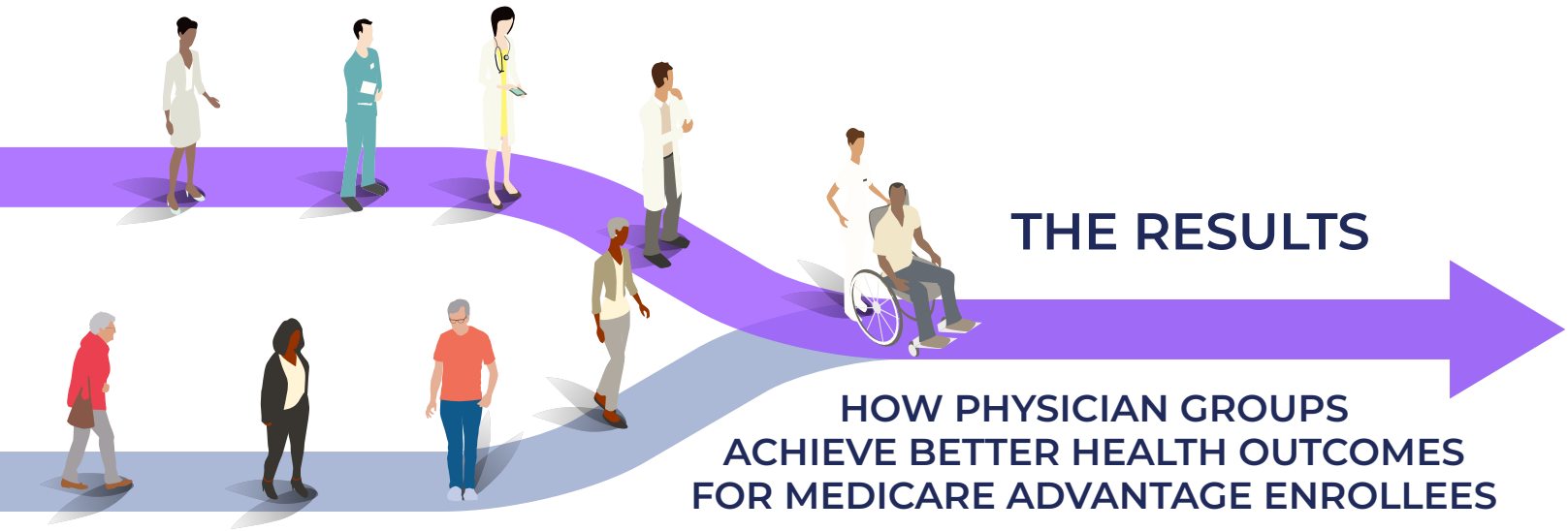
The researchers then identified two cohorts of these groups' Medicare patients: those enrolled in MA and cared for under full-risk arrangements and those in traditional Medicare, both for the pre-pandemic years of 2016- 2019. The total sample was equivalent to nearly 6.6 million patient-years and the average age was 73.

3

The researchers then compared the two groups of patients based on 20 measures of quality and efficiency across four domains of care: acute hospital care, avoidance of emergency department use, avoidance of disease-specific admissions for such conditions as diabetes and heart failure, and outpatient care.

4

To adjust for differences in the mix of patients, results were adjusted for age, gender, race, and ethnicity, as well as for differences in MA coding intensity between the two groups.



THE RESULTS

HOW PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR MEDICARE ADVANTAGE ENROLLEES

- The study showed that, in 16 of 20 measures, the outcomes achieved for the Medicare Advantage patients cared for under full-risk Medicare Advantage were superior to those of traditional Medicare (see below). For 4 of the 20 measures, the outcomes were roughly the same.
- The superior outcomes signified both higher care quality and efficiency, in that they demonstrated better use of health care resources, and, in effect, more value for the money spent on health care (although the study did not measure actual costs of care).
- In one anomalous result, the study found that the MA patients were slightly less likely to have office visits than the traditional Medicare patients. It is unclear why, but it may be because MA offers services that substitute for office visits and are not captured in Medicare claims, such as care management and disease management encounters.

Compared to the traditional Medicare patients, the MA patients in the study were:

11% **less likely** to have emergency department visits

22% **less likely** to be admitted as inpatients through emergency departments

40% **less likely** to be admitted to a hospital for hypertension

54% **less likely** to be admitted to a hospital for a urinary tract infection

13% **less likely** to be admitted to a hospital for a lower-extremity amputation due to diabetes

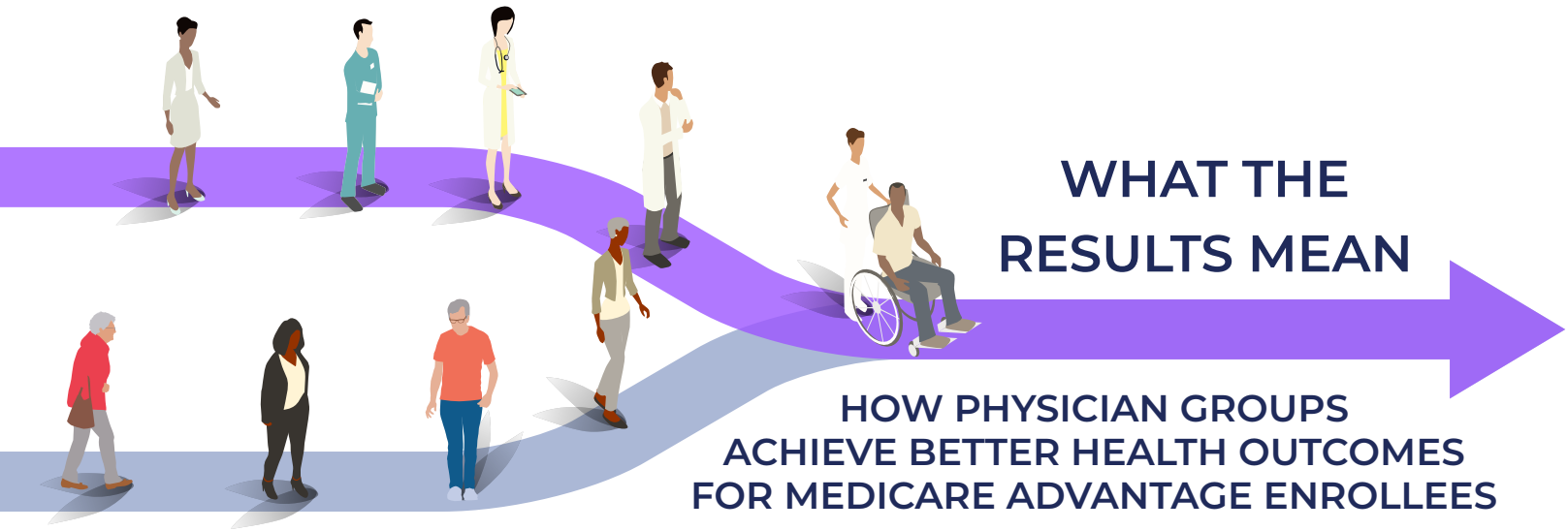
34% **less likely** to be admitted to a hospital for bacterial pneumonia

The traditional Medicare patients fared roughly the same or better on these measures, for unknown reasons:

0.9% **more likely** to be adherent to statin drugs compared to MA

1.6% **more likely** to be adherent to medications for inhibiting the renin angiotensin system, such as ACE inhibitors departments

= Traditional Medicare patients were roughly **as likely** as MA patients to be adherent to diabetes medications



WHAT THE RESULTS MEAN

HOW PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR MEDICARE ADVANTAGE ENROLLEES

Q What could explain the finding that Medicare Advantage enrollees cared for by physician groups with expertise in At-Risk MA saw superior outcomes compared to these groups' traditional Medicare patients?

A **Physicians operating in two-sided risk arrangements in MA adopt advanced care practices to keep their MA patients as healthy as possible and out of hospitals (see more detail below). These care practices, largely delivered in the ambulatory setting and through primary care, are especially effective in reducing unnecessary emergency department visits, hospitalizations, and readmissions for multiple potentially costly chronic conditions.**

1

Physician practices in full risk relationships with MA plans can lose money if patients undergo costly care or achieve poor outcomes, so they have incentives to keep patients healthy. Due to payments earned through such MA features as risk adjustment, these practices have more resources to devote to patient care.

2

These incentives and resources help them to focus more on preventive care; use more evidence-based medicine to drive care decisions; selectively refer patients to high-performing specialists and facilities; and reduce the provision of low-value care that could earn money for practices but could also be wasted on or even harm patients.

3

Practices in At-Risk MA also adopt capabilities and infrastructure, such as population risk stratification, provider performance feedback, intensive case management, and support services such as in behavioral health, pharmacy, disease management, and social worker assistance. All of these also help keep patients healthy and out of the hospital.

4

Not all these capabilities that practices adopt to thrive in At-risk MA are employed on behalf of traditional Medicare patients, but some are, presumably to their benefit as well. Without this "spillover" effect, it is likely that the outcomes gaps between MA and traditional Medicare patients would be even worse.

About APG

APG is a national organization of primary care and multispecialty medical groups that take accountability for the quality and cost of health care. Our approximately 360 physician groups comprise 170,000 physicians, as well as thousands of other clinicians, providing care to nearly 90 million patients, including about 1 in 3 Medicare Advantage enrollees.

APG's motto, 'Taking Responsibility or America's Health', represents our members' commitment to clinically integrated, coordinated, value-based health care in which physician groups are accountable for the quality and cost of patient care. Visit us at www.apg.org.

Health Outcomes of Dually Eligible Beneficiaries Under Different Medicare Payment Arrangements

Kenneth Cohen, MD; Boris Vabson, PhD; Jennifer Podulka, MPAff; Omid Ameli, MD, DrPH; Kierstin Catlett, PhD; Nathan Smith, PhD; Megan S. Jarvis, MS; Jane Sullivan, MPH; and Susan Dentzer, MS

ABSTRACT

OBJECTIVES: Dually eligible beneficiaries (hereafter, *Duals*) qualify for Medicare and Medicaid due to low income and/or disability. Duals comprise 19% of Medicare beneficiaries but consume 35% of Medicare spending. Identifying high-quality, efficient care arrangements may improve outcomes and reduce costs for Duals. This study evaluated the effect of different payment arrangements on Duals' quality and efficiency outcomes.

STUDY DESIGN: Retrospective, cross-sectional analysis using CMS data and health plan contract information from 17 participating physician groups (n = 15,488 primary care physicians).

METHODS: We identified Duals within the same physician groups treated under at-risk Medicare Advantage (MA), traditional Medicare (TM), and fee-for-service (FSS) MA payment arrangements. We then compared the 3 cohorts across 20 health outcome metrics for the 2016-2019 period.

RESULTS: The sample comprised 1,980,691 person-years (at-risk MA, 15.4%; TM, 48.3%; and FFS MA, 36.4%). Duals in at-risk MA had better outcomes in 17 of 20 measures compared with TM, with avoidable hospital and emergency department (ED) measures showing 9.0% to 32.7% higher quality and efficiency. Compared with FFS MA, at-risk MA had better outcomes in 18 of 20 measures, with avoidable hospital and ED measures showing 7.7% to 15.3% higher quality and efficiency. FFS MA had better outcomes than TM for 17 of 20 measures; 1 measure favored TM.

CONCLUSIONS: At-risk MA was associated with higher quality and lower health resource utilization for Duals compared with TM and FFS MA. The CMS goal of accountable care arrangements should include at-risk MA for Duals due to these beneficiaries' increasing health care utilization and costs.

Am J Manag Care. 2026;32(5):In Press

In 2024, 12.8 million dual-eligible beneficiaries (hereafter, *Duals*) were enrolled in both Medicare and Medicaid.[1] Duals may participate in traditional Medicare (TM), or they may enroll in Medicare Advantage (MA), including Dual Eligible Special Needs Plans (D-SNPs). Care costs for Duals are rising faster than for other Medicare beneficiaries. Duals totaled 19% of the Medicare population in 2024 but accounted for 35% of Medicare spending.[2] Thus, there is strong interest in studying both the quality and efficiency of their care.

There is a paucity of data comparing MA with TM with respect to health outcomes in the Duals population. A key consideration is that MA contracts most commonly pay providers via fee-for-service (FFS) arrangements; however, many plans contract with physician groups under delegated 2-sided risk arrangements where the financial risk of providing health care is transferred to the group (at-risk MA). Most TM arrangements are FFS; in 2019, the measurement year of this study, only 8% of Medicare accountable care organizations (ACOs) were accepting some 2-sided risk in the Medicare Shared Savings Program (MSSP).[3]

Increasing evidence indicates that at-risk MA is associated with improvements in quality and health resource utilization, suggesting better value-based care outcomes relative to both FFS MA and TM.[4,5] However, no prior studies have examined these outcomes specifically in the Duals population. Here, we extend to the Duals population our prior research on health outcomes as a function of Medicare payment arrangements.[4-6] We compared 20 measures of quality and efficiency in 3 cohorts of Duals (at-risk MA, TM, or FFS MA), all cared for by the same physicians within the same physician groups.

METHODS

Study Design

This cross-sectional study examined the association of different Medicare payment arrangements with quality and efficiency in the Duals population treated by the same physician groups. All groups participated with MA in full risk or full professional risk contracts.

This study, approved by Solutions IRB, involved a retrospective analysis of preexisting deidentified data, qualifying as non–human subjects research and exempt from further review. The study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology reporting guidelines.

TAKEAWAY POINTS

- In this retrospective cohort analysis of dually eligible beneficiaries, at-risk Medicare Advantage (MA) was associated with higher quality and avoidable health care utilization compared with both fee-for-service (FFS) MA and traditional Medicare (TM).
- Within the MA Dual Eligible Special Needs Plan (D-SNP) population, quality was also higher and avoidable health care utilization lower in at-risk MA compared with FFS MA.
- The greatest differences were seen when comparing at-risk MA D-SNP with TM.

Study Data

The study utilized deidentified TM claims and MA encounters from 2016 to 2019 housed in the CMS Virtual Research Data Center (VRDC). The National Provider Identifiers (NPIs) from a nonpublic data set of participating physician groups that provided contract data were linked to the NPIs of physicians who cared for Duals in the VRDC. Claims and encounter data associated with health resource utilization were available for all 3 Medicare groups.

Sample and Cohorts

Cohen et al detailed the methodology used to create the sample and cohort.[4] The cohort was built using data from 2016 to 2019 to avoid health care disruptions experienced during the COVID-19 pandemic. We restricted beneficiary-year combinations to individuals who were enrolled in Medicare Parts A and B for all 12 months of those years and were dually eligible. Dual status was defined as being enrolled for at least 1 month in a calendar year with full or partial eligibility for both Medicare and Medicaid benefits and included beneficiaries younger than and at least 65 years. We removed beneficiaries who switched from MA to TM or from TM to MA during a calendar year and limited the sample to beneficiaries who successfully aligned to primary care physician (PCP) NPI flags for participating physician groups. We removed beneficiaries with missing Hierarchical Condition Category (HCC) scores. Three distinct dual-eligible cohorts were constructed for each calendar year: at-risk MA, TM, and FFS MA (**eAppendix Table 1** and **eAppendix Figure** [eAppendix available at **ajmc.com**]). The final sample was 17 provider groups, comprising 15,488 PCPs (**eAppendix Table 2**).

Outcomes

We selected 20 quality and efficiency measures. Outcomes were defined at an individual claim or encounter level and aggregated to a person-year level. Hospital care was reflected by acute inpatient admission rates and 30-day all-cause readmission rates. We tracked emergency department (ED) visit volume and granular measures for ED utilization. We tracked avoidance of disease-specific admissions based on the Agency for Healthcare Research and Quality Prevention Quality Indicator (PQI) definitions, including avoidable admissions for acute and/or chronic complications for diabetes, chronic obstructive pulmonary disease, hypertension, heart failure, bacterial pneumonia, and urinary tract infections (**eAppendix Table 3**). Outpatient quality was tracked via pharmacy measures of high-risk medication use and medication adherence using the Healthcare Effectiveness Data and Information Set and via office visit volume.

Statistical Analysis

Cohort characteristics were described for the overall sample and by payment arrangement (**Table 1**). Continuous variables were summarized as means and SDs and categorical variables as frequencies and percentages. We summarized unadjusted outcome measures as mean event rates per 1000 persons (**eAppendix Table 4**). Using multivariable logistic regressions, we modeled outcomes as binary indicators given the relatively low odds and relevance of 0 values to compare Duals in at-risk MA, TM, and FFS MA cohorts. To mitigate potential confounding from patient-mix differences, all outcome models were adjusted for age, sex, self-reported race and ethnicity (based on Research Triangle Institute race code), composite HCC version 24 risk adjustment factor score, and prevalence of high-level disease categories based on high-level HCC groupings (Table 1). Calendar year was adjusted as fixed effects in all regression models. We included an indicator for the provider group of the attributed PCP to account for potential confounding from provider differences within a specific payment arrangement. Associations are reported as change in average marginal risk (AMR) or equivalent marginal risk differences (MRDs) (**Figure 1** and **Figure 2**).[7] Statistical analyses were performed from June 1, 2024, to January 29, 2025, and were conducted using SAS Enterprise Guide 7.15 (SAS Institute Inc). To account for multiple comparisons, we applied the Holm-Bonferroni correction to control the family-wise error rate, adjusting *P* values in a stepwise manner to allow rigorous control over type I error while minimizing loss of statistical power.[8] A 2-sided *P* less than .05 by Wald χ^2 indicated significance for regression estimates. Results are reported as MRDs.

Subgroup and Sensitivity Analyses

We also assessed differences in effect size across Duals in MA with and without D-SNP enrollment (**eAppendix Table 5**). In a separate analysis, we compared D-SNP and non–D-SNP subgroups with the TM group (**eAppendix Table 6**). As a robustness test to assess the sensitivity of associations to coding intensity, we ran models adjusting for HCC version 28 scores and groupings in place of those using version 24 (**eAppendix Table 7**).

