Association Between Community Economic Distress and Receipt of Recommended Services Among Medicare Fee-for-Service Enrollees

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BACKGROUND

Community-level social determinants of health and economic distress explain some disparities in health service utilization and outcomes among older Medicare fee-for-service (FFS) enrollees.[1] Medicare-covered and recommended preventive and care coordination services—including flu vaccines, annual wellness visits (AWVs), transitional care management (TCM), and advance care planning (ACP) visits—may improve outcomes and reduce spending,[2, 3] but uptake of these services has been slow,[4, 5] particularly among the disenfranchized.[5]

OBJECTIVE

Using the 2017 Medicare FFS data, we assessed whether use of these services was associated with a community-level measure of economic distress.

METHODS

We identified all USA-residing beneficiaries continuously enrolled in FFS Medicare Parts A and B throughout 2017. At the ZIP Code level, we calculated the number of beneficiaries, annual per-capita Medicare Part A and B expenditures, mean hierarchical condition category (HCC) score, and proportion of patients who received flu vaccines, ACP, and AWV. We measured TCM services among those eligible for TCM services.

From the Economic Innovation Group (EIG) (www.eig.org/dci), we obtained ZIP Code level 2017 Distressed Community Index (DCI) scores. These scores were generated by aggregating seven measures of ZIP Code–specific economic activity, including measures of local mean income, job market, educational attainment, poverty, and unoccupied habitable housing rates. DCI scores were calculated by ranking ZIP Codes on each metric, averaging them, and normalizing them to generate a relative measure of local economic distress, on a scale of 0 to 100.

Based on DCI scores, EIG assigns ZIP Codes to quintiles ranging from lowest to highest economic distress. For each quintile, we calculated the ZIP Code–level mean Medicare beneficiary count, per-capita expenditures, and proportion of enrollees who received the services of interest at the ZIP Code. Using SPSS v25 (released 2017, Armonk, NY: IBM Corporation), we used ANOVA to compare values across quintiles.

RESULTS

Sequentially moving from the least to most economically stressed ZIP Code quintiles, the mean number of Medicare FFS enrollees in a ZIP Code fell while the mean HCC risk score and per-capita Medicare Part A and B expenditures rose (Table 1). Across all quintiles of economic distress, flu shots were the most frequently received service, followed by AWV, TCM (for those eligible), and ACP. Moving from the least to most economically distressed ZIP Code quintile, the use of flu shots and AWV consistently fell ($p < 0.001$ for both). Among those eligible for TCM, utilization rates consistently fell for this service from the second least distressed quintile to the most ($p < 0.001$). In contrast, per-capita ACP—while rare—increased consistently when moving from the least to most economically distressed communities.

DISCUSSION

We found higher community levels of economic distress were associated with greater illness burden and higher per-capita

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Table 1 Relationship Between Distressed Community Index Score Quintile, 2017 Fee-for-Service Medicare Enrollees' Mean Demographics, and Proportion of Eligible Enrollees Who Received Each Recommended Service. ***HCC*** **hierarchical condition category;** ***SD*** **standard deviation**

	Distressed Community Index score quintile					ANOVA *p* value
	Least	2	3	4	Most	
Number of ZIP Codes	5225	5225	5226	5225	5225	
Mean Distressed Community Index score (SD)	10.0 (5.77)	30.0 (5.77)	50.0 (5.77)	70.0 (5.77)	90.0 (5.77)	
ZIP Code–level demographics						
Mean number of FFS Medicare enrollees (SD)	1241 (1240)	941 (1170)	824 (1069)	771 (1008)	677 (827)	< 0.001
Mean HCC risk score (SD)	0.86 (0.10)	0.88 (0.11)	0.91 (0.12)	0.93 (0.12)	0.98 (0.14)	< 0.001
Mean per-capita Medicare Part A & B expenditures ($) (SD)	9885 (1986)	10,044 (2274)	10,435 (2665)	10,758 (2737)	11,385 (3145)	< 0.001
Zip Code–level mean proportion of eligible enrollees receiving recommended care						
Flu shots (%) (SD)	50.6 (11.1)	44.4 (12.0)	40.4 (11.6)	37.1 (10.9)	33.4 (10.5)	< 0.001
Annual wellness visits (%) (SD)	29.9 (10.7)	25.1 (11.6)	22.2 (11.3)	19.6 (10.5)	18.3 (10.0)	< 0.001
Transitional care management (%) (SD)	14.8 (7.7)	15.7 (8.9)	14.5 (8.8)	13.3 (7.9)	11.6 (6.9)	< 0.001
Advanced care planning visits (%) (SD)	3.37 (2.86)	3.85 (3.60)	3.86 (3.60)	4.09 (4.00)	4.45 (4.91)	< 0.001

expenditures; lower use of flu shots, AWV, and TCM; and greater ACP use. Overall, receipt of these recommended services was dismal—for only one measure were use rates above 50%, on average: flu shots among the most economically advantaged ZIP codes.

Our work expands on that of Ganguli et al.,[5] who found AWVs were less commonly received by minorities and those eligible for Medicaid. Our consideration of community-level economic distress may help providers target populations in need, where (our findings suggest) there may be multiple opportunities to improve care delivery.

Because two of the interventions we examined (TCM and AWV) appear to generate cost-offsets, outcomes improvement, and value creation,[2, 3] their use should be encouraged by the Centers for Medicare and Medicaid Services (CMS). In particular, given its recent interest in funding efforts to address social determinants of health in the pursuit of better health outcomes, CMS might consider incentivizing health systems and providers to improve performance in communities with high economic distress levels, where healthcare costs are highest and, therefore, might have the greatest cost-offset impact.

Our study is limited by its reliance on administrative data, cross-sectional nature, and focus on the Medicare FFS population. Our findings suggest that providers, health systems, and policy makers should explore sources of the observed service use disparities and develop interventions that would improve the rate of provision of these services to Medicare beneficiaries living in the most economically distressed communities.

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Compliance with Ethical Standards:

CareJourney has IRB approval ("Understanding the drivers of ACO success in achieving low cost and high quality care"; Solutions IRB Study No. 2017/08/15) to study health service utilization using CMS data (CMS DUA 51593) through their Virtual Research Data Center.

Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

Disclaimer: *This paper used proprietary data provided by the Economic Innovation Group. The findings expressed in this article are solely those of the authors and not necessarily those of the Economic Innovation Group. The Economic Innovation Group does not guarantee the reliability of, or necessarily agree with, the information provided herein.*

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