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Comparing Medicare plan selection among beneficiaries with and without a history of cancer

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Abstract

Individuals aging into Medicare must choose among plans that vary in their scope of benefits, access to health care providers, and exposure to out-of-pocket expenses. When faced with complex coverage decisions, it is unclear whether older adults consider their experiences with prior serious illness or current medical conditions. We estimated the association between a self-reported history of cancer and initial plan selection among 3811 Health and Retirement Study participants aging into Medicare between 2008 and 2020. The proportion of individuals with and without a history of cancer who chose Medicare Advantage was similar; however, the probability of selecting traditional Medicare plus supplemental coverage was 8.03 percentage points (95% confidence interval, 2.99–13.07) higher for respondents with a history of cancer compared with those without a history of cancer. Individuals with a history of cancer may have accounted for their previous experiences with high-cost health care services and prioritized plans with robust benefits (eg, greater financial protections). Raising awareness of and enhancing educational resources could ensure that older adults select plans that meet their current and evolving health care needs.

Key words: Medicare; plan choice; cancer.

Introduction

Older Americans must weigh tradeoffs[1] involving convenience, affordability, and accessibility when initially enrolling in traditional Medicare or Medicare Advantage at age 65. For example, traditional Medicare requires the separate election of medical (Part B) and prescription drug (Part D) benefits (Table S1),[2] whereas Medicare Advantage (Part C) offers all-in-one coverage of hospital, medical, prescription drug, and supplemental benefits (eg, vision, dental).[1] Although traditional Medicare has higher cost-sharing than Medicare Advantage,[3,4] beneficiaries can purchase supplemental or Medigap coverage with guaranteed issue protections in the first 6 months of their Part B enrollment.[3] One of the key benefits of traditional Medicare is that beneficiaries can see any health care provider who accepts Medicare.[1] Conversely, Medicare Advantage networks include less than half of all physicians in a county and vary across providers' specialties (eg, on average, include 42% of primary care physicians, 52% of radiation oncologists, etc),[5] which could limit beneficiaries' access to necessary care and contribute to significant out-of-pocket costs when seeking care out-of-network.[5]

Given the complexity of coverage options, prior research has focused on identifying the sociodemographic and health-related characteristics associated with Medicare plan selection. Evidence suggests that individuals who report good health,[6-8] have low incomes,[6,8-10] and identify as persons of color[6,8-10] disproportionately choose Medicare Advantage plans; however, a growing proportion of older adults who are non-Hispanic White,[6,8] highly educated,[6] and have high health needs (eg, multiple comorbidities)[8,11] now prefer Medicare Advantage over traditional Medicare. As the popularity of Medicare Advantage has increased,[6,12] the composition of the traditional Medicare and Medicare Advantage populations has become similar in terms of race/ethnicity, socioeconomic status, and common chronic conditions.[8,13] Although changing beneficiary preferences and market structure (eg, increasing Medigap premiums)[6] have influenced the shift towards Medicare Advantage and enrollment decisions more broadly, it is unclear whether older adults consider their experiences with prior serious illness or current medical conditions when choosing a Medicare plan.

Our objective was to assess the association between a history of serious illness—specifically, a history of cancer—and initial Medicare plan selection. We selected cancer due to the

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incidence rates among older adults aging into Medicare (24.1% of cases are diagnosed at 55 to 64 years of age, 29.7% of cases are diagnosed at 65 to 74 years of age),[14] and since it is one of the costliest conditions for both payers and patients.[15] Because individuals with a history of cancer have direct experience receiving high-cost health care services[15] and navigating barriers to obtaining needed care,[16] we hypothesized that individuals with a history of cancer would select plans with greater financial protections and broader health care provider networks than those without a history of cancer.

Data and methods

Data source and study sample

We used the Health and Retirement Study, a nationally representative longitudinal survey of over 43 000 older adults (aged ≥50 years),[17] to identify beneficiaries who aged into Medicare. Our analysis included individuals who completed a telephone or web-based survey between 2008 and 2020, were 65 or 66 years of age at the time of initial plan selection, and were not dually eligible for Medicaid or enrolled in Veterans Affairs or other military health plans (expected low out-of-pocket costs may influence their Medicare plan selection) (Figure 1). Respondents who participated in multiple surveys were required to have no evidence of Medicare coverage in the 2 years prior to age eligibility (surveys are administered biennially), whereas those who completed their first survey at 65 or 66 years of age were assumed to have aged into Medicare.