RESULTS

The final study cohort comprised 1,980,691 person-years: 15.4% were in at-risk MA, 48.3% were in TM, and 36.4% were in FFS MA. The

TABLE 1. Descriptive Characteristics of Sample, 2016-2019[a]

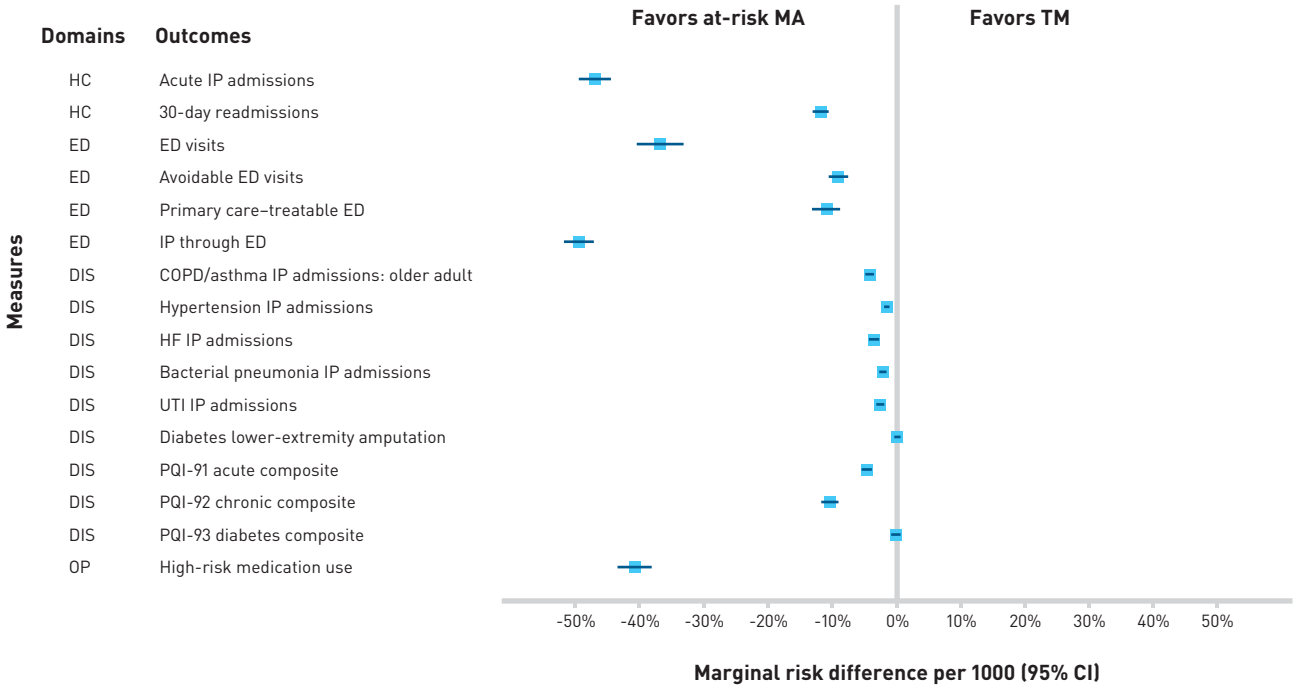
Characteristics	Study groups			
	All	At-risk MA	TM	FFS MA
Cohort: total member-years, n (%)	1,980,691 (100.0%)	304,445 (100.0%)	956,181 (100.0%)	720,065 (100.0%)
Age in years, mean (SD)	69.1 (13.8)	70.7 (11.5)	68.3 (15.3)	69.4 (12.6)
Age groups in years, n (%)				
< 64	569,408 (28.7%)	63,622 (20.9%)	314,933 (32.9%)	190,853 (26.5%)
65-69	348,189 (17.6%)	66,334 (21.8%)	147,299 (15.4%)	134,556 (18.7%)
70-74	348,303 (17.6%)	64,861 (21.3%)	139,168 (14.6%)	144,274 (20.0%)
75-79	277,793 (14.0%)	47,091 (15.5%)	122,612 (12.8%)	108,090 (15.0%)
≥ 80	436,998 (22.1%)	62,537 (20.5%)	232,169 (24.3%)	142,292 (19.8%)
Sex, n (%)				
Female	1,228,558 (62.0%)	187,545 (61.6%)	587,126 (61.4%)	453,887 (63.0%)
Male	752,129 (38.0%)	116,900 (38.4%)	369,051 (38.6%)	266,178 (37.0%)
Race/ethnicity, n (%)				
American Indian/Alaska Native	3749 (0.2%)	412 (0.1%)	2417 (0.3%)	920 (0.1%)
Asian/Pacific Islander	273,347 (13.8%)	19,246 (6.3%)	174,444 (18.2%)	79,657 (11.1%)
Black or African American	331,737 (16.7%)	35,987 (11.8%)	138,788 (14.5%)	156,962 (21.8%)
Hispanic	697,860 (35.2%)	165,920 (54.5%)	261,753 (27.4%)	270,187 (37.5%)
Non-Hispanic White	641,552 (32.4%)	79,974 (26.3%)	356,788 (37.3%)	204,790 (28.4%)
Other	16,273 (0.8%)	1801 (0.6%)	10,093 (1.1%)	4379 (0.6%)
Unknown	16,173 (0.8%)	1105 (0.4%)	11,898 (1.2%)	3170 (0.4%)
Census divisions, n (%)				
East North	9974 (0.5%)	1125 (0.4%)	5452 (0.6%)	3397 (0.5%)
East South	244,159 (12.3%)	17,483 (5.7%)	99,698 (10.4%)	126,978 (17.6%)
Mid-Atlantic	78,045 (3.9%)	5420 (1.8%)	34,133 (3.6%)	38,492 (5.3%)
Mountain	58,305 (2.9%)	8502 (2.8%)	35,324 (3.7%)	14,479 (2.0%)
New England	15,750 (0.8%)	1483 (0.5%)	9536 (1.0%)	4731 (0.7%)
Other: noncontiguous US	18,290 (0.9%)	1931 (0.6%)	2770 (0.3%)	13,589 (1.9%)
Pacific	842,164 (42.5%)	120,773 (39.7%)	510,485 (53.4%)	210,906 (29.3%)
South Atlantic	282,378 (14.3%)	15,431 (5.1%)	117,681 (12.3%)	149,266 (20.7%)
West North Central	1080 (0.1%)	121 (0.0%)	647 (0.1%)	312 (0.0%)
West South Central	430,546 (21.7%)	132,176 (43.4%)	140,455 (14.7%)	157,915 (21.9%)
Plan type: HMO, n (%)	938,242 (47.4%)	303,867 (99.8%)	0 (0.0%)	634,375 (88.1%)
D-SNP, n (%)	482,209 (24.3%)	71,373 (23.4%)	0 (0.0%)	410,836 (57.1%)
HCC score version 24, mean (SD)	1.7 (1.5)	1.7 (1.3)	1.8 (1.6)	1.6 (1.3)
HCC groups, n (%)				
Blood (HCCs 2, 46, 48)	224,168 (11.3%)	40,625 (13.3%)	106,534 (11.1%)	77,009 (10.7%)
CVD (HCCs 82-88, 96, 99, 100, 107, 108)	887,329 (44.8%)	160,712 (52.8%)	404,266 (42.3%)	322,351 (44.8%)
Diabetes (HCCs 17-19)	875,184 (44.2%)	147,438 (48.4%)	398,905 (41.7%)	328,841 (45.7%)
Injury (HCCs 166-168)	54,761 (2.8%)	7131 (2.3%)	31,066 (3.2%)	16,564 (2.3%)
Kidney (HCCs 134-138)	412,739 (20.8%)	70,840 (23.3%)	193,629 (20.3%)	148,270 (20.6%)
Liver (HCCs 27, 28)	39,261 (2.0%)	7041 (2.3%)	19,611 (2.1%)	12,609 (1.8%)
Lung (HCCs 111, 112, 114, 115)	454,952 (23.0%)	74,125 (24.3%)	200,979 (21.0%)	179,848 (25.0%)
Neoplasm (HCCs 8-12)	163,119 (8.2%)	22,356 (7.3%)	88,730 (9.3%)	52,033 (7.2%)
Psychiatric (HCCs 57-60)	506,110 (25.6%)	95,192 (31.3%)	224,178 (23.4%)	186,740 (25.9%)
Skin (HCCs 157-159, 161, 162)	71,835 (3.6%)	7488 (2.5%)	46,359 (4.8%)	17,988 (2.5%)
Substance use disorder (HCCs 54-56)	171,300 (8.6%)	35,210 (11.6%)	63,913 (6.7%)	72,177 (10.0%)

CVD, cardiovascular disease; D-SNP, Dual Eligible Special Needs Plan; FFS, fee-for-service; HCC, Hierarchical Condition Category; HMO, health maintenance organization; MA, Medicare Advantage; TM, traditional Medicare.

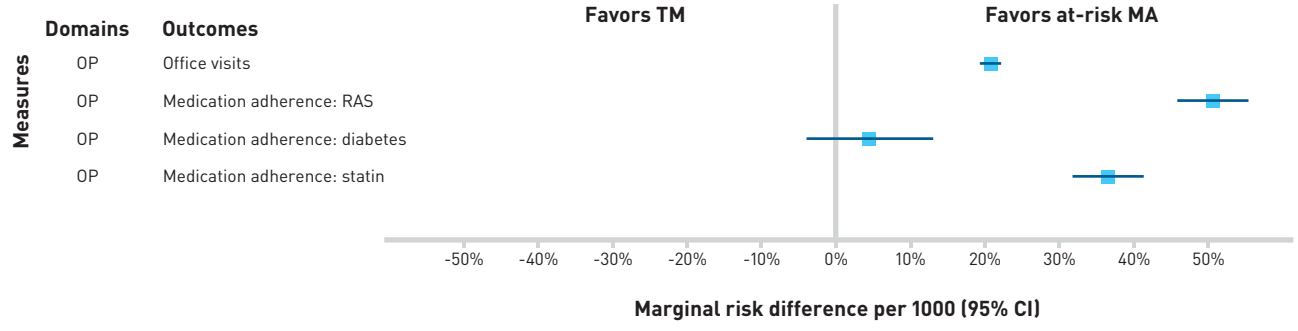
[a]*At-risk MA* indicates MA beneficiaries cared for under fully accountable care models, and *FFS MA* indicates MA beneficiaries who are cared for under FFS models.

FIGURE 1. Forest Plot of Pairwise Risk Differences Between At-Risk MA and TM for 20 Outcome Metrics: Adjusted Risk Difference From Logistic Regression Models for Marginal Effects (2016-2019 Data)[a]

A. Comparison of dually eligible at-risk MA with TM for 16 measures across 4 domains



B. Comparison of dually eligible at-risk MA vs TM for 4 measures in 1 domain



COPD, chronic obstructive pulmonary disease; ED, emergency department; HF, heart failure; IP, inpatient; MA, Medicare Advantage; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; TM, traditional Medicare; UTI, urinary tract infection.

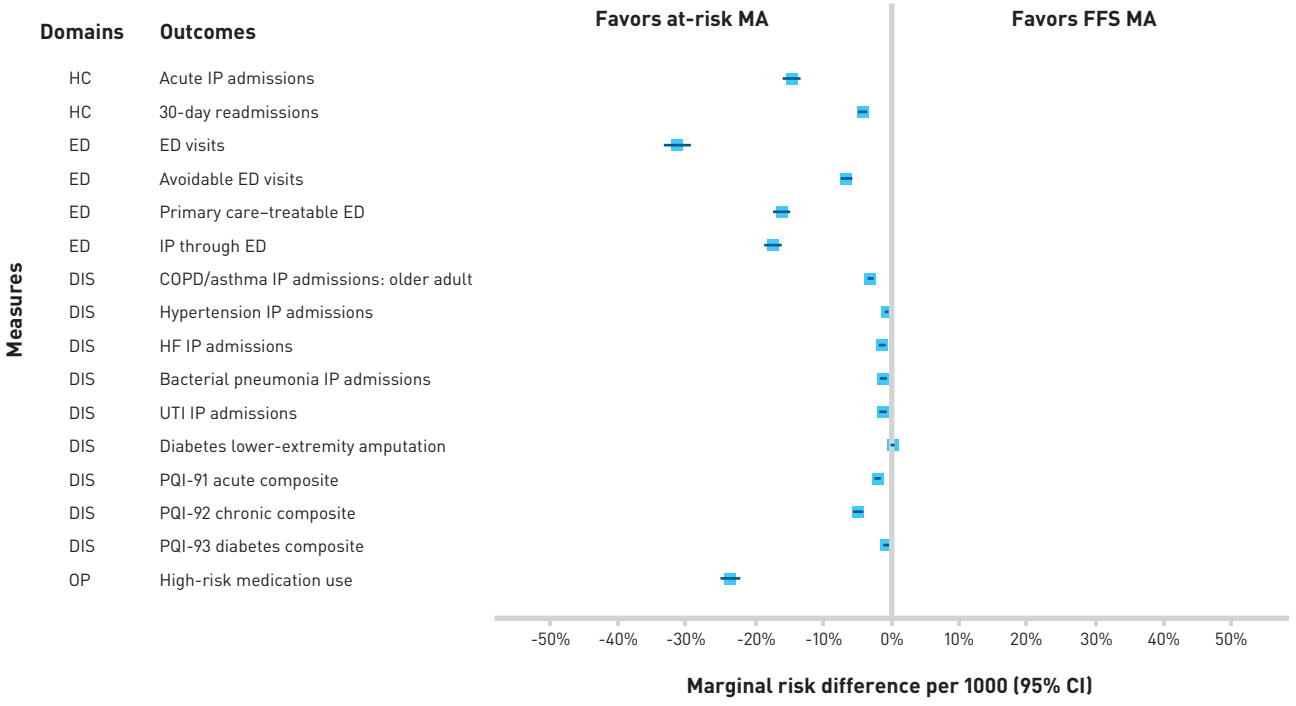
[a]*At-risk MA* indicates MA beneficiaries cared for under fully accountable care models. *ED* indicates the utilization of avoidable ED care domain; *HC* indicates the hospital care domain, which measures avoidance of acute inpatient utilization for chronic conditions; *DIS* indicates utilization of avoidable ED care for specific chronic conditions typically managed by primary care physicians; and *OP* indicates standard measures received in outpatient care, such as medication management and reduction of high-risk medication use.

mean ages were 70.7, 68.3, and 69.4, respectively. In the at-risk MA, TM, and FFS MA groups, women comprised 61.6%, 61.4%, and 63.0% of each group, respectively, and non-Hispanic White beneficiaries constituted 26.3%, 37.3%, and 28.4%. The Pacific region had the greatest number of beneficiaries in the sample, with 39.7%, 53.4%, and 29.3%, respectively. The mean HCC version 24 scores were 1.7, 1.8, and 1.6, respectively, with differences statistically significant in pairwise comparisons ($P < .0001$).

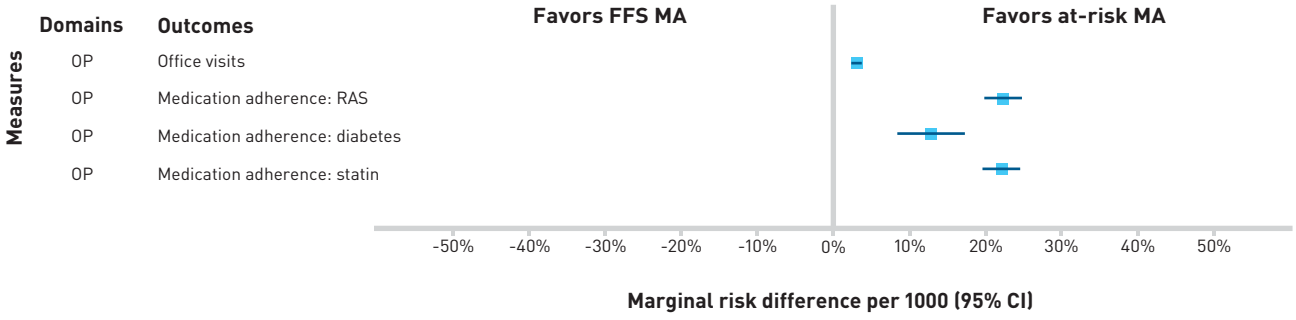
Duals in at-risk MA compared with those in TM were observed to have more favorable outcomes in 17 of 20 measures of quality and health resource utilization across 4 domains of patient care (acute hospital care, avoidance of unnecessary ED use, avoidance

FIGURE 2. Forest Plot of Pairwise Risk Differences Between At-Risk MA and FFS MA Study Groups for 20 Outcome Metrics: Adjusted Risk Difference From Logistic Regression Models for Marginal Effects (2016-2019 Data)[a]

A. Comparison of dually eligible at-risk MA vs FFS MA for 16 measures across 4 domains



B. Comparison of dually eligible at-risk MA vs FFS MA for 4 measures in 1 domain



COPD, chronic obstructive pulmonary disease; ED, emergency department; HF, heart failure; IP, inpatient; MA, Medicare Advantage; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; UTI, urinary tract infection.

