Analysis of Spending and Utilization Among Medicare Beneficiaries Receiving Care from Independent Physician Practices Versus Medicare Beneficiaries Receiving Care from Hospital Owned Physician Practices in Ohio Markets

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Executive Summary

Physician practices are increasingly owned by or affiliated with hospitals and large health systems and stakeholders are interested in whether this affiliation has led to differences in patient care relative to independent physicians. In this analysis, Avalere Health® measured differences in patient outcomes, spending, and utilization between matched samples of Medicare fee-for-service (FFS) beneficiaries who received care from independent physician practices or hospital-owned physician practices in select markets in Ohio from 2018 to 2019.

Key Findings:

- Spending:
    - The average total Medicare Parts A and B spending per beneficiary was 3% to 14% lower among beneficiaries attributed to independent physicians in 3 of the 5 markets and Ohio statewide. The differences in 2 of the markets were not statistically significant.
- Inpatient Utilization:
    - The number of discharges per 1,000 beneficiaries per month was lower among beneficiaries attributed to independent physicians; these differences were statistically significant in all 5 markets and Ohio statewide.
    - In 4 of 5 markets and Ohio statewide, there were no statistically significant differences in the percent of admissions that had a readmission between beneficiaries attributed to independent versus affiliated physicians.
- Wellness Visits:
    - The percent of beneficiaries with a wellness care visit in both 2018 and 2019 was 2 to 20 percentage points higher among beneficiaries attributed to independent physicians across the 5 markets and Ohio statewide, and all differences were statistically significant.
- Physician Visits:
    - The average number of evaluation and management (E&M) visits provided by PCPs per beneficiary per year was higher for beneficiaries attributed to independent physician practices. These differences were statistically significant for all 5 markets and Ohio statewide.
    - The number of E&M visits by specialists was similar for beneficiaries attributed to hospital-affiliated physicians and beneficiaries attributed to independent physicians in 3 of the 5 markets. Differences were mixed and were statistically significant in 2 of 5 markets and Ohio statewide.

Background

Over the last several decades, integration of hospitals and physician practices has increased substantially. From 2002-2008, the share of physician practices in the United States that are owned by hospitals more than doubled.[1] By the end of 2020, close to half of all doctors in the U.S. were employed by hospitals or health systems.[2] This trend has sparked debate among stakeholders related to the impact to patients and the healthcare system. From the hospital and health system perspective, vertical integration helps reduce transaction costs and improve care coordination, both of which can improve the quality and efficiency of care.[3] Overall, studies point to the potential positives (e.g., potential for improved care coordination) and negatives (e.g., potential for higher healthcare utilization) of acquisitions of physicians by hospital systems.[4]

Approach

This paper compares outcomes and Medicare spending for beneficiaries attributed to independent practices to outcomes and spending for beneficiaries attributed to physician practices that are owned by a hospital or integrated healthcare system. For this study, beneficiaries were attributed to a physician practice if the plurality of their E&M claims were with that physician practice during the study period. We constructed matched samples of beneficiaries using propensity score matching. Spending and outcomes were analyzed for these matched samples (beneficiaries attributed to independent versus owned/affiliated physician practices) in 5 Ohio markets, and Ohio overall, from 2018-2019. More specifically, we looked at average spending outcomes across the 2018-2019 time period, except for wellness visits, which were separated by year.

Avalere constructed 11 payment, utilization, and outcome measures based on 2018-2019 claims to compare independently owned physician practices with hospital-owned practices. The sample is made up of all Ohio markets; for the purposes of the analysis, we also looked at 5 smaller geographic markets in Ohio (Akron, Columbus, Dayton, Toledo, and Zanesville). Of these 5 markets, only Zanesville has a large share of enrollees in rural counties. Zanesville is different from the other markets on other characteristics as well (e.g., higher percent of households below the federal poverty level). We looked at spending (Medicare Part A and B payments per year), acute events (number of inpatient hospital discharges per 1,000 beneficiaries per month), metrics that capture care coordination following discharge (percent of admissions with a 30-day readmission, mortality within 30-days of hospital stay, percent of hospital discharges with follow-up within 14 days), primary care (number of E&M visits per year, number of E&M visits with a primary care physician per year, number of E&M visits with a specialty physician per year, number of E&M visits with a nurse practitioner or physician assistant per year), and wellness care (percent of beneficiaries with an annual wellness care visit). Within this report we highlight findings within each of these areas, but not for each metric.