Measures

The primary outcome was initial selection of 1 of the following mutually exclusive coverage types: traditional Medicare without supplemental coverage, traditional Medicare plus supplemental coverage (eg, Medigap, employer-sponsored, or retiree benefits), or Medicare Advantage. The main independent variable was a self-reported history of cancer. Respondents who answered "Yes" to "Has a doctor ever told you that you have cancer or a malignant tumor, excluding minor skin cancer?" were categorized as having a history of cancer; otherwise, individuals were classified as not having a history of cancer.

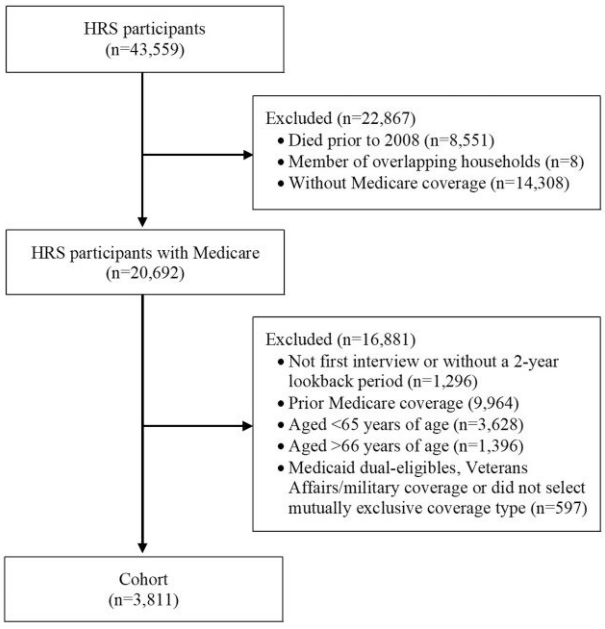

Figure 1. Study flow diagram. Source: Authors' analysis of Health and Retirement Study data, 2008–2020. Abbreviation: HRS, Health and Retirement Study.

Statistical analyses

We used adjusted multinomial logistic regression to assess the association between a history of cancer and initial Medicare plan selection. We first estimated the probability of a history of cancer using logistic regression and the following self-reported sociodemographic and health-related characteristics: sex, race/ethnicity, marital/partnered status, socioeconomic status (educational attainment, employment status, annual wealth, and assets), census region, perceptions of overall health, comorbidities (sum of diagnoses of hypertension, diabetes, stroke, arthritis, lung disease, heart condition, cognitive impairment, and psychological or emotional issues), functional limitations, disability status, smoking status, and prior hospitalizations (measured in the previous 2 years). The resulting propensity scores were then used to estimate stabilized inverse probability of treatment weights,[18] which were applied to the multinomial logistic regression models to account for differences in the distribution of covariates by history of cancer. We assessed the adjusted proportion of individuals with and without a history of cancer initially choosing each Medicare coverage type over the study period, and estimated the adjusted average marginal effect of a history of cancer on initial Medicare plan selection.

Sensitivity analyses

We conducted a number of sensitivity analyses to assess the robustness of our findings. First, because inverse probability of treatment weighting could result in extreme weights, we excluded individuals with weights below the 5th and above the 95th percentiles of the propensity score distribution.[19] Second, some older adults who were covered by employer-sponsored plans may have delayed Medicare enrollment until retirement; therefore, we broadened our cohort definition and analyzed individuals who were 65 to 75 years of age at the time of initial Medicare plan selection. Third, we estimated multivariable models to allow for the evaluation of individual covariates and initial plan choice rather than the association of a self-reported history of cancer alone. Last, we used separate logistic regression models to compare the initial selection of Medicare Advantage vs any traditional Medicare coverage and the selection of supplemental coverage among those initially choosing traditional Medicare.

Limitations

Our analysis had several limitations. First, although the Health and Retirement Study is nationally representative across multiple time periods, the data are limited to self-report and associated biases (eg, recall bias, social desirability bias). However, the study's data-collection methods minimize the extent of these biases[17] and many self-reported variables (including the history of cancer measure used in our analysis) have been validated with administrative claims data.[20] Second, we were unable to establish a causal relationship between self-reported history of cancer and initial Medicare plan selection. While we accounted for observed sociodemographic and health-related factors, residual confounding

resulting from unobserved characteristics may not have been fully addressed by inverse probability of treatment weighting.[18] Third, we lacked prior health insurance enrollment data for individuals completing their first survey and, thus, may have misclassified some respondents with and without a history of cancer as newly enrolled Medicare beneficiaries. Fourth, we lacked information regarding the timing of a cancer diagnosis and were not able to assess the association between the recency of diagnosis and initial plan selection. Last, our analysis focused on individuals who aged into Medicare and were not eligible for Medicaid or Veterans Affairs benefits, which limits the generalizability of our findings to those who qualified for Medicare due to a disability or end-stage renal disease or had access to Medicaid or Veterans Affairs coverage. Future research is needed to understand initial Medicare plan selection among younger beneficiaries and those who qualify for wrap-around coverage through Medicaid or Veterans Affairs.