[a]*At-risk MA* indicates MA beneficiaries cared for under fully accountable care models. *ED* indicates the utilization of avoidable ED care domain; *HC* indicates the hospital care domain, which measures avoidance of acute inpatient utilization for chronic conditions, *DIS* indicates utilization of avoidable ED care for specific chronic conditions typically managed by primary care physicians; and *OP* indicates standard measures received in outpatient care, such as medication management and reduction of high-risk medication use.

of disease-specific inpatient admissions, and outpatient care) (Figure 1). With respect to measures of hospital use, the decrease in AMR for hospital admission was 46.97 per 1000 (95% CI, –49.46 to –44.49; $P < .0001$) and for 30-day readmission was 11.83 per 1000 (95% CI, –13.03 to –10.63; $P < .0001$), reducing unnecessary hospital use by 23.8% and 32.7%, respectively. For ED use measures, the decrease in AMR ranged from 9.04 per 1000 (95% CI, –10.63 to –7.45; $P < .0001$) for avoidable ED visits to 36.84 per 1000 (95% CI, –40.45 to –33.22; $P < .0001$) for overall ED visits, representing a 9.0% to 28.4% reduction in ED usage. With respect to measures reflecting avoidance of disease-specific admissions in 9 categories, significant reduction of avoidable utilization in the at-risk cohort was observed

TABLE 2. Data Table for Figure 1

Outcome	Average marginal risk[a]		Mean risk difference[a]		
	At-risk MA	TM	At-risk MA – TM		
	Mean per 1000 (SE)	Mean per 1000 (SE)	Mean difference per 1000 (95% CI)	Percent difference (relative to TM)	Original *P* (corrected *P*)[b]
Hospital care					
Acute IP admissions	150.44 (0.75)	197.41 (0.66)	−46.97 (−49.46 to −44.49)	−23.8%	< .0001 (< .002)
30-day readmissions	24.39 (0.37)	36.22 (0.31)	−11.83 (−13.03 to −10.63)	−32.7%	< .0001 (< .002)
Avoidance of ED use					
ED visits	374.25 (1.16)	411.08 (0.89)	−36.84 (−40.45 to −33.22)	−9.0%	< .0001 (< .002)
Avoidable ED visits	42.33 (0.51)	51.37 (0.40)	−9.04 (−10.63 to −7.45)	−17.6%	< .0001 (< .002)
Primary care–treatable ED visits	87.69 (0.74)	98.62 (0.54)	−10.94 (−13.17 to −8.70)	−11.1%	< .0001 (< .002)
IP through ED	124.77 (0.68)	174.22 (0.63)	−49.45 (−51.75 to −47.15)	−28.4%	< .0001 (< .002)
Avoidance of disease-specific admissions					
COPD/asthma IP admissions: older adult	7.33 (0.21)	11.54 (0.20)	−4.21 (−4.92 to −3.50)	−36.5%	< .0001 (< .002)
Hypertension IP admissions	1.77 (0.10)	3.24 (0.13)	−1.48 (−1.88 to −1.07)	−45.5%	< .0001 (< .002)
HF IP admissions	10.78 (0.28)	14.27 (0.21)	−3.49 (−4.36 to −2.62)	−24.5%	< .0001 (< .002)
Bacterial pneumonia IP admissions	4.75 (0.19)	6.92 (0.16)	−2.16 (−2.76 to −1.57)	−31.3%	< .0001 (< .002)
UTI IP admissions	4.91 (0.19)	7.41 (0.15)	−2.50 (−3.09 to −1.90)	−33.7%	< .0001 (< .002)
Diabetes lower-extremity amputation	1.38 (0.13)	1.22 (0.06)	0.16 (−0.18 to 0.49)	12.8%	.3611 (.7222)
PQI-91 acute composite	9.54 (0.26)	14.21 (0.21)	−4.66 (−5.49 to −3.84)	−32.8%	< .0001 (< .002)
PQI-92 chronic composite	24.78 (0.39)	35.16 (0.33)	−10.38 (−11.63 to −9.13)	−29.5%	< .0001 (< .002)
PQI-93 diabetes composite	7.37 (0.25)	7.52 (0.13)	−0.15 (−0.83 to 0.53)	−2.0%	.6644 (.6644)
Outpatient care					
High-risk medication use	115.42 (0.85)	156.18 (0.68)	−40.77 (−43.43 to −38.10)	−26.1%	< .0001 (< .002)
Office visits	982.26 (0.37)	961.45 (0.41)	20.81 (19.42-22.20)	2.2%	< .0001 (< .002)
Medication adherence: RAS	843.86 (1.39)	793.16 (1.36)	50.70 (45.88-55.52)	6.4%	< .0001 (< .002)
Medication adherence: diabetes	716.22 (2.60)	711.64 (2.24)	4.58 (−3.93 to 13.09)	0.6%	.2917 (.8751)
Medication adherence: statin	835.63 (1.44)	799.03 (1.28)	36.59 (31.82-41.37)	4.6%	< .0001 (< .002)

COPD, chronic obstructive pulmonary disease; ED, emergency department; HCC, Hierarchical Condition Category; HF, heart failure; IP, inpatient; MA, Medicare Advantage; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; TM, traditional Medicare; UTI, urinary tract infection.

[a]Probability of all outcomes, except for pharmacy measures, were modeled in the overall cohort. Due to rare event prevalence rates, in most cases, risks and risk differences are reported in per-1000 scale (as opposed to percent). All measures are summarized as annual risk representing the 12-month probability of an outcome. High-risk medication use was modeled in the subgroup with Part D coverage. Medication adherence was modeled in the subgroup with Part D coverage and at least 1 fill for the medication class. All models were adjusted for age groups, sex, race/ethnicity, dual status, health maintenance plan type (for MA), provider groups, calendar year, HCC score version 24, and the following high-level HCC groupings: blood (HCCs 2, 46, 48), cardiovascular disease (HCCs 82-88, 96, 99, 100, 107, 108), diabetes (HCCs 17-19), injury (HCCs 166-168), kidney (HCCs 134-138), liver (HCCs 27, 28), lung (HCCs 111, 112, 114, 115), neoplasm (HCCs 8-12), psychiatric (HCCs 57-60), skin (HCCs 157-159, 161, 162), and substance use disorder (HCCs 54-56).

[b]Corrected *P* values account for multiple comparisons using the Holm-Bonferroni correction. Corrected *P* values < .05 are significant.

for 8 measures. The decreases in AMR of admissions in at-risk MA compared with TM ranged from 1.48 per 1000 (95% CI, −1.88 to −1.07; *P* < .0001) for hypertension-related admissions to 10.38 per 1000 (95% CI, −11.63 to −9.13; *P* < .0001) for the composite of chronic disease admissions. Overall, avoidable admission reductions ranged from 2.0% to 45.5%. For the outpatient measure domain, the decrease in AMR of high-risk medication use was 40.77 per 1000 (95% CI, −43.43 to −38.10; *P* < .0001), translating to a 26.1% reduction in the at-risk MA cohort (Figure 1). The at-risk MA cohort also was observed to have increased medication adherence by 50.70 per 1000 (95% CI, 45.88-55.52; *P* < .0001) for antihypertensive (renin-angiotensin system [RAS]) drugs and 36.59 per 1000 (95% CI, 31.82-41.37; *P* < .0001) for statins, corresponding to 6.4% and 4.6% higher adherence, respectively (Figure 1). The AMR of an office visit occurring was 20.81 per 1000 (95% CI, 19.42-22.20; *P* < .0001), representing a 2.2% increase in the at-risk MA cohort. The differences for admissions for diabetes-related lower-extremity amputations, diabetes composite admissions, and adherence to diabetes medications were not statistically significant between at-risk MA and TM.

Comparing Duals in at-risk MA to Duals in FFS MA, the former group was observed to have higher-quality outcomes in 18 of 20 measures (Figure 2). With respect to measures of hospital use, the decrease in AMR of hospital admission was 14.58 per 1000 (95% CI, −15.88 to −13.29; *P* < .0001) and of 30-day readmission was 4.10 per 1000 (95% CI, −4.74 to −3.45; *P* < .0001), translating to decreases of 8.8% and 14.4%, respectively, for Duals in at-risk MA. For the

TABLE 3. Data Table for Figure 2

Outcome	Average marginal risk[a]	Mean risk difference[a]			
	At-risk MA	FFS MA	At-risk MA – FFS MA[b]		
	Mean per 1000 (SE)	Mean per 1000 (SE)	Mean difference per 1000 (95% CI)	Percent difference (relative to FFS MA)	Original P (corrected *P*)[b]
Hospital care					
Acute IP admissions	150.44 (0.75)	165.03 (0.55)	−14.58 (−15.88 to −13.29)	−8.8%	< .0001 (< .002)
30-day readmissions	24.39 (0.37)	28.48 (0.28)	−4.10 (−4.74 to −3.45)	−14.4%	< .0001 (< .002)
Avoidance of ED use					
ED visits	374.25 (1.16)	405.30 (0.83)	−31.05 (−33.01 to −29.09)	−7.7%	< .0001 (< .002)
Avoidable ED visits	42.33 (0.51)	48.84 (0.38)	−6.51 (−7.41 to −5.60)	−13.3%	< .0001 (< .002)
Primary care–treatable ED visits	87.69 (0.74)	103.48 (0.56)	−15.79 (−17.09 to −14.50)	−15.3%	< .0001 (< .002)
IP through ED	124.77 (0.68)	141.77 (0.51)	−17.00 (−18.18 to −15.81)	−12.0%	< .0001 (< .002)
Avoidance of disease-specific admissions					
COPD/asthma IP admissions: older adult	7.33 (0.21)	9.91 (0.17)	−2.58 (−2.98 to −2.18)	−26.0%	< .0001 (< .002)
Hypertension IP admissions	1.77 (0.10)	2.15 (0.08)	−0.38 (−0.57 to −0.19)	−17.8%	< .0001 (< .002)
HF IP admissions	10.78 (0.28)	11.75 (0.20)	−0.97 (−1.44 to −0.50)	−8.3%	< .0001 (< .002)
Bacterial pneumonia IP admissions	4.75 (0.19)	5.57 (0.14)	−0.82 (−1.15 to −0.49)	−14.7%	< .0001 (< .002)
UTI IP admissions	4.91 (0.19)	5.82 (0.15)	−0.91 (−1.25 to −0.57)	−15.7%	< .0001 (< .002)
Diabetes lower-extremity amputation	1.38 (0.13)	1.12 (0.08)	0.25 (0.06-0.45)	22.7%	.009 (.018)
PQI-91 acute composite	9.54 (0.26)	11.24 (0.20)	−1.69 (−2.15 to −1.23)	−15.1%	< .0001 (< .002)
PQI-92 chronic composite	24.78 (0.39)	29.28 (0.29)	−4.51 (−5.19 to −3.82)	−15.4%	< .0001 (< .002)
PQI-93 diabetes composite	7.37 (0.25)	7.77 (0.18)	−0.40 (−0.81 to 0.01)	−5.1%	.0589 (.0589)
Outpatient care					
High-risk medication use	115.42 (0.85)	138.79 (0.64)	−23.37 (−24.86 to −21.89)	−16.8%	< .0001 (< .002)
Office visits	982.26 (0.37)	979.20 (0.29)	3.06 (2.43-3.69)	0.3%	< .0001 (< .002)
Medication adherence: RAS	843.86 (1.39)	821.50 (1.04)	22.36 (19.91-24.80)	2.7%	< .0001 (< .002)
Medication adherence: diabetes	716.22 (2.60)	703.37 (1.84)	12.85 (8.36-17.35)	1.8%	< .0001 (< .002)
Medication adherence: statin	835.63 (1.44)	813.52 (1.07)	22.11 (19.62-24.60)	2.7%	< .0001 (< .002)

COPD, chronic obstructive pulmonary disease; ED, emergency department; HCC, Hierarchical Condition Category; HF, heart failure; IP, inpatient; MA, Medicare Advantage; PQI, Prevention Quality Indicator; RAS, renin-angiotensin system; TM, traditional Medicare; UTI, urinary tract infection.

[a]Probability of all outcomes, except for pharmacy measures, were modeled in the overall cohort. Due to rare event prevalence rates, in most cases, risks and risk differences are reported in per-1000 scale (as opposed to percent). All measures are summarized as annual risk representing the 12-month probability of an outcome. High-risk medication use was modeled in the subgroup with Part D coverage. Medication adherence was modeled in the subgroup with Part D coverage and at least 1 fill for the medication class. All models were adjusted for age groups, sex, race/ethnicity, dual status, health maintenance plan type (for MA), provider groups, calendar year, HCC score version 24, and the following high-level HCC groupings: blood (HCCs 2, 46, 48), cardiovascular disease (HCCs 82-88, 96, 99, 100, 107, 108), diabetes (HCCs 17-19), injury (HCCs 166-168), kidney (HCCs 134-138), liver (HCCs 27, 28), lung (HCCs 111, 112, 114, 115), neoplasm (HCCs 8-12), psychiatric (HCCs 57-60), skin (HCCs 157-159, 161, 162), and substance use disorder (HCCs 54-56).

[b]Corrected *P* values account for multiple comparisons using the Holm-Bonferroni correction. Corrected *P* values < .05 are significant.

measures reflecting ED use, the decrease in AMR ranged from 6.51 per 1000 (95% CI, −7.41 to −5.60; *P* < .0001) for avoidable ED visits to 31.05 per 1000 (95% CI, −33.01 to −29.09; *P* < .0001) for overall ED visits, resulting in a 7.7% to 15.3% reduction in ED usage. For avoidance of disease-specific admissions, 8 of the 9 measures were significant. The at-risk MA cohort observed an AMR decrease for 8 of the measures that ranged from 0.38 per 1000 (95% CI, −0.57 to −0.19; *P* < .0001) for admissions related to hypertension to 4.51 per 1000 (95% CI, −5.19 to −3.82; *P* < .0001) for the composite of chronic disease admissions, corresponding to a reduction in avoidable admissions of 8.3% to 26.0%. There was statistical equivalence for the diabetes composite (PQI 93) measure. An increase in AMR of 0.25 per 1000 (95% CI, 0.06-0.45; *P* < .009), or 22.7%, was observed in admissions for diabetes-related lower extremity amputations in the at-risk MA cohort vs the FFS MA cohort. With respect to the outpatient domain, the reduction in AMR of high-risk medication use was 23.37 per 1000 (95% CI, −24.86 to −21.89; *P* < .0001), representing a 16.8% reduction in the at-risk MA cohort (Figure 2). Increased medication adherence AMR ranged from 12.85 per 1000 (95% CI, 8.36-17.35; *P* < .0001) for adherence to diabetes medications to 22.36 per 1000 (95% CI, 19.91-24.80; *P* < .0001) for adherence to antihypertensive (RAS) drugs, translating to increases of 1.8% and 2.7%, respectively, in the at-risk MA cohort (Figure 2). The increase in AMR of an office visit occurring was 3.06 per 1000 (95%

CI, 2.43-3.69; $P < .0001$), corresponding to 0.3% more visits in the at-risk MA cohort.

We also compared Duals in FFS MA and TM (**eAppendix Table 8**). FFS MA was observed to have higher quality and efficiency on 17 of 20 measures relative to TM; TM exceeded FFS MA on 1 measure. Although highly significant, these outcome differences were somewhat smaller than the differences noted in the comparison of at-risk MA and TM.

As a subanalysis, heterogeneity of effect was examined for Duals in MA with and without D-SNP enrollment (eAppendix Table 5). Compared with D-SNP beneficiaries in FFS MA, D-SNP beneficiaries in at-risk MA showed higher quality and lower health resource utilization that was statistically significant and consistent with the overall analysis. For 15 of the 20 measures, performance gains in at-risk MA relative to FFS MA were even greater for those with D-SNP coverage than for those without it. In our separate subanalysis looking across D-SNP and non–D-SNP subgroups compared with TM, the greatest differences in performance were seen between at-risk MA D-SNPs and TM, with beneficiaries in at-risk MA D-SNPs showing the most favorable outcomes overall (eAppendix Table 6).

DISCUSSION

In this study, at-risk MA payment arrangements for Duals were associated with significantly higher outcomes in both quality and efficiency compared with both TM and FFS MA. The greatest differences were in the comparison of Duals in at-risk MA with those in TM. Importantly, the differences also remained significant when comparing Duals in at-risk MA with those in FFS MA. These differences were clinically meaningful and important drivers of both quality and cost of care. Given that Duals have a greater frequency of hospitalization than non-Duals, the measures of preventable hospitalizations are of particular importance because these are measures of outpatient care quality.[9] Across all 3 cohorts, the 3 diabetes measures showed the smallest differences, often rendering these measures statistically equivalent among the cohorts. We do not have an explanation for this finding, and it warrants further study.

Prior study findings have suggested improved clinical and economic outcomes for the broad Medicare program when physicians are practicing in at-risk MA payment arrangements.[4,5] This study examined the impact of payment arrangements specifically on the Duals population in at-risk MA compared with both TM and FFS MA, which had not previously been studied. Our findings align with those of the prior studies that examined payment arrangements in the broad Medicare program,[4,5] also showing higher quality and efficiency when Duals are cared by physicians in at-risk arrangements.

There are several possible explanations for the differences we observed, all of which may be operating interdependently. Our results may reflect the care management infrastructure built by the physician groups and the MA health plans caring for Duals in MA. Because this infrastructure is funded by MA, it did not exist for most patients in TM during this study period. This infrastructure may include health-related social needs (HRSNs) interventions specifically adopted to help manage a Duals population, such as providing enhanced access to care, assisting with transportation, and addressing social isolation and food insecurity, because HRSNs are known to increase health care spending.[9] Additional types of care management interventions are a feature of MA D-SNP plans, which offer more supplemental benefits than other MA plans, including Special Supplemental Benefits for the Chronically Ill. This care management infrastructure is primarily built and deployed by the physician groups in at-risk MA and the health plans in FFS MA. Although both create similar infrastructures, the primary differences when the physician group develops the infrastructure may be tighter provider/patient integration, access to patient-level electronic health record data, and interventions that are more tailored to the specific patient population. To the extent that the MA Duals population is enrolled in D-SNPs, this may also contribute to the observed differences relative to TM due to infrastructure elements specific to D-SNPs. D-SNP beneficiaries cared for under at-risk MA arrangements also showed overall higher quality and avoidable health resource utilization compared with D-SNP beneficiaries cared for under FFS MA arrangements. Additionally, the practice infrastructure built by these physician groups for use in the broader at-risk MA population is also deployed across the at-risk Duals population. This includes comprehensive case management and disease management, social work services, integrated behavioral health care, and pharmacy management, among others.

Lastly, our results could also reflect differences in access to care among the 3 cohorts, as Duals in MA experience less difficulty accessing and affording care than those in TM.[10] However, access to care has not previously been studied specifically in Duals in at-risk MA. Our study found that Duals in both at-risk and FFS MA were more likely to have office visits than Duals in TM, with at-risk MA Duals having the highest rate. Finally, we note that because physicians tend to treat patients similarly despite differences in their health plans, this spillover effect would likely attenuate the results seen in this study.[5]

At the policy level, there is interest in Duals because of concerns about the large and growing expenditures for this relatively small group of individuals.[11] Given the rising percentage of Duals who choose MA over TM, the current study results suggest that the improvements in quality and efficiency would be expected to affect a greater percentage of the Duals population over time because both at-risk MA and FFS MA were associated with care of higher quality and efficiency. If these beneficiaries are cared for increasingly in at-risk payment arrangements, the benefits should be even greater when compared with those who remain in FFS MA. Given the CMS goal of having all Medicare and Medicaid beneficiaries in accountable care arrangements by 2030, this push should include encouraging Duals' participation in at-risk MA in addition to at-risk models within MSSP and the ACO Realizing Equity, Access, and Community Health Model.

Limitations

To minimize any potential differences between groups, we adjusted for differences in populations across payment arrangements by adjusting for demographic, observable health, and clinical risk measures. We also accounted for differences in patient mix across the 3 payment models by using demographic and health risk score controls. Further, we minimized the impact of differences in physician mix because all 3 beneficiary cohorts were cared for by the same physicians within the same physician groups. It is possible that despite incorporating the above factors, there could remain residual unobservable differences among populations. We could not control for differences in the benefit design of the 35 MA health plans in this study because that level of detail was not available.