We conducted a comparison of means between the matched sample of beneficiaries attributed to independent or owned/affiliated physician practices by market and Ohio overall. We considered p-values less than 0.05 to be statistically significant. Detail regarding the propensity score matching diagnostics, Ohio market characteristics and beneficiary characteristics are included in Appendix A.

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[1] Kocher R, Sahni NR. “Hospitals' race to employ physicians--the logic behind a money-losing proposition.” New England Journal of Medicine. 2011 May 12;364(19):1790-3. https://pubmed.ncbi.nlm.nih.gov/21449774/

[2] Avalere Health. “COVID-19’s Impact on Acquisition of Physician Practices and Physician Employment 2019-2020.” The Physicians Advocacy Institute. June 2011. http://www.physiciansadvocacyinstitute.org/Portals/0/assets/docs/Revised-6-8-21_PAI-Physician-Employment-Study-2021-FINAL.pdf

[3] Williamson, O.E. “The Vertical Integration of Production: Market Failure Considerations.” The American Economic Review 61, no. 2 (1971): 112–23. http://www.jstor.org/stable/1816983.

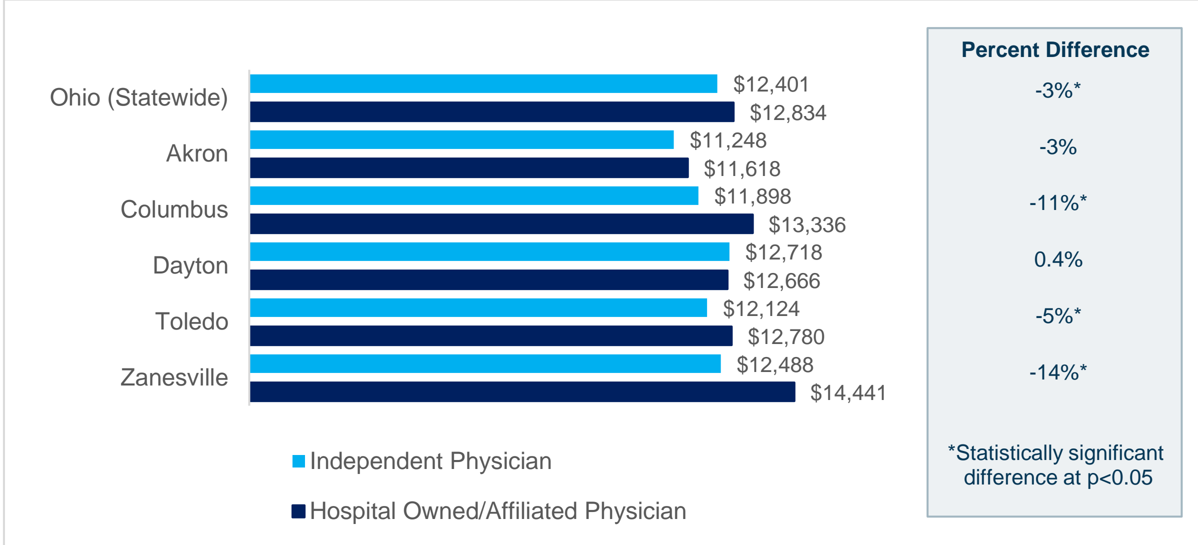
[4] Whaley, C.M., Zhao, X., Richards, M. & Damberg, C. “Higher Medicare Spending On Imaging And Lab Services After Primary Care Physician Group Vertical Integration.” Health Affairs, Vol. 20, No. 5, May 2021.

Results

Payments

Medicare spending was statistically significantly lower for beneficiaries attributed to independent physician practices in Ohio markets from 2018-2019 for 3 of the 5 markets and Ohio statewide (Figure 1). The largest differences in spending were in Zanesville and Columbus where spending was 14% and 11% lower respectively. For the whole state of Ohio, spending was 3% lower for beneficiaries assigned to independent physicians ($12,401) than for beneficiaries assigned to owned/affiliated physicians ($12,834).