Results

Cohort characteristics

Among the 3811 individuals who met our inclusion criteria, 13.12% reported a history of cancer (Table 1). Respondents with a history of cancer were more likely to be White (83.40% vs 77.29%), have multiple comorbidities (64.00% vs 55.72%), and report prior hospitalizations (30.20% vs 16.91%) compared with their counterparts without a history of cancer. Following propensity score weighting, baseline characteristics had an absolute standardized difference less than 10%[21] and were well balanced between respondents with and without a history of cancer (Table S2).

Trends in initial plan selection

The percentage of individuals who selected traditional Medicare without supplemental coverage remained stable over time (Figure 2 and Figure S1); however, initial choice of this coverage type overall was lower among respondents with a history of cancer (11.70%) relative to those without a history of cancer (19.94%). Overall, the initial selection of Medicare Advantage was similar between individuals with and without a history of cancer (28.98% and 28.77%, respectively). For respondents with and without a history of cancer, Medicare Advantage enrollment increased from nearly 23.00% in 2008–2012 to approximately 35.00% in 2016–2020. Despite a downward trend in initial enrollment, traditional Medicare plus supplemental coverage was the preferred form of coverage among respondents with and without a history of cancer in 2008–2012 (64.84% and 57.76%, respectively), 2016–2020 (53.38% and 44.17%), and overall (59.32% and 51.29%).

Association between history of cancer and initial plan selection

The probability of initially selecting Medicare Advantage was similar between individuals with and without a history of cancer (Figure 3). Compared with respondents without a history of cancer, those with a history of cancer were 8.24 percentage points (95% CI, −11.59% to −4.90%) less likely to choose traditional Medicare without supplemental coverage. Conversely, the probability of selecting traditional Medicare plus supplemental coverage was 8.03 percentage points (95% CI, 2.99–13.07) higher for individuals with a history of cancer vs those without a history of cancer.

Sensitivity analyses

In analyses using trimming (excluded individuals with weights below the 5th and above the 95th percentiles of the propensity score distribution), a broader cohort definition (respondents aged 65 to 75 years old), a multivariable model (vs propensity score-weighted), and separate logistic regression models (comparing selection of Medicare Advantage with any traditional Medicare and supplemental coverage among those initially choosing traditional Medicare), findings were similar to the primary analysis (Tables S3–S5).

Discussion

In this study of older adults aging into Medicare, respondents with a self-reported history of cancer had a higher probability of choosing robust benefits compared with those without a history of cancer. Given that the average medical costs of cancer care range from $43 500 in the year following diagnosis to $109 700 in the last year of life,[22] individuals with a history of cancer likely recognized and preferred the financial protections of traditional Medicare plus supplemental coverage. For example, supplemental or Medigap plans cover 50% to 100% of Medicare Parts A and B cost-sharing.[23] Policymakers should consider options to improve traditional Medicare coverage—enhancing guaranteed issue protections for Medigap plans, expanding eligibility for the Medicare Savings Program, and implementing out-of-pocket limits. Such actions could minimize exposure to high and unlimited out-of-pocket costs for 14% of traditional Medicare beneficiaries,[24] especially those who were previously denied or are unable to afford supplemental coverage.

Aside from the costs of care, coverage of necessary health care services is a major concern for beneficiaries with complex health care needs,[25,26] and may further explain why respondents with a history of cancer were more likely to select Medicare plus supplemental coverage. Prior research has demonstrated that approximately one-third of individuals with a history of or current diagnosis of cancer prioritize comprehensive benefits and health care provider networks when selecting health care coverage.[26] To prevent delays in care and future diagnoses, individuals with a history of cancer ensure that their health plan will cover needed treatments (eg, surgery, systemic therapy) and follow-up care (eg, screenings) with specialists and primary care physicians.[26]

Consistent with national trends,[12] we observed increased enrollment in Medicare Advantage over time among individuals with and without a history of cancer. Our findings may be partially explained by beneficiaries' preferences for supplemental benefits (eg, dental, vision, and hearing services) and out-of-pocket spending limits,[1,6] which are often the 2 primary reasons provided by older adults who decide to enroll in a Medicare Advantage plan.[1] In addition, the cost of coverage for both beneficiaries[6] and employers[27] has likely influenced the adoption of Medicare Advantage plans. Evidence suggests that Medigap premiums have become unaffordable and, thus, older adults may be more likely to choose Medicare Advantage over traditional Medicare plus supplemental coverage.[6,28] Similarly, to limit financial obligations on health care coverage, a growing share of employers have shifted retiree benefits (at times exclusively) to Medicare

Table 1. Self-reported baseline characteristics of beneficiaries aging into the Medicare program.