Prior studies comparing at-risk MA with TM have been criticized due to potential coding intensity in the MA population. The mean HCC scores in our 3 cohorts using version 24 were closely matched at 1.7 in the at-risk MA cohort, 1.8 in the TM cohort, and 1.6 in the FFS MA cohort, and we did not include chart reviews in our analysis. Coding intensity was therefore unlikely to have confounded the results. To further address potential coding and reporting differences between MA and TM, we conducted a sensitivity analysis adjusting for risk using HCC version 28 instead of HCC version 24 (eAppendix Table 7). The mean HCC scores in the 3 cohorts using version 28 were 1.3 in the at-risk MA cohort, 1.6 in the TM cohort, and 1.4 in the FFS MA cohort. The effects on outcomes remained strong and statistically significant, although slightly reduced compared with version 24 results.

Lastly, although we found associations between MA risk payment arrangements and differences in outcomes across the 3 cohorts, it cannot be determined from this study whether the risk payment arrangement is causally related to the outcome differences observed.

CONCLUSIONS

In this cross-sectional analysis, at-risk MA payment arrangements, when applied to the Duals population, were associated with care of higher quality and efficiency across 4 domains of care relative to Duals in TM and FFS MA. Although the study does not assert causality, the results support the current CMS goal of having all TM and Medicaid beneficiaries in fully accountable care arrangements by 2030. Further, they suggest that this goal should be broadened to include at-risk accountable care arrangements within MA and should be a particular focus for Duals given their rapidly increasing health care utilization and overall cost of care. ■

Author Affiliations: Optum Center for Research and Innovation (KCo, OA, KCa, MSJ, JS), Minnetonka, MN; Department of Health Care Policy, Harvard Medical School (BV), Boston, MA; America's Physician Groups (JP, SD), Washington, DC; CareJourney by Arcadia (NS), Arlington, VA.

Source of Funding: Funding was provided by Optum Health.

Author Disclosures: Dr Cohen is an employee of Optum Health, which participates in both Medicare Advantage and traditional Medicare; he owns stock in UnitedHealth Group and is a member of the America's Physician Groups board. Dr Vabson received funding from Optum to fund his research time on this manuscript and, after completion of this manuscript, began serving as a senior adviser to CMS. Ms Podulka is employed by America's Physician Groups. Dr Ameli, Dr Catlett, and Ms Sullivan are employees of Optum Health and own stock in UnitedHealth Group. Ms Jarvis is employed by Optum. Ms Dentzer is employed as president and CEO of America's Physician Groups. Dr Smith reports no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

Authorship Information: Concept and design (KCo, BV, JP, OA, KCa, NS, MSJ, SD); acquisition of data (KCo, BV, JP, NS); analysis and interpretation of data (KCo, JP, OA, KCa, NS, MSJ, JS, SD); drafting of the manuscript (KCo, BV, JP, KCa, MSJ, JS, SD); critical revision of the manuscript for important intellectual content (KCo, JP, OA, KCa, SD); statistical analysis (NS); administrative, technical, or logistic support (KCo, KCa, JS); and supervision (KCo).

Address Correspondence to: Kenneth Cohen, MD, Optum Health, 11000 Optum Circle, Eden Prairie, MN 33554. Email: ken.cohen@optum.com.

REFERENCES

1. Sutton JP, Jacobson G, Leonard F. The health care experiences of people dually eligible for Medicare and Medicaid: comparing traditional Medicare and Medicare Advantage. The Commonwealth Fund. June 27, 2024. Accessed February 13, 2025. https://www.commonwealthfund.org/publications/2024/jun/health-care-experiences-people-dually-eligible-medicare-medicaid
2. Medicare Payment Advisory Commission; Medicaid and CHIP Payment and Access Commission. *Data Book: Beneficiaries Dually Eligible for Medicare and Medicaid*. Medicaid and CHIP Payment and Access Commission. January 2024. Accessed March 7, 2025. https://www.macpac.gov/wp-content/uploads/2024/01/Jan24_MedPAC_MACPAC_DualsDataBook-508.pdf
3. Top 5 takeaways: CMS's proposed overhaul of the MSSP ACOs. McDermott+. Accessed August 12, 2025. https://www.mcdermottplus.com/insights/top-5-takeaways-cmss-proposed-overhaul-of-the-mssp-acos/
4. Cohen KR, Vabson B, Podulka J, et al. Medicare risk arrangement and use and outcomes among physician groups. *JAMA Netw Open*. 2025;8(1):e2456074. doi:10.1001/jamanetworkopen.2024.56074
5. Vabson B, Cohen K, Ameli O, et al. Potential spillover effects on traditional Medicare when physicians bear Medicare Advantage risk. *Am J Manag Care*. 2025;31(8):390-396. doi:10.37765/ajmc.2025.89686
6. Cohen K, Ameli O, Chaisson CE, et al. Comparison of care quality metrics in 2-sided risk Medicare Advantage vs fee-for-service Medicare programs. *JAMA Netw Open*. 2022;5(12):e2246064. doi:10.1001/jamanetworkopen.2022.46064
7. Norton EC, Dowd BE, Maciejewski ML. Marginal effects—quantifying the effect of changes in risk factors in logistic regression models. *JAMA*. 2019;321(13):1304-1305. doi:10.1001/jama.2019.1954
8. Holm S. A simple sequentially rejective multiple test procedure. *Scand J Statist*. 1979;6(2):65-70.
9. Canterberry M, Figueroa JF, Long CL, et al. Association between self-reported health-related social needs and acute care utilization among older adults enrolled in Medicare Advantage. *JAMA Health Forum*. 2022;3(7):e221874. doi:10.1001/jamahealthforum.2022.1874
10. Archibald N, Soper M, Smith L, Kruse A, Wiener J. *Integrating Care Through Dual Eligible Special Needs Plans (D-SNPs): Opportunities and Challenges*. HHS Office of the Assistant Secretary for Planning and Evaluation; April 2019. Accessed April 10, 2025. https://aspe.hhs.gov/sites/default/files/migrated_legacy_files//188071/MMI-DSNP.pdf
11. Medicare Payment Advisory Commission; Medicaid and CHIP Payment and Access Commission. *Data Book: Beneficiaries Dually Eligible for Medicare and Medicaid*. Medicaid and CHIP Payment and Access Commission; February 2022. Accessed February 13, 2025. https://www.macpac.gov/wp-content/uploads/2022/02/Beneficiaries-Dually-Eligible-for-Medicare-and-Medicaid-February-2022.pdf

Visit **ajmc.com/link/89827** to download PDF and eAppendix

Supplemental Online Content

Health Outcomes of Dually Eligible Beneficiaries Under Different Medicare Payment Arrangements

eAppendix Figure. Attrition Table and STROBE Diagram

		2016	2017	2018	2019
All Beneficiaries		59,818,481	61,405,844	62,930,784	64,430,729
Exclusion Criteria		–	–	–	–
Drop If Part A/B Only		54,519,022	55,896,312	57,255,369	58,591,831
		–	–	–	–
Drop MA/FFS Switchers	TM	34,831,903	34,703,687	34,394,667	34,066,074
	MA	18,346,047	19,789,401	21,258,459	22,876,594
		–	–	–	–
Drop < 12 Months Enrollment	TM	30,987,261	30,869,025	30,590,348	30,339,457
	MA	17,092,563	18,432,886	19,814,923	21,308,333
		–	–	–	–
Successfully Aligned to NPI Flag for Risk Classification	TM	27,608,950	27,537,164	27,307,979	27,080,135
	MA	16,032,256	17,335,521	18,662,970	20,100,806
		–	–	–	–
Successfully Aligned to PCP NPI Flag for Participating Physician Groups[a]	TM aligned with group PCPs	1,180,135	1,120,538	1,136,341	1,154,219
	MA aligned with group PCPs	1,203,373	1,259,167	1,371,254	1,460,498
		–	–	–	–
MA Successfully Aligned to Risk Status	TM aligned with group PCPs	1,180,135	1,120,538	1,136,341	1,154,219
	At-Risk MA	457,075	449,234	519,359	570,941
	FFS MA	746,298	809,933	851,895	889,557
		–	–	–	–
Drop missing HCC Scores	TM aligned with group PCPs	1,175,451	1,115,903	1,132,031	1,150,284
	At-Risk MA	455,714	447,883	517,881	569,391
	FFS MA	744,057	807,301	849,399	887,091
		–	–	–	–
Drop non-duals	TM aligned with group PCPs	256,699	246,338	235,185	217,959
	At-Risk MA	68,452	69,721	79,310	86,962
	FFS MA	173,266	177,151	178,935	190,713
Total		**1,980,691** [b]			

[a] 17 participating physician groups that bear two-sided MA risk

[b] Analyses of pharmacy measures were restricted to TM beneficiaries with Part D benefits. Sub-group size was 1,956,958. Of these and for medication adherence, the sample was further restricted to the sub-group with at least one fill for the medication class.

TM: Traditional Medicare; At-Risk MA: Medicare Advantage beneficiaries cared for under fully accountable care models; FFS MA: Medicare Advantage beneficiaries who are cared for under fee-for service models; PCP: primary care physician

eAppendix Table 1. Classification of the Payment Models[a]

	Payment Models	Definition
1	**Fee-for-service (FFS) Traditional Medicare (TM)**	Fee-for-service coverage is when physician organizations receive payments based on the number of services provided to a patient. Organizations may or may not receive additional compensation for meeting quality measures. Most traditional Medicare coverage is an example of the FFS payment model. The burden of care coordination falls almost exclusively to the patient.
2	**Shared savings with upside-only financial bonus (one-side risk) Medicare Advantage Fee-For-Service (MA FFS)**	Upside or one-sided risk is when physician organizations receive FFS payments for services provided and additional compensation for meeting quality measures (e.g., HEDIS-Healthcare Effectiveness Daa and Information Set measures). Organizations may receive additional bonus payments if spending for their attributed population is below a predetermined benchmark and quality measures are achieved, but they do not face penalties if spending is above the benchmark. Some MA FFS contracts are examples of this arrangement. MA FFS plans offer limited care coordination on behalf of the patient.
3	**Full Risk (two-sided risk) Medicare Advantage At-Risk (At-Risk MA)**	In full-risk payment models, physician organizations receive capitated payments based on a patient's baseline health status using factors such as demographics and Hierarchical Condition Categories (HCC's). Full risk bearing organizations may retain financial surplus or pay financial deficits if their attributed patient population does not meet determined health outcome benchmarks. In full-risk arrangements, these organizations bear both upside and downside financial risk. In full professional risk, organizations bear full financial risk for all part B expenditures and generally have shared savings arrangements for part A expenditures. Two-sided (full-risk) plans offer greater care coordination on behalf of the patient and encourage value-based programs to improve patient outcomes.

[a] modified from Boudreau E, Schwartz R, Schwartz AL, et al. Comparison of low-value services among Medicare Advantage and traditional Medicare beneficiaries. JAMA Health Forum. 2022;3(9):e222935. doi:10.1001/jamahealthforum.2022.2935

eAppendix Table 2. 17 Participating Physician Groups

America's Physician Groups (APG) is a national organization representing ~360 physician-led primary care, specialty, and multispecialty groups across the United States. Data from a subgroup cohort, consisting of 17 APG physician groups actively engaged in MA two-sided risk payment arrangements was used in this study. These groups included national multi-state organizations, regional health systems, academic medical centers, and large regional medical groups.

Organization Name
Agilon Health – MSO with partial physician group ownership
Care Allies – MSO
Cedars-Sinai Medical Care Foundation – Academic integrated delivery network
Hill Physicians Medical Group - IPA
IntegraNet Physician Resource, Inc - MSO
John Muir Health – Integrated delivery network
MemorialCare Medical Foundation – Nonprofit medical management organization
MSO of Puerto Rico, LLC – MSO
Northwest Permanente, PC – Independent medical group
Optum Health – Physician group, part of United Health Group
Physician Housecalls LLC – Home based primary care group
Physicians of SW Washington - IPA
Sharp Community Medical Group – Physician organization, part of Sharp Healthcare System
The Portland Clinic – Physician owned medical group
The Vancouver Clinic, Inc.- Physician owned medical group
UCLA Medical Group – Academic integrated delivery network
VillageMD – Medical group, majority owned by Walgreens

eAppendix Table 3. Definitions of Outcome Measures

Domain Category	Measure	Brief Definition
Hospital Care (HC)	Acute Inpatient (IP) Admissions	Denominator: All beneficiaries Numerator: Sum of inpatient stays with claim type code = 60 and hospital type = acute care or critical access (derived from CCN) Source: https://www.ahd.com/definitions/statistics.html#:~:text=Type%20of%20Facility,acute%20care%20hospitals%20are%20reported
Hospital Care (HC)	30-Day Readmissions	Denominator: All beneficiaries Numerator: Sum of acute inpatient admissions that occur within 30 days of an acute inpatient discharge between Jan-Dec. Excludes discharges with a discharge status code of '02', '07', '20', or '82' Source: https://wagner.nyu.edu/faculty/billings/nyued-background
Avoidance of ED (ED)	Emergency Department (ED) Visits	Denominator: All beneficiaries Numerator: Sum of unique claims with an ER revenue codes on both inpatient acute and outpatient claims.
Avoidance of ED (ED)	Avoidable ED Visits	Denominator: All beneficiaries Numerator: Subcategory of ED visits. Sum of unique claims with an ER revenue code and probability > .5 for category. Source: https://wagner.nyu.edu/faculty/billings/nyued-background
Avoidance of ED (ED)	Primary Care Treatable ED	Denominator: All beneficiaries Numerator: Subcategory of ED visits. Sum of unique claims with an ER revenue code and probability > .5 for category. Source: https://wagner.nyu.edu/faculty/billings/nyued-background
Avoidance of ED (ED)	IP through ED	Denominator: All beneficiaries Numerator: Sum of inpatient acute care claims with an ER revenue center code Source: https://wagner.nyu.edu/faculty/billings/nyued-background
Avoidance of Disease-Specific Admissions (DIS)	PQI 05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission (COPD/Asthma IP Admissions -Older Adult)	Hospitalizations with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma, ages 40 years and older Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_05_Chronic_Obstructive_Pulmonary_Disease_(COPD)_or_Asthma_in_Older_Adults_Admission_Rate.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI 07 Hypertension Admission (Hypertension IP Admissions)	Hospitalizations with a principal diagnosis of hypertension, ages 18 years and older. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_07_Hypertension_Admission_Rate.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI 08 Heart Failure Admission (HF IP Admissions)	Hospitalizations with a principal diagnosis of heart failure, ages 18 years and older. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_08_Heart_Failure_Admission_Rate.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI 11 Community Acquired Pneumonia Admission (Bacterial Pneumonia IP Admissions)	Hospitalizations with a principal diagnosis of community-acquired bacterial pneumonia, ages 18 years or older. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2022/TechSpecs/PQI_11_Community_Acquired%20_Pneumonia_Admission_Rate.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI 12 Urinary Tract Infection Admission (UTI IP Admissions)	Hospitalizations with a principal diagnosis of urinary tract infection, ages 18 years and older. Source:

		https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_12_Urinary_Tract_Infection_Admission_Rate.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI 16 Lower-Extremity Amputation among Patients with Diabetes (Diabetes Lower-Extremity Amputation)	Hospitalizations for diabetes and a procedure of lower-extremity amputation (except toe amputations), ages 18 years and older. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_16_Lower_Extremity_Amputation_among_Patients_with_Diabetes_Rate.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI91 - Acute preventable admissions (Acute Composite)	Prevention Quality Indicators (PQI) composite of acute conditions, ages 18 years and older. Includes hospitalizations with a principal diagnosis of one of the following conditions: bacterial pneumonia or urinary tract infection. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_91_Prevention_Quality_Acute_Composite.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI92 - Chronic preventable admissions (Chronic Composite)	Prevention Quality Indicators (PQI) composite of chronic conditions, ages 18 years and older. Includes hospitalizations for one of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, diabetes with lower-extremity amputation, chronic obstructive pulmonary disease, asthma, hypertension, or heart failure. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_92_Prevention_Quality_Chronic_Composite.pdf
Avoidance of Disease-Specific Admissions (DIS)	PQI93 - Diabetic preventable admissions (Diabetes Composite)	Prevention Quality Indicators (PQI) composite of diabetes admissions, ages 18 years and older. Includes hospitalizations for one of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, or diabetes with lower-extremity amputation. Source: https://qualityindicators.ahrq.gov/Downloads/Modules/PQI/V2023/TechSpecs/PQI_93_Prevention_Quality_Diabetes_Composite.pdf
Outpatient Care (OP)	High Risk Medication Use HEDIS (Potentially Harmful Drug-Disease Interactions in Older Adults (DDE)	Denominator: Beneficiaries with Part D enrollment or MA Numerator: Flagged if NDC code for a medication in the list and two or more fills. Source: https://www.cms.gov/medicare/medicare-fee-for-service-payment/physicianfeedbackprogram/downloads/elderly-high-risk-medications-dae.pdf
Outpatient Care (OP)	Office Visits	Denominator: All beneficiaries Numerator: Sum of services with a CPT coded as an office visit (99201-99215) Source: https://www.cms.gov/medicare/medicare-fee-for-service-payment/physicianfeedbackprogram/downloads/elderly-high-risk-medications-dae.pdf
Outpatient Care (OP)	Med Adherence - RAS	Denominator: Beneficiaries with an RAS medication Numerator: Sum of proportion of days covered divided by days in the year. Beneficiaries with at least 80% of covered days were coded as adherent. Source: https://www.cms.gov/medicare/medicare-fee-for-service-payment/physicianfeedbackprogram/downloads/elderly-high-risk-medications-dae.pdf
Outpatient Care (OP)	Med Adherence - Diabetes	Denominator: Beneficiaries with a diabetes medication Numerator: Sum of proportion of days covered divided by days in the

		year. Beneficiaries with at least 80% of covered days were coded as adherent. Source: https://www.cms.gov/medicare/medicare-fee-for-service-payment/physicianfeedbackprogram/downloads/elderly-high-risk-medications-dae.pdf
Outpatient Care (OP)	Med Adherence - Statin	Denominator: Beneficiaries with a statin medication Numerator: Sum of proportion of days covered divided by days in the year. Beneficiaries with at least 80% of covered days were coded as adherent. Source: https://www.cms.gov/medicare/medicare-fee-for-service-payment/physicianfeedbackprogram/downloads/elderly-high-risk-medications-dae.pdf

eAppendix Table 4. Unadjusted Comparison of Efficiency and Quality Outcome Measures, All Years