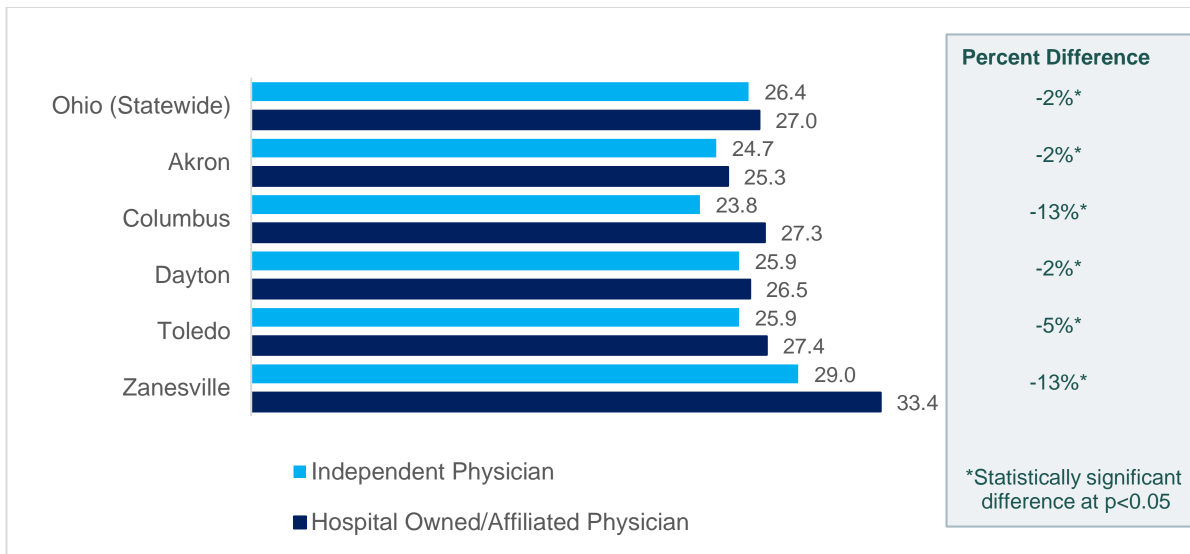
Figure 1: Total Medicare Part A and B Spending for Beneficiaries Assigned to Independent Physicians Compared to Hospital Owned/Affiliated Physicians per Beneficiary per Year, 2018-2019



Inpatient Admissions

The number of discharges per 1,000 members per month was lower for beneficiaries attributed to independent practices relative to beneficiaries attributed to owned/affiliated physicians. The differences in this metric were statistically significant in all 5 markets and Ohio statewide.

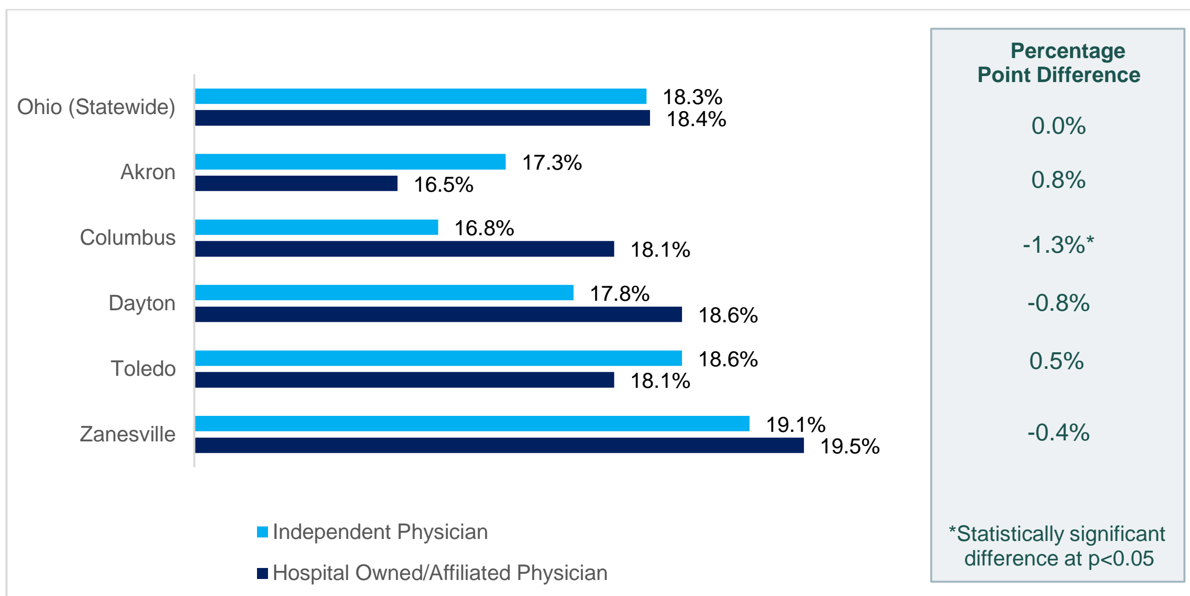
Figure 2: Number of Discharges per 1,000 Beneficiaries Per Month for Beneficiaries Assigned to Independent Physicians and Owned/Affiliated Physicians, 2018-2019



Readmissions

There were minor differences in the percent of admissions that had a readmission between beneficiaries attributed to independent physician and owned/affiliated physicians. The one statistically significant result was in Columbus, where beneficiaries attributed to independent physicians had a percent of admissions with a readmission that was 1.3 percentage points lower than the rate for beneficiaries assigned to hospital owned/affiliated physicians.