Outcome Measure, per thousand, mean (std)	Year	Total	Study groups At-Risk MA	TM	FFS MA
Acute IP Admissions	2016	302.2 (872.3)	204.4 (653.7)	377.1 (999.4)	229.8 (723.2)
	2017	303.7 (874.9)	205.5 (640.7)	380.2 (1012.6)	235.9 (726.2)
	2018	299.0 (861.9)	204.7 (655.4)	375.9 (994.3)	239.9 (737.1)
	2019	298.7 (865.0)	209.1 (656.1)	380.0 (1010.0)	246.7 (753.9)
30-Day Readmissions	2016	53.2 (407.9)	28.7 (260.6)	72.4 (489.5)	34.5 (309.4)
	2017	54.9 (419.2)	27.1 (232.3)	76.5 (516.4)	35.7 (309.5)
	2018	53.7 (410.8)	28.4 (256.0)	74.3 (502.1)	37.8 (322.4)
	2019	52.6 (407.8)	27.6 (256.5)	75.0 (512.9)	38.4 (317.1)
ED visits	2016	1017.4 (2526.0)	769.8 (1945.5)	1131.8 (2748.9)	945.7 (2369.8)
	2017	1008.1 (2627.2)	775.2 (1855.5)	1119.6 (2728.9)	944.5 (2732.1)
	2018	1007.4 (2486.9)	813.0 (2429.8)	1093.4 (2598.4)	980.6 (2353.0)
	2019	1029.4 (2483.7)	863.0 (2165.3)	1103.6 (2682.8)	1020.6 (2376.7)
Avoidable ED visits	2016	73.0 (428.5)	52.2 (318.4)	80.8 (444.6)	69.7 (441.5)
	2017	68.3 (432.0)	51.2 (321.5)	74.1 (466.6)	67.1 (419.5)
	2018	68.5 (427.0)	53.1 (355.4)	72.6 (430.3)	69.8 (451.1)
	2019	70.8 (445.2)	58.7 (388.2)	73.0 (463.8)	73.9 (447.9)
Primary Care Treatable ED	2016	149.1 (675.1)	115.0 (521.3)	156.1 (704.7)	152.2 (683.7)
	2017	143.6 (631.8)	110.7 (502.9)	151.6 (685.2)	145.5 (598.6)
	2018	140.7 (685.7)	116.2 (969.8)	142.5 (633.4)	149.1 (593.2)
	2019	140.4 (594.6)	119.7 (520.2)	139.1 (597.1)	151.3 (622.7)
COPD/Asthma IP Admissions - Older Adult	2016	14.8 (165.1)	7.6 (109.1)	17.0 (179.8)	14.4 (160.6)
	2017	15.8 (171.3)	9.0 (119.4)	18.4 (191.5)	14.9 (158.3)
	2018	12.1 (150.7)	7.2 (110.6)	13.8 (166.5)	12.2 (144.0)
	2019	11.5 (145.6)	7.9 (123.8)	12.6 (156.9)	12.0 (141.4)
Hypertension IP Admissions	2016	2.3 (52.2)	1.6 (42.0)	2.7 (57.1)	2.0 (48.1)
	2017	3.1 (64.6)	1.7 (43.8)	3.9 (74.6)	2.5 (55.8)
	2018	3.0 (60.7)	2.1 (50.9)	3.5 (66.4)	2.6 (56.6)
	2019	3.2 (68.8)	2.2 (48.5)	4.1 (80.6)	2.6 (61.6)
HF IP Admissions	2016	16.8 (184.7)	11.0 (140.1)	21.2 (212.8)	12.4 (152.2)
	2017	17.9 (188.9)	10.9 (130.9)	22.9 (218.8)	13.9 (161.1)
	2018	18.5 (192.3)	12.2 (143.5)	24.0 (225.4)	14.1 (161.2)
	2019	18.9 (195.1)	12.2 (141.5)	24.2 (224.7)	15.9 (178.8)
Bacterial Pneumonia IP Admissions	2016	7.6 (92.3)	4.8 (74.2)	9.4 (102.5)	5.9 (82.1)
	2017	5.6 (77.6)	3.8 (62.6)	6.7 (85.5)	4.7 (71.2)
	2018	6.7 (86.2)	4.3 (68.2)	8.1 (94.4)	6.0 (81.9)

Outcome Measure, per thousand, mean (std)	Year	Total	Study groups At-Risk MA	TM	FFS MA
	2019	6.1 (82.8)	4.3 (67.9)	7.3 (90.4)	5.6 (80.0)
UTI IP Admissions	2016	7.8 (97.1)	4.6 (74.2)	10.3 (111.2)	5.4 (81.2)
	2017	7.2 (94.7)	4.3 (69.3)	9.5 (110.7)	5.3 (77.7)
	2018	6.9 (89.0)	4.2 (68.0)	9.0 (103.0)	5.2 (76.5)
	2019	6.7 (88.9)	4.4 (70.8)	8.7 (102.0)	5.5 (79.7)
Diabetes Lower-Extremity Amputation	2016	1.2 (39.5)	1.0 (36.6)	1.6 (46.1)	0.7 (28.6)
	2017	1.4 (43.1)	1.0 (35.7)	1.9 (50.5)	0.9 (33.3)
	2018	1.5 (44.7)	1.1 (37.1)	2.0 (51.3)	1.1 (37.8)
	2019	1.6 (48.8)	1.1 (36.8)	2.2 (58.1)	1.2 (41.4)
PQI-91 Acute Composite	2016	15.4 (135.2)	9.5 (105.6)	19.7 (152.5)	11.4 (117.0)
	2017	12.8 (123.7)	8.1 (93.7)	16.2 (141.1)	10.0 (106.8)
	2018	13.6 (124.9)	8.6 (96.3)	17.1 (141.3)	11.2 (112.5)
	2019	12.8 (122.5)	8.7 (98.8)	16.0 (137.5)	11.0 (113.6)
PQI-92 Chronic Composite	2016	42.7 (300.5)	25.9 (216.3)	52.2 (339.7)	35.4 (264.6)
	2017	47.0 (316.8)	28.1 (218.7)	58.1 (362.1)	38.9 (279.0)
	2018	44.4 (304.7)	29.0 (227.7)	54.9 (351.2)	37.4 (265.6)
	2019	44.8 (307.9)	29.9 (233.0)	55.2 (349.3)	39.8 (286.1)
PQI-93 Diabetes Composite	2016	8.8 (137.4)	5.5 (95.7)	11.2 (159.1)	6.5 (114.9)
	2017	10.1 (147.1)	6.5 (104.9)	12.9 (167.3)	7.6 (130.4)
	2018	10.7 (148.5)	7.5 (114.7)	13.5 (173.4)	8.6 (124.4)
	2019	11.2 (149.6)	7.7 (117.3)	14.2 (168.8)	9.3 (138.9)
IP through ED	2016	257.3 (805.4)	159.4 (572.8)	329.1 (933.3)	189.6 (655.7)
	2017	256.2 (806.4)	161.5 (560.1)	330.5 (949.1)	190.2 (647.3)
	2018	253.9 (802.9)	165.8 (581.9)	327.4 (946.6)	196.5 (660.4)
	2019	255.7 (806.7)	173.7 (598.1)	331.6 (951.9)	206.2 (693.0)
High Risk Drug Use	2016	158.3 (365.0)	109.5 (312.2)	183.4 (387.0)	141.3 (348.3)
	2017	154.1 (361.1)	104.1 (305.4)	178.8 (383.2)	140.3 (347.3)
	2018	138.5 (345.4)	96.3 (295.0)	162.2 (368.6)	126.7 (332.6)
	2019	126.6 (332.5)	94.0 (291.8)	147.6 (354.7)	118.0 (322.6)
Office Visits	2016	9706.1 (8144.4)	8701.8 (7138.8)	10454.0 (8849.6)	8994.9 (7274.3)
	2017	9651.9 (8103.6)	8662.1 (7037.7)	10421.3 (8879.6)	8971.6 (7212.8)
	2018	9708.4 (8211.0)	8849.6 (7290.3)	10425.5 (8987.5)	9146.5 (7407.7)
	2019	9753.2 (8238.5)	9033.2 (7487.1)	10435.9 (8995.1)	9301.3 (7575.4)
Med Adherence - RAS [a]	2016	754.2 (430.5)	798.2 (401.3)	734.1 (441.8)	763.3 (425.1)
	2017	797.5 (401.9)	842.6 (364.1)	776.4 (416.7)	805.4 (395.9)
	2018	833.7 (372.4)	872.6 (333.4)	811.1 (391.4)	841.7 (365.0)
	2019	850.3 (356.8)	878.6 (326.7)	832.9 (373.1)	853.9 (353.2)
Med Adherence - Diabetes [a]	2016	678.1 (467.2)	697.9 (459.2)	673.4 (469.0)	675.5 (468.2)
	2017	696.9 (459.6)	707.7 (454.8)	699.1 (458.7)	689.8 (462.6)

Outcome Measure, per thousand, mean (std)	Year	Total	Study groups At-Risk MA	TM	FFS MA
Med Adherence - Statin [a]	2018	722.6 (447.7)	733.6 (442.1)	725.2 (446.4)	714.6 (451.6)
	2019	736.1 (440.8)	743.0 (437.0)	741.8 (437.6)	727.3 (445.4)
	2016	773.4 (418.6)	810.9 (391.6)	763.2 (425.2)	772.5 (419.2)
	2017	784.7 (411.0)	818.8 (385.2)	777.9 (415.7)	779.8 (414.4)
	2018	828.2 (377.2)	854.2 (352.9)	816.2 (387.3)	831.2 (374.6)
	2019	848.7 (358.3)	873.2 (332.8)	835.4 (370.8)	851.1 (356.0)

At-Risk MA: Medicare Advantage beneficiaries cared for under fully accountable care models; TM: Traditional Medicare; FFS MA: Medicare Advantage beneficiaries who are cared for under fee-for service models

[a]unadjusted mean (std) medication adherence per 1,000

eAppendix Table 5 – Subgroup Analysis for Dually Eligible MA with and without D-SNP - Pair-wise Marginal Risk Differences Between Study Groups for 20 Outcome Metrics: Adjusted Risk Difference from Logistic Regression Models for Marginal Effects (2016–2019 data)

		AMRs			Within sub-groups MRD	Within sub-groups MRD
Outcome	**Sub-groups**	**At-risk MA (SE)**	**TM (SE)**	**FFS MA (SE)**	**At-risk MA vs. TM[a] 95% CI**	**At-risk MA vs. FFS MA 95% CI**
Hospital Care						
Acute IP Admissions	Overall	150.44 (0.75)	197.41 (0.66)	165.03 (0.55)	-46.97 (-49.46 - -44.49)	-14.58 (-15.88 - -13.29)
	D-SNP=No	155.21 (0.82)	197.34 (0.66)	159.49 (0.67)	-42.13 (-44.71 - -39.56)	-4.28 (-5.92 - -2.64)
	D-SNP=Yes	135.63 (1.11)	209.18 (1.13)	169.27 (0.65)	-73.55 (-77.02 - -70.09)	-33.64 (-35.83 - -31.45)
30-Day Readmissions	Overall	24.39 (0.37)	36.22 (0.31)	28.48 (0.28)	-11.83 (-13.03 - -10.63)	-4.10 (-4.74 - -3.45)
	D-SNP=No	25.75 (0.41)	36.16 (0.31)	27.33 (0.34)	-10.42 (-11.68 - -9.16)	-1.58 (-2.41 - -0.75)
	D-SNP=Yes	20.38 (0.53)	38.86 (0.58)	29.41 (0.34)	-18.48 (-20.18 - -16.78)	-9.03 (-10.10 - -7.96)
Avoidance of ED						
ED visits	Overall	374.25 (1.16)	411.08 (0.89)	405.30 (0.83)	-36.84 (-40.45 - -33.22)	-31.05 (-33.01 - -29.09)
	D-SNP=No	376.31 (1.24)	410.61 (0.89)	382.04 (1.00)	-34.30 (-38.01 - -30.59)	-5.73 (-8.15 - -3.31)
	D-SNP=Yes	364.18 (1.84)	453.37 (1.44)	423.63 (0.97)	-89.19 (-94.34 - -84.04)	-59.45 (-63.00 - -55.89)
Avoidable ED visits	Overall	42.33 (0.51)	51.37 (0.40)	48.84 (0.38)	-9.04 (-10.63 - -7.45)	-6.51 (-7.41 - -5.60)
	D-SNP=No	44.39 (0.57)	51.25 (0.40)	46.09 (0.46)	-6.86 (-8.53 - -5.18)	-1.70 (-2.87 - -0.54)
	D-SNP=Yes	36.32 (0.75)	56.50 (0.71)	50.87 (0.45)	-20.18 (-22.42 - -17.94)	-14.56 (-16.06 - -13.05)
Primary Care Treatable ED	Overall	87.69 (0.74)	98.62 (0.54)	103.48 (0.56)	-10.94 (-13.17 - -8.70)	-15.79 (-17.09 - -14.50)
	D-SNP=No	87.93 (0.80)	98.19 (0.54)	92.88 (0.66)	-10.26 (-12.57 - -7.96)	-4.95 (-6.57 - -3.32)
	D-SNP=Yes	86.70 (1.17)	117.83 (1.03)	111.62 (0.67)	-31.13 (-34.54 - -27.71)	-24.92 (-27.23 - -22.61)
IP through ED	Overall	124.77 (0.68)	174.22 (0.63)	141.77 (0.51)	-49.45 (-51.75 - -47.15)	-17.00 (-18.18 - -15.81)
	D-SNP=No	129.00 (0.75)	174.15 (0.63)	136.70 (0.62)	-45.15 (-47.54 - -42.76)	-7.70 (-9.21 - -6.19)
	D-SNP=Yes	111.88 (1.00)	185.38 (1.08)	145.70 (0.60)	-73.50 (-76.73 - -70.28)	-33.83 (-35.82 - -31.83)
Avoidance of Disease-Specific IP Admissions						
COPD/Asthma IP Admissions - Older Adult	Overall	7.33 (0.21)	11.54 (0.20)	9.91 (0.17)	-4.21 (-4.92 - -3.50)	-2.58 (-2.98 - -2.18)
	D-SNP=No	8.10 (0.25)	11.42 (0.20)	8.76 (0.20)	-3.32 (-4.08 - -2.57)	-0.66 (-1.19 - -0.13)
	D-SNP=Yes	5.12 (0.30)	13.96 (0.39)	10.75 (0.21)	-8.84 (-9.88 - -7.81)	-5.63 (-6.27 - -4.99)
Hypertension IP Admissions	Overall	1.77 (0.10)	3.24 (0.13)	2.15 (0.08)	-1.48 (-1.88 - -1.07)	-0.38 (-0.57 - -0.19)
	D-SNP=No	1.74 (0.11)	3.24 (0.13)	2.07 (0.10)	-1.49 (-1.91 - -1.08)	-0.33 (-0.57 - -0.08)[b]
	D-SNP=Yes	1.83 (0.16)	3.45 (0.22)	2.21 (0.10)	-1.62 (-2.23 - -1.02)	-0.38 (-0.70 - -0.05)[b]
HF IP Admissions	Overall	10.78 (0.28)	14.27 (0.21)	11.75 (0.20)	-3.49 (-4.36 - -2.62)	-0.97 (-1.44 - -0.50)
	D-SNP=No	11.28 (0.31)	14.28 (0.21)	11.72 (0.25)	-3.00 (-3.91 - -2.09)	-0.44 (-1.04 - 0.16)
	D-SNP=Yes	9.18 (0.40)	14.33 (0.37)	11.76 (0.24)	-5.15 (-6.33 - -3.96)	-2.58 (-3.37 - -1.78)
Bacterial Pneumonia IP Admissions	Overall	4.75 (0.19)	6.92 (0.16)	5.57 (0.14)	-2.16 (-2.76 - -1.57)	-0.82 (-1.15 - -0.49)
	D-SNP=No	5.03 (0.21)	6.90 (0.16)	5.34 (0.17)	-1.87 (-2.50 - -1.24)	-0.31 (-0.73 - 0.11)
	D-SNP=Yes	3.92 (0.27)	7.45 (0.29)	5.76 (0.17)	-3.52 (-4.37 - -2.68)	-1.84 (-2.38 - -1.29)

UTI IP Admissions	Overall	4.91 (0.19)	7.41 (0.15)	5.82 (0.15)	-2.50 (-3.09 - -1.90)	-0.91 (-1.25 - -0.57)
	D-SNP=No	4.91 (0.21)	7.41 (0.15)	5.90 (0.18)	-2.50 (-3.11 - -1.89)	-0.99 (-1.42 - -0.56)[b]
	D-SNP=Yes	4.87 (0.31)	7.22 (0.27)	5.74 (0.17)	-2.35 (-3.24 - -1.46)	-0.88 (-1.49 - -0.26)[b]
Diabetes Lower-Extremity Amputation	Overall	1.38 (0.13)	1.22 (0.06)	1.12 (0.08)	0.16 (-0.18 - 0.49)	0.25 (0.06 - 0.45)
	D-SNP=No	1.30 (0.13)	1.22 (0.06)	1.08 (0.09)	0.08 (-0.25 - 0.42)	0.22 (-0.01 - 0.44)[b]
	D-SNP=Yes	1.64 (0.21)	1.30 (0.12)	1.16 (0.09)	0.34 (-0.18 - 0.86)	0.48 (0.11 - 0.86)[b]
PQI-91 Acute Composite	Overall	9.54 (0.26)	14.21 (0.21)	11.24 (0.20)	-4.66 (-5.49 - -3.84)	-1.69 (-2.15 - -1.23)
	D-SNP=No	9.81 (0.29)	14.20 (0.21)	11.06 (0.24)	-4.39 (-5.25 - -3.53)	-1.25 (-1.83 - -0.66)
	D-SNP=Yes	8.71 (0.41)	14.62 (0.39)	11.38 (0.23)	-5.91 (-7.12 - -4.70)	-2.68 (-3.48 - -1.87)
PQI-92 Chronic Composite	Overall	24.78 (0.39)	35.16 (0.33)	29.28 (0.29)	-10.38 (-11.63 - -9.13)	-4.51 (-5.19 - -3.82)
	D-SNP=No	26.18 (0.43)	35.09 (0.33)	27.96 (0.35)	-8.90 (-10.22 - -7.59)	-1.77 (-2.66 - -0.89)
	D-SNP=Yes	20.85 (0.55)	37.93 (0.59)	30.29 (0.34)	-17.08 (-18.83 - -15.33)	-9.43 (-10.55 - -8.32)
PQI-93 Diabetes Composite	Overall	7.37 (0.25)	7.52 (0.13)	7.77 (0.18)	-0.15 (-0.83 - 0.53)	-0.40 (-0.81 - 0.01)
	D-SNP=No	7.40 (0.27)	7.51 (0.13)	7.42 (0.21)	-0.10 (-0.81 - 0.61)	-0.02 (-0.54 - 0.50)[b]
	D-SNP=Yes	7.31 (0.38)	8.16 (0.27)	8.07 (0.21)	-0.85 (-1.85 - 0.15)	-0.76 (-1.47 - -0.04)[b]
Outpatient Care						
High Risk Drug Use	Overall	115.42 (0.85)	156.18 (0.68)	138.79 (0.64)	-40.77 (-43.43 - -38.10)	-23.37 (-24.86 - -21.89)
	D-SNP=No	118.56 (0.92)	155.97 (0.68)	132.74 (0.77)	-37.41 (-40.17 - -34.65)	-14.19 (-16.06 - -12.32)
	D-SNP=Yes	104.94 (1.33)	168.16 (1.19)	143.51 (0.76)	-63.22 (-67.09 - -59.36)	-38.57 (-41.20 - -35.94)
Office Visits	Overall	982.26 (0.37)	961.45 (0.41)	979.20 (0.29)	20.81 (19.42 - 22.20)	3.06 (2.43 - 3.69)
	D-SNP=No	980.05 (0.42)	960.40 (0.44)	970.96 (0.42)	19.65 (18.14 - 21.15)	9.09 (8.24 - 9.94)
	D-SNP=Yes	994.16 (0.36)	982.24 (0.37)	987.15 (0.24)	11.92 (10.85 - 12.98)	7.01 (6.23 - 7.80)
Med Adherence - RAS	Overall	843.86 (1.39)	793.16 (1.36)	821.50 (1.04)	50.70 (45.88 - 55.52)	22.36 (19.91 - 24.80)
	D-SNP=No	836.30 (1.53)	792.71 (1.36)	816.97 (1.31)	43.59 (38.59 - 48.60)	19.33 (16.22 - 22.44)
	D-SNP=Yes	867.29 (2.06)	801.75 (1.98)	825.20 (1.19)	65.55 (59.25 - 71.84)	42.09 (37.95 - 46.23)
Med Adherence - Diabetes	Overall	716.22 (2.60)	711.64 (2.24)	703.37 (1.84)	4.58 (-3.93 - 13.09)	12.85 (8.36 - 17.35)
	D-SNP=No	710.99 (2.81)	711.43 (2.25)	696.49 (2.31)	-0.43 (-9.21 - 8.34)	14.51 (8.92 - 20.09)[b]
	D-SNP=Yes	730.23 (3.97)	723.65 (3.23)	709.08 (2.14)	6.58 (-4.82 - 17.98)	21.15 (13.34 - 28.97)[b]
Med Adherence - Statin	Overall	835.63 (1.44)	799.03 (1.28)	813.52 (1.07)	36.59 (31.82 - 41.37)	22.11 (19.62 - 24.60)
	D-SNP=No	826.30 (1.60)	798.45 (1.29)	807.34 (1.36)	27.85 (22.85 - 32.86)	18.96 (15.75 - 22.17)
	D-SNP=Yes	861.31 (2.02)	810.02 (1.86)	818.53 (1.22)	51.29 (45.22 - 57.36)	42.79 (38.75 - 46.82)

AMR: Average marginal risk, Mean per 1,000 (SE)
MRD: Marginal Risk difference, per 1,000 (95% CI)

All models were adjusted for age group, sex, race/ethnicity, dual status, HMO plan type (for MA), provider groups, calendar year, HCC score v24, and the following high level HCC groupings: Blood (HCCs: 2, 46, 48), CVD (HCCs: 82, 83 84, 85, 86, 87, 88, 96, 99, 100, 107, 108), Diabetes (HCCs: 17, 18, 19), Injury (HCCs: 166, 167, 168), Kidney (HCCs: 134, 135, 136, 137, 138), Liver (HCCs: 27, 28), Lung (HCCs: 111, 112, 114, 115), Neoplasm (HCCs: 8,9, 10, 11, 12), Psychiatric (HCCs: 57, 58, 59, 60), Substance abuse (HCCs: 54, 55, 56), and Skin (HCCs: 157, 158, 159, 161, 162)

a: TM does not have D-SNPs. However, the heterogeneity results were included to provide complete model output, showing at-risk MA with and without D-SNP coverage compared to overall TM.

b: Overlapping CIs between those with D-SNP coverage and those without D-SNP coverage were interpreted as no significant differences between these two subgroups for those outcomes.

eAppendix Table 6 – Sub-Group Analysis for Dually Eligible MA With and Without D-SNP - Pair-Wise Marginal Risk Differences Between TM and D-SNP Sub-Groups for 20 Outcome Metrics: Adjusted Risk Difference from Logistic Regression Models for Marginal Effects (2016–2019 data)

Outcome	Sub-groups	AMR (SE)	MRD (95% CI): Sub-group vs. TM[a]
Acute IP Admissions	Overall TM	197.34 (0.66)	Reference Group
	No DSNP - FFS MA	159.49 (0.67)	-37.85 (-40.12 - -35.58)
	No DSNP - At Risk MA	155.21 (0.82)	-42.13 (-44.71 - -39.56)
	DSNP - FFS MA	169.27 (0.65)	-28.07 (-30.36 - -25.79)
	DSNP - At Risk MA	135.63 (1.11)	-61.71 (-64.65 - -58.78)[b]
30-Day Readmissions	Overall TM	36.16 (0.31)	Reference Group
	No DSNP - FFS MA	27.33 (0.34)	-8.84 (-9.94 - -7.73)
	No DSNP - At Risk MA	25.74 (0.41)	-10.42 (-11.68 - -9.16)
	DSNP - FFS MA	29.41 (0.34)	-6.75 (-7.88 - -5.62)
	DSNP - At Risk MA	20.38 (0.53)	-15.78 (-17.17 - -14.39) [b]
ED visits	Overall TM	410.61 (0.89)	Reference Group
	No DSNP - FFS MA	382.04 (1.00)	-28.57 (-31.81 - -25.33)
	No DSNP - At Risk MA	376.31 (1.24)	-34.30 (-38.01 - -30.59)
	DSNP - FFS MA	423.63 (0.97)	13.02 (9.78 - 16.26)
	DSNP - At Risk MA	364.18 (1.84)	-46.42 (-51.00 - -41.84) [b]
Avoidable ED visits	Overall TM	51.25 (0.40)	Reference Group
	No DSNP - FFS MA	46.09 (0.46)	-5.15 (-6.60 - -3.71)
	No DSNP - At Risk MA	44.39 (0.57)	-6.85 (-8.53 - -5.18)
	DSNP - FFS MA	50.87 (0.45)	-0.37 (-1.85 - 1.11)
	DSNP - At Risk MA	36.32 (0.75)	-14.93 (-16.83 - -13.03) [b]
Primary Care Treatable ED	Overall TM	98.19 (0.54)	Reference Group
	No DSNP - FFS MA	92.88 (0.66)	-5.31 (-7.33 - -3.29)
	No DSNP - At Risk MA	87.93 (0.80)	-10.26 (-12.57 - -7.96)
	DSNP - FFS MA	111.62 (0.67)	13.43 (11.31 - 15.55)
	DSNP - At Risk MA	86.70 (1.17)	-11.49 (-14.36 - -8.62) [b]
IP through ED	Overall TM	174.15 (0.63)	Reference Group
	No DSNP - FFS MA	136.70 (0.62)	-37.45 (-39.58 - -35.33)
	No DSNP - At Risk MA	129.00 (0.75)	-45.15 (-47.54 - -42.76)
	DSNP - FFS MA	145.70 (0.60)	-28.45 (-30.60 - -26.30)
	DSNP - At Risk MA	111.88 (1.00)	-62.28 (-64.97 - -59.59) [b]
COPD/Asthma IP Admissions - Older Adult	Overall TM	11.42 (0.20)	Reference Group
	No DSNP - FFS MA	8.76 (0.20)	-2.67 (-3.32 - -2.01)
	No DSNP - At Risk MA	8.10 (0.25)	-3.32 (-4.08 - -2.57)

	DSNP - FFS MA	10.75 (0.21)	-0.68 (-1.38 - 0.03)
	DSNP - At Risk MA	5.12 (0.30)	-6.30 (-7.09 - -5.52) [b]
Hypertension IP Admissions	Overall TM	3.24 (0.13)	Reference Group
	No DSNP - FFS MA	2.07 (0.10)	-1.17 (-1.56 - -0.77)
	No DSNP - At Risk MA	1.74 (0.11)	-1.49 (-1.91 - -1.08)
	DSNP - FFS MA	2.21 (0.10)	-1.03 (-1.42 - -0.63)
	DSNP - At Risk MA	1.83 (0.16)	-1.41 (-1.89 - -0.92) [b]
HF IP Admissions	Overall TM	14.28 (0.21)	Reference Group
	No DSNP - FFS MA	11.72 (0.25)	-2.56 (-3.35 - -1.77)
	No DSNP - At Risk MA	11.28 (0.31)	-3.00 (-3.91 - -2.09)
	DSNP - FFS MA	11.76 (0.24)	-2.52 (-3.31 - -1.73)
	DSNP - At Risk MA	9.18 (0.40)	-5.10 (-6.12 - -4.07) [b]
Bacterial Pneumonia IP Admissions	Overall TM	6.90 (0.16)	Reference Group
	No DSNP - FFS MA	5.34 (0.17)	-1.56 (-2.11 - -1.02)
	No DSNP - At Risk MA	5.03 (0.21)	-1.87 (-2.50 - -1.24)
	DSNP - FFS MA	5.76 (0.17)	-1.14 (-1.70 - -0.58)
	DSNP - At Risk MA	3.92 (0.27)	-2.98 (-3.67 - -2.28) [b]
UTI IP Admissions	Overall TM	7.41 (0.15)	Reference Group
	No DSNP - FFS MA	5.90 (0.18)	-1.51 (-2.07 - -0.96)
	No DSNP - At Risk MA	4.91 (0.21)	-2.50 (-3.11 - -1.89)
	DSNP - FFS MA	5.74 (0.17)	-1.67 (-2.22 - -1.12)
	DSNP - At Risk MA	4.87 (0.31)	-2.55 (-3.32 - -1.77) [b]
Diabetes Lower-Extremity Amputation	Overall TM	1.22 (0.06)	Reference Group
	No DSNP - FFS MA	1.08 (0.09)	-0.13 (-0.39 - 0.12)
	No DSNP - At Risk MA	1.30 (0.13)	0.08 (-0.25 - 0.42)
	DSNP - FFS MA	1.16 (0.09)	-0.06 (-0.32 - 0.21)
	DSNP - At Risk MA	1.64 (0.21)	0.43 (-0.05 - 0.90) [b]
PQI-91 Acute Composite	Overall TM	14.20 (0.21)	Reference Group
	No DSNP - FFS MA	11.06 (0.24)	-3.14 (-3.91 - -2.38)
	No DSNP - At Risk MA	9.81 (0.29)	-4.39 (-5.25 - -3.53)
	DSNP - FFS MA	11.38 (0.23)	-2.81 (-3.59 - -2.04)
	DSNP - At Risk MA	8.71 (0.41)	-5.49 (-6.51 - -4.47) [b]
PQI-92 Chronic Composite	Overall TM	35.09 (0.33)	Reference Group
	No DSNP - FFS MA	27.96 (0.35)	-7.13 (-8.28 - -5.98)
	No DSNP - At Risk MA	26.18 (0.43)	-8.90 (-10.22 - -7.59)
	DSNP - FFS MA	30.29 (0.34)	-4.80 (-5.97 - -3.63)
	DSNP - At Risk MA	20.85 (0.55)	-14.23 (-15.69 - -12.78) [b]
PQI-93 Diabetes Composite	Overall TM	7.51 (0.13)	Reference Group
	No DSNP - FFS MA	7.42 (0.21)	-0.09 (-0.68 - 0.50)

	No DSNP - At Risk MA	7.40 (0.27)	-0.10 (-0.81 - 0.61)
	DSNP - FFS MA	8.07 (0.21)	0.56 (-0.05 - 1.17)
	DSNP - At Risk MA	7.31 (0.38)	-0.20 (-1.07 - 0.68) [b]
High Risk Drug Use	Overall TM	155.97 (0.68)	Reference Group
	No DSNP - FFS MA	132.74 (0.77)	-23.22 (-25.69 - -20.76)
	No DSNP - At Risk MA	118.56 (0.92)	-37.41 (-40.17 - -34.65)
	DSNP - FFS MA	143.51 (0.76)	-12.46 (-14.96 - -9.96)
	DSNP - At Risk MA	104.94 (1.33)	-51.03 (-54.34 - -47.71) [b]
Office Visits	Overall TM	960.40 (0.44)	Reference Group
	No DSNP - FFS MA	970.96 (0.42)	10.56 (9.04 - 12.08)
	No DSNP - At Risk MA	980.05 (0.42)	19.65 (18.14 - 21.15)
	DSNP - FFS MA	987.15 (0.24)	26.74 (25.56 - 27.93)
	DSNP - At Risk MA	994.16 (0.36)	33.76 (32.54 - 34.98) [b]
Med Adherence - RAS	Overall TM	792.71 (1.36)	Reference Group
	No DSNP - FFS MA	816.97 (1.31)	24.26 (19.69 - 28.84)
	No DSNP - At Risk MA	836.30 (1.53)	43.59 (38.59 - 48.60)
	DSNP - FFS MA	825.20 (1.19)	32.49 (28.05 - 36.93)
	DSNP - At Risk MA	867.29 (2.06)	74.58 (68.99 - 80.18) [b]
Med Adherence - Diabetes	Overall TM	711.43 (2.25)	Reference Group
	No DSNP - FFS MA	696.49 (2.31)	-14.94 (-22.74 - -7.14)
	No DSNP - At Risk MA	710.99 (2.81)	-0.43 (-9.20 - 8.34)
	DSNP - FFS MA	709.08 (2.14)	-2.35 (-9.93 - 5.22)
	DSNP - At Risk MA	730.23 (3.97)	18.80 (8.45 - 29.15) [b]
Med Adherence - Statin	Overall TM	798.45 (1.29)	Reference Group
	No DSNP - FFS MA	807.34 (1.36)	8.90 (4.37 - 13.42)
	No DSNP - At Risk MA	826.30 (1.60)	27.85 (22.85 - 32.86)
	DSNP - FFS MA	818.53 (1.22)	20.08 (15.70 - 24.46)
	DSNP - At Risk MA	861.31 (2.02)	62.86 (57.41 - 68.32) [b]

AMR: Average marginal risk, Mean per 1,000 (SE)
MRD: Marginal Risk difference, per 1,000 (95% CI)

a: All models were adjusted for age group, sex, race/ethnicity, dual status, HMO plan type (for MA), provider groups, calendar year, HCC score v24, and the following high level HCC groupings: Blood (HCCs: 2, 46, 48), CVD (HCCs: 82, 83 84, 85, 86, 87, 88, 96, 99, 100, 107, 108), Diabetes (HCCs: 17, 18, 19), Injury (HCCs: 166, 167, 168), Kidney (HCCs: 134, 135, 136, 137, 138), Liver (HCCs: 27, 28), Lung (HCCs: 111, 112, 114, 115), Neoplasm (HCCs: 8,9, 10, 11, 12), Psychiatric (HCCs: 57, 58, 59, 60), Substance abuse (HCCs: 54, 55, 56), and Skin (HCCs: 157, 158, 159, 161, 162)

b: Overlapping CIs between those with D-SNP coverage and those without D-SNP coverage were interpreted as no significant differences between these two subgroups for those outcomes.

eAppendix Table 7. Sensitivity Analysis Using V28 HCCs for Risk Adjustment:[a] Adjusted Odds or Rate Ratios for 20 Outcome Metrics, Comparing At-Risk Medicare Advantage (At-Risk MA), Traditional Medicare (TM), and Fee-for-Service MA (FFS MA)

	Average marginal risk (AMR)			At-risk MA vs. TM			At-risk MA vs. FFS MA		
Outcome	**At-risk MA**	**TM**	**FFS MA**	**Risk difference (at-risk MA - TM)**	**% Difference**		**Risk difference (at-risk MA - FFS MA)**	**% Difference**	
	Mean per 1,000 (SE)	Mean per 1,000 (SE)	Mean per 1,000 (SE)	Mean difference per 1,000 (95% CI)	(relative to TM)	Original P value (corrected P) [b]	Mean difference per 1,000 (95% CI)	(relative to FFS MA)	Original P value (corrected P) [b]
Hospital Care									
Acute IP Admissions	163.58 (0.81)	189.49 (0.62)	169.18 (0.57)	-25.90 (-28.42 - -23.39)	-13.7%	<.0001 (<.002)	-5.60 (-6.96 - -4.23)	-3.3%	<.0001 (<.002)
30-Day Readmissions	27.18 (0.42)	34.46 (0.28)	29.61 (0.30)	-7.29 (-8.53 - -6.04)	-21.1%	<.0001 (<.002)	-2.43 (-3.14 - -1.72)	-8.2%	<.0001 (<.002)
Avoidance of ED									
ED visits	390.79 (1.17)	402.05 (0.87)	410.16 (0.83)	-11.26 (-14.88 - -7.65)	-2.8%	<.0001 (<.002)	-19.37 (-21.35 - -17.40)	-4.7%	<.0001 (<.002)
Avoidable ED visits	44.79 (0.55)	49.99 (0.38)	49.65 (0.39)	-5.19 (-6.82 - -3.57)	-10.4%	<.0001 (<.002)	-4.85 (-5.80 - -3.90)	-9.8%	<.0001 (<.002)
Primary Care Treatable ED	91.68 (0.77)	96.55 (0.52)	104.76 (0.57)	-4.87 (-7.13 - -2.61)	-5.0%	<.0001 (<.002)	-13.08 (-14.41 - -11.74)	-12.5%	<.0001 (<.002)
IP through ED	137.04 (0.74)	166.45 (0.58)	145.88 (0.53)	-29.41 (-31.73 - -27.09)	-17.7%	<.0001 (<.002)	-8.84 (-10.09 - -7.58)	-6.1%	<.0001 (<.002)
Avoidance of Disease-Specific Admissions									
COPD/Asthma IP Admissions - Older Adult	7.79 (0.23)	11.33 (0.19)	9.93 (0.17)	-3.54 (-4.26 - -2.82)	-31.2%	<.0001 (<.002)	-2.14 (-2.56 - -1.72)	-21.5%	<.0001 (<.002)
Hypertension IP Admissions	2.03 (0.12)	3.00 (0.11)	2.25 (0.09)	-0.97 (-1.38 - -0.56)	-32.3%	<.0001 (<.002)	-0.22 (-0.43 - -0.01)	-9.9%	0.0368 (0.0736)
HF IP Admissions	11.09 (0.29)	14.06 (0.21)	11.90 (0.21)	-2.97 (-3.84 - -2.09)	-21.1%	<.0001 (<.002)	-0.81 (-1.29 - -0.32)	-6.8%	0.0011 (0.0066)
Bacterial Pneumonia IP Admissions	5.19 (0.20)	6.69 (0.15)	5.67 (0.14)	-1.50 (-2.11 - -0.89)	-22.4%	<.0001 (<.002)	-0.48 (-0.83 - -0.13)	-8.4%	0.0075 (0.0375)
UTI IP Admissions	5.52 (0.22)	7.08 (0.14)	6.03 (0.16)	-1.56 (-2.18 - -0.93)	-22.0%	<.0001 (<.002)	-0.51 (-0.89 - -0.14)	-8.5%	0.0075 (0.03)
Diabetes Lower-Extremity Amputation	1.41 (0.13)	1.21 (0.05)	1.15 (0.08)	0.20 (-0.14 - 0.55)	16.8%	0.2468 (0.2468)	0.26 (0.06 - 0.46)	22.8%	0.01 (0.03)
PQI-91 Acute Composite	10.57 (0.29)	13.65 (0.20)	11.54 (0.21)	-3.08 (-3.94 - -2.22)	-22.6%	<.0001 (<.002)	-0.97 (-1.47 - -0.47)	-8.4%	<.0001 (<.002)