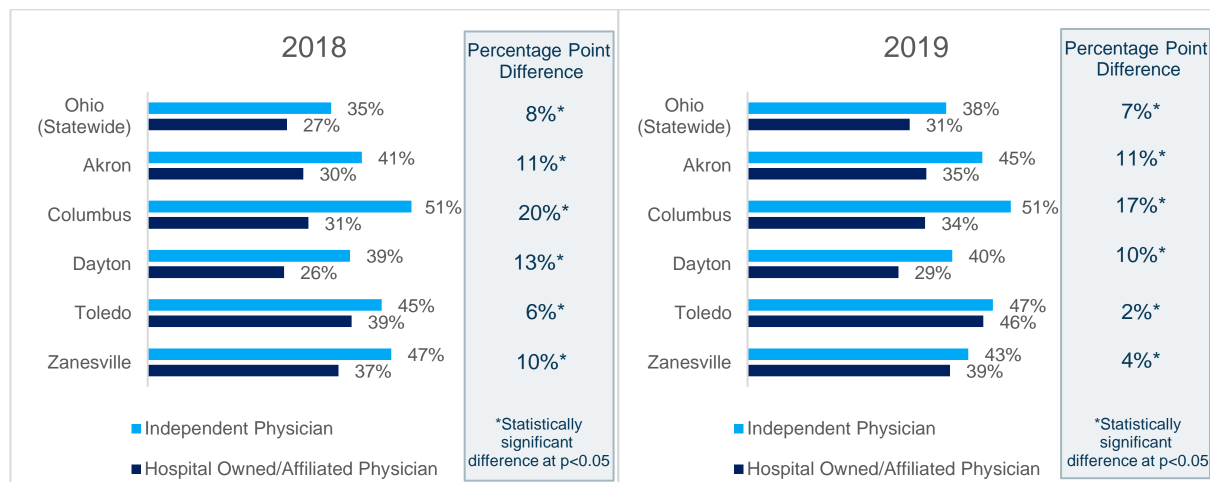
Figure 3: Percent of Admissions that Had a Readmission for Beneficiaries Assigned to Independent Physicians and Owned/Affiliated Physicians, 2018-2019



Wellness Visits

Wellness visits allow providers to gain a status update on a patient's overall health. This includes activities such as collecting family history, health risk factors, and certain vitals.

Figure 4: Percent of Beneficiaries Assigned to Independent Physicians and Owned/Affiliated Physicians with a Wellness Care Visit in 2018 and 2019



Statewide, and within each market, the percentage of beneficiaries with a wellness care visit was higher for beneficiaries attributed to independent physicians in each year. These differences were statistically significant for all markets and statewide for Ohio. The largest difference between the 2 samples was in Columbus and the smallest difference between cohorts was in Toledo.

E&M Visits

E&M visits refer to an encounter with a provider to evaluate or manage patient health, including office visits, hospital visits, and preventative care services. E&M visits can also be conducted by various providers including primary care physicians and specialists.

E&M visits with PCPs were higher for beneficiaries attributed to independent physicians in all markets (Table 1). Specialist visits were similar across 3 of the 5 markets. Columbus and Toledo had statistically significant differences relative to the other markets (Table 1)

Table 1: Average Number of E&M Visits by PCPs and Specialists, per Beneficiary per Year, 2018-2019

	PCP			Specialist		
	Owned	Ind.	Percent Difference	Owned	Ind.	Percent Difference
Ohio (Statewide)	3.25	3.63	12%*	4.34	4.25	-2%*

Akron	3.20	3.68	15%*	4.10	4.07	-1%
Columbus	3.33	3.80	14%*	4.43	4.17	-6%*
Dayton	3.45	3.57	3%*	4.93	4.90	-1%
Toledo	2.95	3.54	20%*	4.35	4.50	4%*
Zanesville	2.31	3.11	35%*	3.49	3.65	5%