PQI-92 Chronic Composite	26.85 (0.42)	33.88 (0.31)	29.90 (0.30)	-7.03 (-8.31 - -5.76)	-20.8%	<.0001 (<.002)	-3.05 (-3.78 - -2.32)	-10.2%	<.0001 (<.002)
PQI-93 Diabetes Composite	8.02 (0.28)	7.25 (0.12)	8.10 (0.19)	0.77 (0.05 - 1.48)	10.6%	0.0351 (0.1053)	-0.08 (-0.53 - 0.36)	-1.0%	0.721 (0.721)
Outpatient Care									
High Risk Drug Use	120.37 (0.88)	152.83 (0.66)	141.10 (0.66)	-32.45 (-35.14 - -29.77)	-21.2%	<.0001 (<.002)	-20.73 (-22.25 - -19.20)	-14.7%	<.0001 (<.002)
Office Visits	981.31 (0.39)	962.36 (0.39)	978.72 (0.30)	18.94 (17.55 - 20.34)	2.0%	<.0001 (<.002)	2.59 (1.93 - 3.25)	0.3%	<.0001 (<.002)
Med Adherence - RAS	842.70 (1.40)	794.47 (1.34)	820.65 (1.04)	48.23 (43.42 - 53.04)	6.1%	<.0001 (<.002)	22.04 (19.59 - 24.50)	2.7%	<.0001 (<.002)
Med Adherence - Diabetes	717.85 (2.58)	710.79 (2.25)	703.60 (1.84)	7.06 (-1.43 - 15.55)	1.0%	0.1032 (0.2064)	14.25 (9.78 - 18.73)	2.0%	<.0001 (<.002)
Med Adherence - Statin	835.98 (1.43)	799.05 (1.28)	813.32 (1.08)	36.93 (32.16 - 41.70)	4.6%	<.0001 (<.002)	22.66 (20.17 - 25.15)	2.8%	<.0001 (<.002)

AMR: Average marginal risk, Mean per 1,000 (SE)
MRD: Marginal Risk difference, per 1,000 (95% CI)
SE: Standard Error; TM: Traditional Medicare; At-Risk MA: Medicare Advantage beneficiaries cared for under fully accountable care models; IP: inpatient; ED: emergency department; COPD: chronic obstructive pulmonary disease; HF: heart failure; UTI: urinary tract infection; RAS: renin-angiotensin system medications; 95% CI: 95% confidence interval

a: Probability of all outcomes were modeled in the overall cohort. Due to rare event prevalence rates in most cases, risks and risk differences are reported in per 1,000 scale (as opposed to percent). All measures are summarized as annual risk representing the 12-month probability of an outcome.

All models were adjusted for age groups, sex, race/ethnicity, HMO plan type (for MA), provider groups, calendar year, HCC score v28, and the following high level HCC groupings: Blood, CVD, Diabetes, Injury, Kidney Liver, Lung, Neoplasm, Psychiatric, Substance abuse, and Skin.

[b] All p-values were examined for Bonferroni-Holm correction and adjustment for multiple comparisons. Corrected P-values that are < 0.05 are significant.

eAppendix Table 8. Pair-wise Risk Differences[a] Between FFS MA and TM for 20 Outcome Metrics: Adjusted Risk Difference from Logistic Regression Models for Marginal Effects (2016–2019 data)

	Average Marginal Risk (AMR) [a]		Mean Risk Difference [a] (MRD)		
Outcome	**FFS MA**	**TM**	**FFS MA - TM**	**% Difference**	
	Mean per 1,000 (SE)	**Mean per 1,000 (SE)**	**Mean difference per 1,000 (95% CI)**	**(relative to TM)**	**Original P value (corrected P) [b]**
Hospital Care					
Acute IP Admissions	165.03 (0.55)	197.41 (0.66)	-32.39 (-34.56 - -30.22)	-16.4%	<.0001 (<0.002)
30-Day Readmissions	28.48 (0.28)	36.22 (0.31)	-7.73 (-8.79 - -6.67)	-21.4%	<.0001 (<0.002)
Avoidance of ED					
ED visits	405.30 (0.83)	411.08 (0.89)	-5.79 (-8.86 - -2.72)	-1.4%	0.0002 (0.001)
Avoidable ED visits	48.84 (0.38)	51.37 (0.40)	-2.53 (-3.91 - -1.15)	-4.9%	0.0003 (0.0012)
Primary Care Treatable ED	103.48 (0.56)	98.62 (0.54)	4.86 (2.91 - 6.81)	4.9%	<.0001 (<0.002)
IP through ED	141.77 (0.51)	174.22 (0.63)	-32.45 (-34.49 - -30.42)	-18.6%	<.0001 (<0.002)
Avoidance of Disease-Specific Admissions					
COPD/Asthma IP Admissions - Older Adult	9.91 (0.17)	11.54 (0.20)	-1.63 (-2.27 - -0.98)	-14.1%	<.0001 (<0.002)
Hypertension IP Admissions	2.15 (0.08)	3.24 (0.13)	-1.09 (-1.47 - -0.71)	-33.7%	<.0001 (<0.002)
HF IP Admissions	11.75 (0.20)	14.27 (0.21)	-2.52 (-3.27 - -1.77)	-17.7%	<.0001 (<0.002)
Bacterial Pneumonia IP Admissions	5.57 (0.14)	6.92 (0.16)	-1.34 (-1.87 - -0.82)	-19.4%	<.0001 (<0.002)
UTI IP Admissions	5.82 (0.15)	7.41 (0.15)	-1.59 (-2.11 - -1.07)	-21.4%	<.0001 (<0.002)

Diabetes Lower-Extremity Amputation	1.12 (0.08)	1.22 (0.06)	-0.10 (-0.34 - 0.15)	-8.1%	0.4315 (0.4315)
PQI-91 Acute Composite	11.24 (0.20)	14.21 (0.21)	-2.97 (-3.70 - -2.24)	-20.9%	<.0001 (<0.002)
PQI-92 Chronic Composite	29.28 (0.29)	35.16 (0.33)	-5.88 (-6.98 - -4.77)	-16.7%	<.0001 (<0.002)
PQI-93 Diabetes Composite	7.77 (0.18)	7.52 (0.13)	0.25 (-0.31 - 0.81)	3.3%	0.3838 (0.7676)
Outpatient Care					
High Risk Med Use	138.79 (0.64)	156.18 (0.68)	-17.39 (-19.74 - -15.05)	-11.1%	<.0001 (<0.002)
Office Visits	979.20 (0.29)	961.45 (0.41)	17.75 (16.48 - 19.02)	1.8%	<.0001 (<0.002)
Med Adherence - RAS	821.50 (1.04)	793.16 (1.36)	28.34 (24.05 - 32.63)	3.6%	<.0001 (<0.002)
Med Adherence - Diabetes	703.37 (1.84)	711.64 (2.24)	-8.28 (-15.56 - -0.99)	-1.2%	0.026 (0.078)
Med Adherence - Statin	813.52 (1.07)	799.03 (1.28)	14.49 (10.26 - 18.71)	1.8%	<.0001 (<0.002)

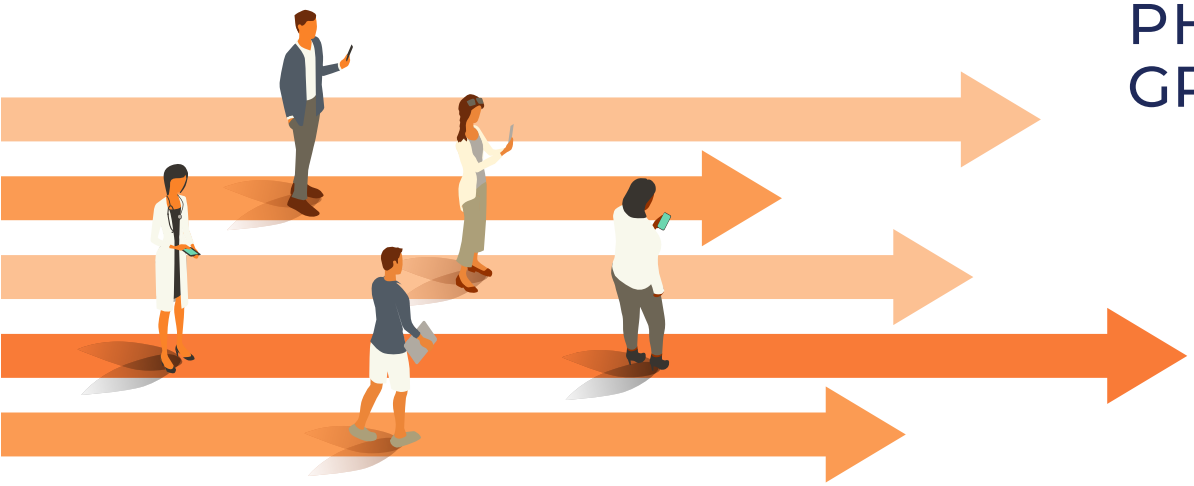
SE: Standard Error; TM: Traditional Medicare; FFS MA: Medicare Advantage beneficiaries who are cared for under fee-for service models; IP: inpatient; ED: emergency department; COPD: chronic obstructive pulmonary disease; HF: heart failure; UTI: urinary tract infection; RAS: renin-angiotensin system medications; 95% CI: 95% confidence interval

[a] Probability of all outcomes, except for pharmacy measures, were modeled in the overall cohort. Due to rare event prevalence rates in most cases, risks and risk differences are reported in per 1,000 scale (as opposed to percent). All measures are summarized as annual risk representing the 12-month probability of an outcome. High risk medication use was modeled in the sub-group with Part D coverage. Medication adherence was modeled in the sub-group with Part D coverage and at least one fill for the medication class.

All models were adjusted for age groups, sex, race/ethnicity, dual status, HMO plan type (for MA), provider groups, calendar year, HCC score v24, and the following high level HCC groupings: Blood (HCCs: 2, 46, 48), CVD (HCCs: 82, 83 84, 85, 86, 87, 88, 96, 99, 100, 107, 108), Diabetes (HCCs: 17, 18, 19), Injury (HCCs: 166, 167, 168), Kidney (HCCs: 134, 135, 136, 137, 138), Liver (HCCs: 27, 28), Lung (HCCs: 111, 112, 114, 115), Neoplasm (HCCs: 8,9, 10, 11, 12), Psychiatric (HCCs: 57, 58, 59, 60), Substance abuse (HCCs: 54, 55, 56), and Skin (HCCs: 157, 158, 159, 161, 162)
[b] All p-values were examined for Bonferroni-Holm correction and adjustment for multiple comparisons. Corrected P-values that are < 0.05 are significant.

JOURNEY TO THE BEST CARE

AMERICA'S PHYSICIAN GROUPS



HOW APG PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR THEIR PATIENTS WHO ARE DUALLY ELIGIBLE FOR MEDICARE AND MEDICAID

Q

Prior studies in this series have shown how the superior patient care practices adopted by many APG-member physician groups – who have experience working under two-sided risk arrangements with Medicare Advantage (MA) plans -- help their patients achieve improved health care outcomes.[1,2,3]

A newly published study asked this question: Are the health outcomes of patients who are dually eligible for both Medicare and Medicaid — and who qualify for both programs due to their low incomes and/or disability — also improved when they are cared for by these same physician groups experienced with two-sided MA risk arrangements?

Because these "duals" have multiple health care needs, and expenditures for their care are high and growing, improving the quality and efficiency of their care is an important policy concern.

A

Outcomes of care for the dually eligible patients — or "duals" — cared for by these physician groups operating under two-sided risk arrangements with MA plans were far better than for the duals patients for whom they cared and who were in two other categories: those who were enrolled in traditional Medicare and those who were enrolled in MA plans that paid physicians on a fee-for-service basis.

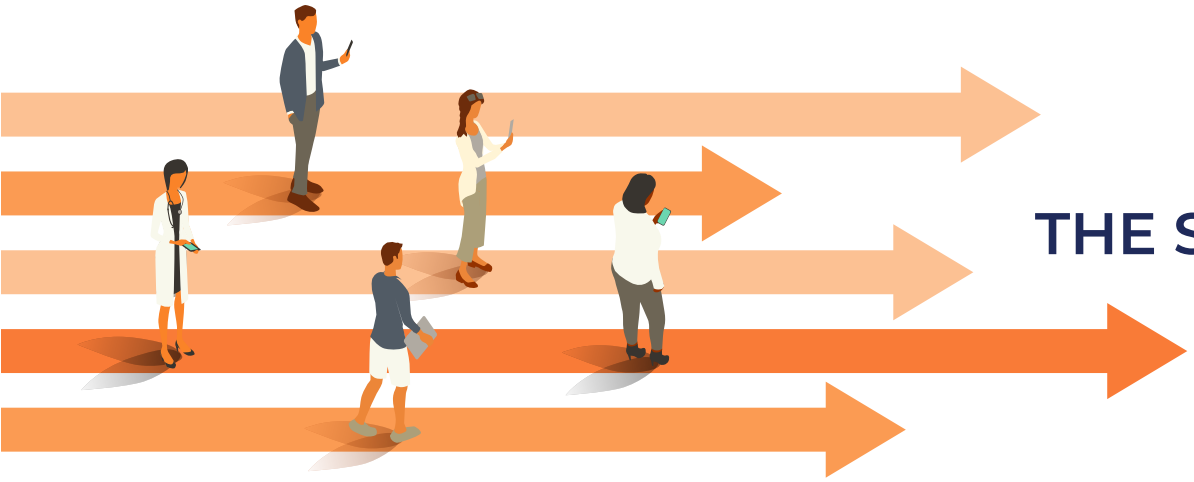
The Result: Outcomes were better for the duals cared for under two-sided risk MA arrangements across 17 to 18 out of 20 different measures, including for reduced hospitalization and use of emergency departments and better medication adherence, among others.

The Likely Reason: Shared risk arrangements between physician groups and MA plans afford extra resources for physician groups to undertake preventive care, intensive case management, and other strategies that improve overall care delivery for older adult populations, and particularly those who are dually eligible for both Medicare and Medicaid.

[1] *Cohen KR, Vabson B, Podulka J, et al, Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. JAMA Netw Open. 2025; 8(1):e2456074. 10.1001/jamanetworkopen.2024.56074*

[2] *Vabson B, Cohen K, Ameli O, et al. Potential spillover effects on traditional Medicare when physicians bear Medicare Advantage risk. Am J Manag Care. Published online February 26, 2025. doi:10.37765/ajmc.2025.89686.*

[3] *Cohen K, Vabson B, Podulka J, et al, Health Outcomes in Full Risk Medicare Advantage versus Traditional Medicare. Am J Manag Care. Published online May 9, 2025 (volume 31). doi:10.37765/ajmc.2025.89740*



THE STUDY

HOW APG PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR THEIR PATIENTS WHO ARE DUALLY ELIGIBLE FOR MEDICARE AND MEDICAID

1

Researchers first identified 17 large physician organizations — all members of America's Physician Groups — that had full two-sided risk arrangements with Medicare Advantage plans. The 17 groups included more than 15,000 physicians and contracted with 35 different MA health insurers. The researchers then identified three categories of these groups' patients who had partial or full eligibility for both Medicare and Medicaid benefits and were thus "dually eligible" for the two programs.

2

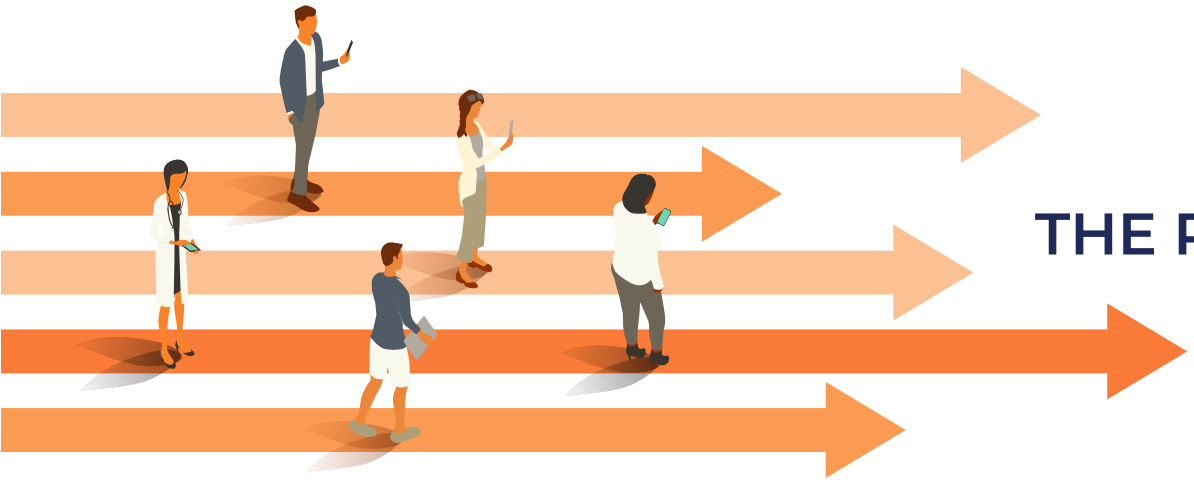
One group of these "duals" was cared for under the at-risk MA contracts (15.4%); another under MA contracts in which the groups were paid on a fee-for-service basis (36.4%); and a third were enrolled in traditional fee-for-service Medicare (48.3%). The total sample was nearly 2 million patient-years. The average ages of the groups were 70.7, 69.4, and 68.3 years, respectively; the majority of each group was female (61.6%, 63%, and 61.4%) and a minority were non-Hispanic whites (26.3%, 28.4%, and 37.3%).

3

The researchers then compared the three groups of patients based on 20 measures of quality and efficiency across four domains of care: acute hospital care, avoidance of emergency department use, avoidance of disease-specific admissions for such conditions as diabetes and heart failure, and outpatient care.

4

To adjust for differences in the mix of patients, results were adjusted for age, gender, race, and ethnicity among the groups. The researchers also examined differences between the MA enrollees who were in so-called Dual Eligible Special Needs (D-SNP) MA plans versus those in other MA plans. A D-SNP plan caters to duals by providing benefits and services to individuals with specific severe and chronic diseases or other health care needs, and includes special services to coordinate care across settings.



THE RESULTS

HOW APG PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR THEIR PATIENTS WHO ARE DUALLY ELIGIBLE FOR MEDICARE AND MEDICAID

ENROLLEES IN AT-RISK MEDICARE ADVANTAGE COMPARED TO **ENROLLEES IN FEE-FOR-SERVICE MEDICARE ADVANTAGE**

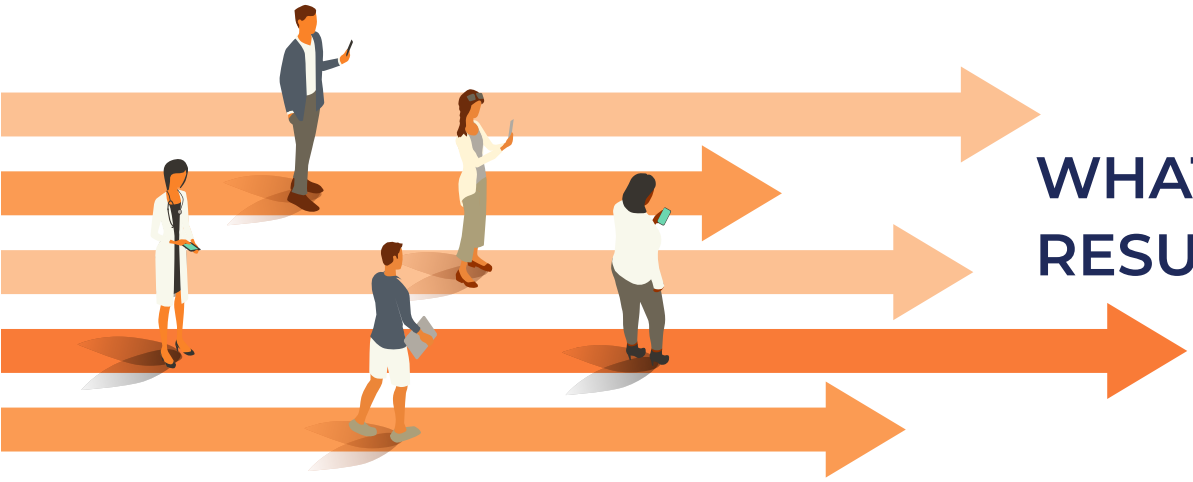
Higher outcomes in 18 of 20 measures:

- **8.8%** fewer hospital admissions
- **8.3%** to **26%** fewer avoidable admissions for chronic diseases
- **14.4%** fewer readmissions within 30 days of a prior hospital stay
- **15.3%** fewer overall emergency department (ED) visits
- **7.5%** fewer avoidable emergency department (ED) visits
- **1.8%** increase in adherence for diabetes drugs
- **2.7%** increase in adherence to blood pressure medication

ENROLLEES IN AT-RISK MEDICARE ADVANTAGE COMPARED TO **ENROLLEES IN TRADITIONAL MEDICARE**

Higher outcomes in 17 of 20 measures:

- **23.8%** fewer hospital admissions
- **2%** to **45.5%** fewer avoidable admissions for chronic diseases
- **32.7%** fewer readmissions within 30 days of a prior hospital stay
- **28.4%** fewer overall emergency department (ED) visits
- **9%** fewer avoidable emergency department (ED) visits
- **2.2%** increase in office visits to monitor primary care needs
- **4.6%** increase in adherence for statin drugs
- **6.4%** increase in adherence to blood pressure medication



WHAT THE RESULTS MEAN

HOW PHYSICIAN GROUPS ACHIEVE BETTER HEALTH OUTCOMES FOR MEDICARE ADVANTAGE ENROLLEES

Q What could explain the finding that dually-eligible patients cared for by physician groups under At-Risk MA arrangements saw these superior outcomes, compared to other dually-eligible patients cared for by the same physician groups under different MA payment arrangements or within traditional Medicare?

A **Physicians operating in two-sided risk arrangements in MA adopt advanced care practices to keep their MA patients as healthy as possible and out of hospitals (see more detail below). These care practices, largely delivered in the ambulatory setting and through primary care, are especially effective in reducing unnecessary emergency department visits, hospitalizations, and readmissions for multiple potentially costly chronic conditions.**

1

Physician practices in two-sided risk relationships with MA plans can lose money if patients undergo costly care and achieve worse health outcomes, so they have incentives to keep patients as healthy as possible. Due to extra payments earned through MA program features, including payment taiilored to patients' health risks, these practices have more resources to devote to patient care.

2

These incentives and resources help them to focus more on preventive care; use more evidence-based medicine to drive care decisions; selectively refer patients to high-performing specialists and facilities; and reduce the provision of low-value care that could earn money for practices but could also be wasted on or even harm patients.

3

Practices in At-Risk MA also adopt capabilities and infrastructure, such as population risk stratification, provider performance feedback, intensive case management, and support services such as in behavioral health, pharmacy, disease management, and social worker assistance. assassistance. All of these also help keep patients healthy and out of the hospital.

4

Not all these capabilities that practices adopt to thrive in At-Risk MA are employed on behalf of patients covered under MA fee-for-service contracts or who are enrolled in traditional Medicare. This evidence suggests that such patients may experience somewhat worse outcomes as a result.

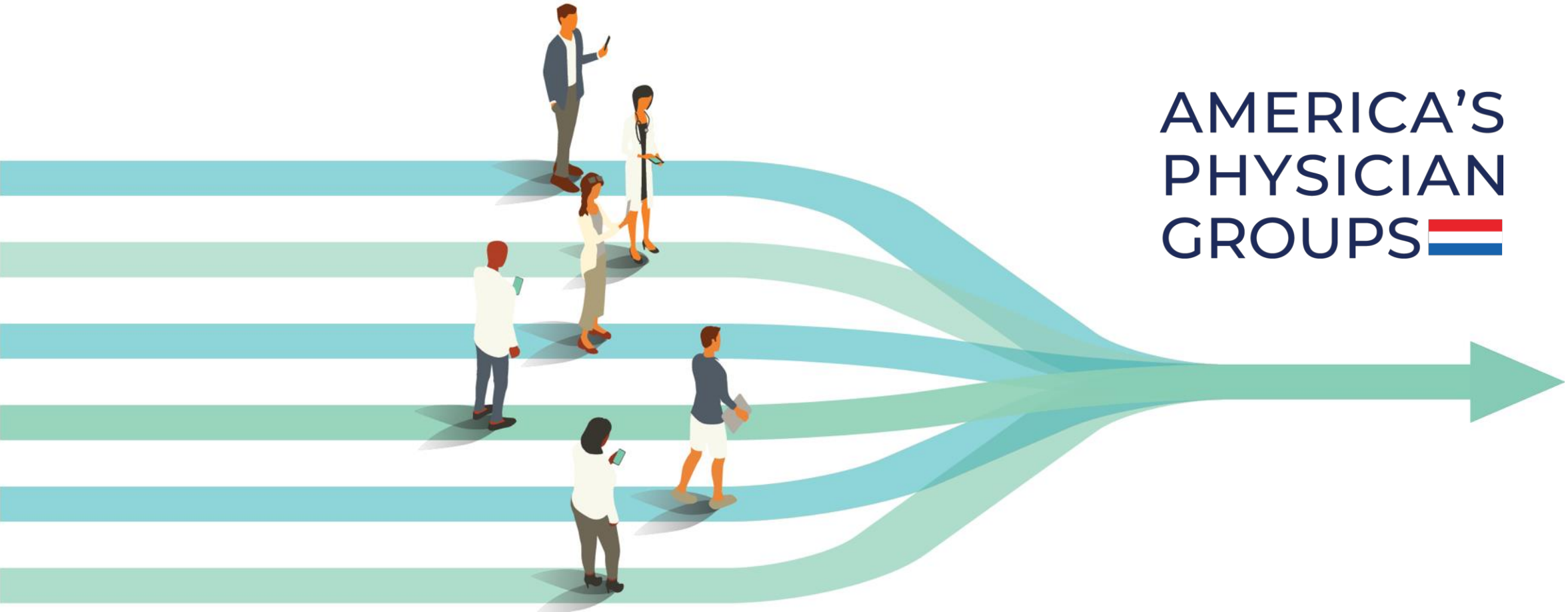
About APG

APG is a national organization of primary care and multispecialty medical groups that take accountability for the quality and cost of health care. Our approximately 360 physician groups comprise 170,000 physicians, as well as thousands of other clinicians, providing care to nearly 90 million patients, including about 1 in 3 Medicare Advantage enrollees.

APG's motto, 'Taking Responsibility or America's Health', represents our members' commitment to clinically integrated, coordinated, value-based health care in which physician groups are accountable for the quality and cost of patient care. Visit us at www.apg.org.

Medicare Done Right:

THE APG-OPTUM-CAREJOURNEY STUDIES



AMERICA'S PHYSICIAN GROUPS

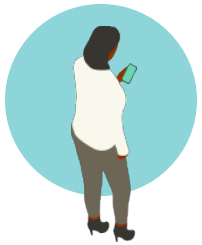
THE APG-OPTUM-CAREJOURNEY STUDIES

Overall study question:

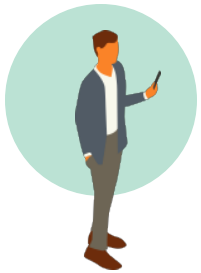
How does care vary as a function of different payment arrangements in Medicare Advantage (MA) and traditional Medicare (TM)?

Five separate studies planned; three will be presented today

STUDY DESIGN



APG groups submitted to CareJourney (CJ) the National Provider Identifier numbers of their primary care physicians and details of their risk contracts



CJ then used Medicare Advantage (MA) encounter data and claims data from traditional Medicare (TM) for analyses

To conduct comparative analyses, statistical matching was performed to create groups with similar characteristics within MA and TM; these different cohorts were also risk adjusted for to make comparisons equivalent across groups

TOTAL DATA SET USED

CAME FROM

17

APG

GROUPS

INVOLVED THE CARE OF

>15,400

PCPs

INVOLVED THE CARE EQUIVALENT OF

>5 million

PATIENT YEARS

STUDY QUESTION 1

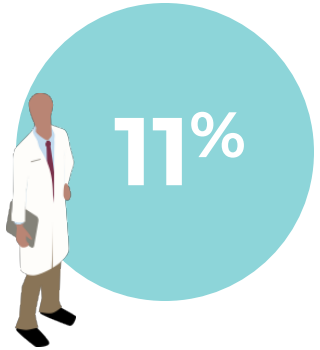
Is care under full risk Medicare Advantage associated with better quality and health resource utilization compared to Traditional Medicare, when the care is provided by the same physicians and physician groups?

Cohen KR, Vabson, B, Health Outcomes in Full Risk Medicare Advantage versus Traditional Medicare, AJMC in press

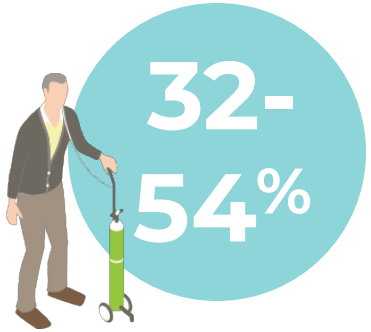
IN 16 OF 20 MEASURES

care provided in full risk MA was superior to that in Medicare when provided by the same physicians and physician groups. Patients were:

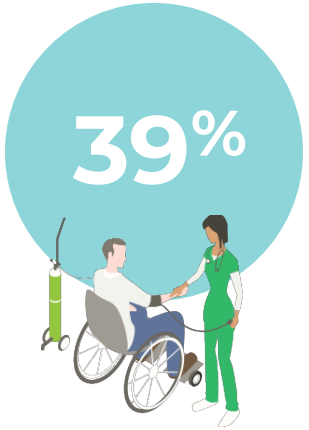
less likely to be admitted to the hospital overall



less likely to use hospital emergency departments



less likely to be admitted to hospital for their chronic conditions like heart failure, COPD, UTI, and bacterial pneumonia



less likely to be readmitted to a hospital within 30 days of previous discharge

STUDY QUESTION 2

Is care under full risk Medicare Advantage associated with better quality and health resource utilization compared to fee-for-service (FFS) Medicare Advantage when provided by the same physicians and physician groups?

Cohen KR, Vabson, B, Podulka, J, et al. Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. JAMA Netw Open. 2025;8(1):e2456074. Published 2025 Jan 2. doi:10.1002/jamanetworkopen.2024.56074

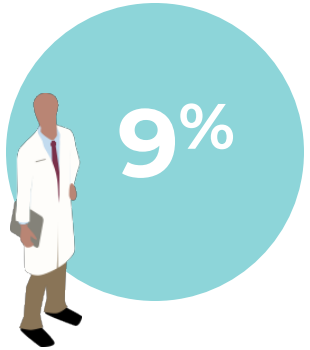
IN 18 OF 20 MEASURES

MA patients in full risk models had better outcomes.
FFS = Volume & Fragmented, Value-Based Care = Quality Focused & Coordinated

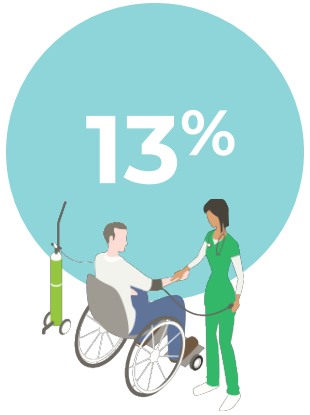
less likely to be admitted to the hospital overall

less likely to be admitted to the hospital for chronic conditions

less likely to use high-risk medications



less likely to use hospital emergency departments



less likely to be readmitted to a hospital within 30 days of previous discharge

Cohen KR, Vabson, B, Podulka, J, et al. Medicare Risk Arrangement and Use and Outcomes Among Physician Groups. JAMA Netw Open. 2025;8(1):e2456074. Published 2025 Jan 2. doi:10.1002/jamanetworkopen.2024.56074

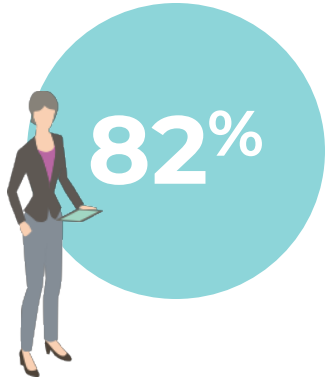
STUDY QUESTION 3

Does the higher care quality and efficiency provided in full risk MA “spillover” onto Medicare FFS patients?

Vabson, B; Cohen, KC; Amelie, OA; et al. Potential Spillover Effects on Traditional Medical When Physicians Bear Medicare Advantage Risk. AJMC. Published online February 26, 2025

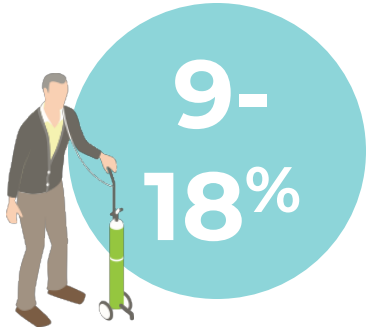
IN 22 OF 26 MEASURES

TM beneficiaries cared for by physicians with risk experience saw better outcomes than the comparison group.



more likely to have an annual wellness visit

less likely to use hospital emergency departments



less likely to be admitted to hospital for their chronic conditions like heart failure, COPD, UTI, and bacterial pneumonia

more likely to be adherent to their medications for hypertension, diabetes and high cholesterol

CONCLUSIONS: ALL STUDIES

Across the different data sets, and in multiple domains of care, both Medicare Advantage and traditional Medicare beneficiaries cared for by APG physicians with risk experience saw better outcomes than comparison groups in 56 of 66 measures, including these:

9-36%

Patients were less likely to be admitted to a hospital for acute conditions

8-22%

less likely to be admitted to a hospital for chronic conditions such as heart failure, COPD, UTI, and bacterial pneumonia

11-39%

less likely to be readmitted to a hospital within 30 days of discharge from a prior hospital stay

9-21%

less likely to use hospital emergency departments

1-13%

more likely to be adherent to their medications for hypertension, diabetes and high cholesterol

12-23%

less likely to be prescribed a high-risk medication that could be dangerous if used incorrectly

CONCLUSIONS: ALL STUDIES

- Full-risk MA is associated with care of higher quality and lower health resource utilization compared to FFS MA and TM
- Significant benefits of full-risk MA accrue to Traditional Medicare
- Two primary components of the full risk care model are likely to account for most of the observed differences:
  - The infrastructure and capabilities created to manage MA patients – e.g., advanced primary care teams; health information technology; care coordination
  - The skill sets developed by physicians bearing risk – e.g., avoidance of low-value care; referrals to high-value specialists