*Statistically significant difference at $p<0.05$

Limitations

Several factors may limit the generalizability of our findings. First, this study looked only at markets in Ohio, which may not be representative of the entire country. Some states have stricter consolidation and acquisition laws, which may impact the number or percentage of affiliated physicians.[5] Second, this analysis excluded Medicare Part D drug spending and focused only on spending for services covered under Medicare Parts A and B. This study also looked only at beneficiaries under Medicare FFS, and not Medicare Advantage (MA) enrollees or patients with commercial or Medicaid coverage. We did not take into account different types of supplemental coverage that patients may have such as Medigap, Medicaid, and employer insurance, which may affect the utilization of services. These varied incentive structures can impact provider behavior across all patients.

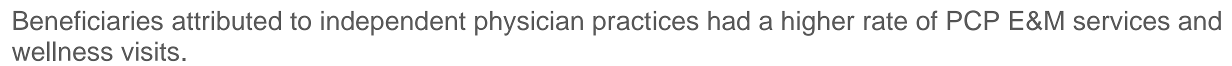
Discussion and Conclusion

Stakeholders and policymakers are focusing on approaches to lower patients' total cost of care and improving quality of care and patient outcomes. This study found that, in many instances, average total Medicare Parts A and B payments were lower for beneficiaries that were attributed to independent physician practices, after controlling for many factors that can influence healthcare utilization, such as patient characteristics and geography. Given that hospital spending is a disproportionate amount of total patient spending, the finding that beneficiaries attributed to an independent practice had fewer inpatient admissions is notable.[6]

One potential explanation for lower average spending among beneficiaries attributed to independent physicians could be a greater emphasis on primary care and preventive services, such as wellness visits.

[5] Miller, B.J., Moffit, R.E., Ficke, J., Marine, J., & Ehrenfeld, J. "Reversing Hospital Consolidation: The Promise Of Physician-Owned Hospitals." Health Affairs Blog. (2021). https://www.healthaffairs.org/do/10.1377/forefront.20210408.980640/

[6] Hartman, M., Martin, A.B., Washington, B., & Catlin, A. "National Health Care Spending in 2020: Growth Driven By Federal Spending In Response To The COVID-19 Pandemic." Health Affairs. Vol. 41, No. 1 (2021). https://www.healthaffairs.org/doi/10.1377/hlthaff.2021.01763?utm_medium=press&utm_source=mediaadvisory&utm_campaign=january2022issue&utm_content=ahead+of+print&utm_term=hartman



Beneficiaries attributed to independent physician practices had a higher rate of PCP E&M services and wellness visits.

This study did not find a statistically significant difference in readmission rates for beneficiaries of independent and affiliated physician practices in most markets, and mortality rates were similar between the cohorts in the 30-days following an inpatient admission. This study provides new insight into the differences in healthcare utilization and Medicare spending for beneficiaries receiving care from independent physicians compared to physicians who are part of an owned/affiliated health system. Generally, average spending and total inpatient admissions was lower and primary care services utilization was higher for beneficiaries attributed to independent physician practices. These results can help inform the policy debate about how the care provided by independent physician practices compares to the care provided by hospital owned/affiliated physician practices.

Appendix

Methodology

To conduct this analysis, Avalere identified primary care physicians in Ohio based on the taxonomies listed in National Plan and Provider Enumeration System (NPPES) and the billing zip code listed in Medicare fee-for-service (FFS) claims. Physicians were required to have continuously billed to the same practice or physician group in Ohio for the 24-month observation period (2018-2019) to be included in the sample. Physicians were linked to practices and identified as “independent” or “affiliated/owned” based on LexisNexis practice ownership and affiliation data. The Agency for Healthcare Research and Quality Compendium of U.S. Health Systems (2018) was used to confirm practice ownership and affiliation. Next, we identified Medicare beneficiaries continuously enrolled in Medicare Parts A and B, or until death, with at least one E&M visit (defined by Current Procedural Terminology codes 99201-99215) in the observation period, and at least 6 months of claims data from which to develop utilization and outcome measures. Beneficiaries were attributed to a single physician based on the plurality of E&M claims during the observation period.

We created matched treatment and comparison samples of beneficiaries using propensity score models. Using the beneficiary attribution to independent or owned/affiliated physicians, we implemented a 1-to-1 nearest neighbor matching procedure, without replacement (0.1 caliper). The matching occurred at the market level (5 regional markets, and all other Ohio) based on observable beneficiary and market characteristics. We used the Master Beneficiary Summary File to construct beneficiary characteristics and Acxiom InfoBase® data to construct market characteristics. The standardized differences of matching characteristics across markets were less than 0.10, indicating a good match. The matched sample includes 568,786 beneficiaries.

Table A.1. Characteristics of Matched Beneficiaries by Market

	Age		HCC Score		Percent White		Percent White	
	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician
Akron	74	74	1.1	1.1	92%	92%	43%	43%
Columbus	73	73	1.1	1.1	88%	87%	43%	43%
Dayton	73	73	1.2	1.2	87%	87%	43%	43%
Toledo	73	73	1.1	1.1	90%	90%	45%	44%
Zanesville	71	71	1.2	1.3	97%	97%	44%	46%
Ohio Statewide	73	73	1.1	1.1	91%	91%	43%	43%

	Dual Eligible		Percent Aged Entitlement		Percent Enrolled in Part D		Percent Residing in Rural Area	
	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician
Akron	11%	11%	90%	89%	78%	78%	12%	12%
Columbus	11%	12%	90%	89%	78%	77%	8%	7%

Dayton	10%	10%	90%	90%	66%	66%	5%	5%
Toledo	13%	12%	87%	88%	81%	80%	15%	15%
Zanesville	32%	31%	78%	79%	79%	79%	81%	82%
Ohio Statewide	13%	13%	88%	88%	78%	78%	21%	21%

	Percent of Beneficiaries in HPSA		**Percent of Households Below FPL**		**Mean SES Index***	
	Independent Physician	**Owned/ Affiliated Physician**	**Independent Physician**	**Owned/ Affiliated Physician**	**Independent Physician**	**Owned/ Affiliated Physician**
Akron	88%	88%	11%	11%	54	54
Columbus	85%	83%	11%	11%	55	55
Dayton	80%	80%	13%	13%	54	54
Toledo	95%	95%	13%	13%	53	53
Zanesville	88%	86%	17%	18%	50	50
Ohio Statewide	87%	87%	13%	13%	53	53

*The SES index was sourced from the Acxiom database and was based off of the Agency for Healthcare Research and Quality's index.

	Average Number of Physicians per 1K Population		Medicare Advantage Enrollment per 1K Population**	
	Independent Physician	Owned/ Affiliated Physician	Independent Physician	Owned/ Affiliated Physician
Akron	2.3	2.3	53%	53%
Columbus	3.0	2.9	46%	46%
Dayton	2.8	2.9	47%	48%
Toledo	2.7	2.7	44%	44%
Zanesville	0.7	0.8	33%	33%
Ohio Statewide	2.4	2.4	43%	43%

**The source was the CMS 2019-01 MA/State County Penetration Data.

Table A. 2. Standardized Differences by Market, Matched Sample*

	Akron	Columbus	Dayton	Toledo	Zanesville
Age	0.011	0.025	0.005	-0.013	-0.032
Percent Male	-0.008	-0.004	0.003	0.014	-0.033
Percent Aged Entitlement	0.009	0.024	-0.006	-0.013	-0.035
Percent Enrolled in Part D	-0.004	0.026	0.011	0.020	-0.011
Dual Eligibility Status	-0.003	-0.016	0.006	0.016	0.034
Percent White	0.004	0.020	0.002	-0.005	-0.027
HCC Score	0.001	-0.012	0.007	-0.001	-0.023
Medicare Advantage Enrollment per 1,000 Population	0.014	-0.049	-0.014	-0.034	-0.050
Percent of Beneficiaries in HPSA	0.025	0.035	-0.011	0.003	0.063
Average Number of Physicians per 1,000 Population	0.003	0.028	-0.013	-0.023	-0.045
Percent of Households Below FPL	0.002	-0.051	0.005	0.023	-0.049

Percent of Population with a High School Diploma	0.013	-0.069	0.018	-0.005	-0.031
Percent of Households Residing in Rural Area	0.006	0.027	0.034	0.014	-0.025
Mean SES Index	0.003	0.076	-0.009	-0.012	0.031

*Standardized difference is an index that measures the effect size between two groups. In propensity score matching, the objective is to achieve standardized differences <0.20 across all matching covariates. However, more recent literature considers standardized differences <0.10 to be ideal.

The Master Beneficiary Summary File was used to construct beneficiary characteristics and Acxiom InfoBase® data and CMS data to construct market characteristics.

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