	Respondents with a history of cancer ($n = 500$)	Respondents without a history of cancer[a] ($n = 3311$)	*P*
Sociodemographic factors			
Age			
65 y	267 (53.40%)	1791 (54.09%)	.7722
66 y	233 (46.60%)	1520 (45.91%)	
Sex			
Male	183 (36.60%)	1326 (40.05%)	.1417
Female	317 (63.40%)	1985 (59.95%)	
Race			
White	417 (83.40%)	2559 (77.29%)	.0044
Black	62 (12.40%)	508 (15.34%)	
Other/unknown	21 (4.20%)	244 (7.37%)	
Ethnicity[a]			
Non-Hispanic	466 (93.20%)	2948 (89.04%)	.0045
Hispanic	34 (6.80%)	363 (10.96%)	
Married or partnered			
Yes	380 (76.00%)	2428 (73.33%)	.2066
No	120 (24.00%)	883 (26.67%)	
Education			
High school or less	280 (56.00%)	2034 (61.43%)	.0204
Above high school	220 (44.00%)	1277 (38.57%)	
Employed[a]			
Yes	172 (34.40%)	1201 (36.27%)	.4161
No	328 (65.60%)	2110 (63.73%)	
Wealth[b]			
<$90 000	118 (23.60%)	830 (25.07%)	.3932
$90 000–$298 000	124 (24.80%)	836 (25.25%)	
$298 001–$760 000	118 (23.60%)	834 (25.19%)	
>$760 000	140 (28.00%)	811 (24.49%)	
Geography[a]			
Northeast	63 (12.60%)	450 (13.59%)	.2783
Midwest	120 (24.00%)	833 (25.16%)	
South	198 (39.60%)	1365 (41.23%)	
West	119 (23.80%)	663 (20.02%)	
Coverage characteristics			
Plan type			
Traditional Medicare without supplemental coverage	60 (12.0%)	667 (20.1%)	<.0001
Traditional Medicare plus supplemental coverage	299 (59.8%)	1688 (51.0%)	
Medicare Advantage	141 (28.2%)	956 (28.9%)	
Enrollment year			
2008	75 (15.00%)	596 (18.00%)	.0250
2010	77 (15.40%)	441 (13.32%)	
2012	67 (13.40%)	417 (12.59%)	
2014	86 (17.20%)	487 (14.71%)	
2016	59 (11.80%)	565 (17.06%)	
2018	71 (14.20%)	423 (12.78%)	
2020	65 (13.00%)	382 (11.54%)	
Health-related factors			
Overall health[a]			
Excellent, very good, or good	387 (77.40%)	2799 (84.54%)	<.0001
Fair or poor	113 (22.60%)	512 (15.46%)	
Comorbidities[a]			
0	56 (11.20%)	520 (15.71%)	.0013
1	124 (24.80%)	946 (28.57%)	
≥2	320 (64.00%)	1845 (55.72%)	
Memory			
Excellent, very good, or good	382 (76.40%)	2483 (74.99%)	.7297
Fair or poor	102 (20.40%)	727 (21.96%)	
Unknown	16 (3.20%)	101 (3.05%)	
Disabled[c]			
Yes	149 (29.80%)	709 (21.41%)	<.0001
No	351 (70.20%)	2602 (78.59%)	
Functional limitations[d]			
0	188 (37.60%)	1370 (41.38%)	.1667
1	101 (20.20%)	684 (20.66%)	
≥2	211 (42.20%)	1257 (37.96%)	

(*continued*)

Table 1. Continued

	Respondents with a history of cancer ($n = 500$)	Respondents without a history of cancer[a] ($n = 3311$)	*P*
Prior hospitalizations[a,e]			
Yes	151 (30.20%)	560 (16.91%)	<.0001
No	349 (69.80%)	2751 (83.09%)	
Current smoker[a]			
Yes	47 (9.40%)	394 (11.90%)	.1034
No	453 (90.60%)	2917 (88.10%)	
Financial literacy			
Difficulty managing finances[a]			
Yes	23 (4.60%)	135 (4.08%)	0.5847
No	477 (95.40%)	3176 (95.92%)	

Source: Authors' analysis of Health and Retirement Study data, 2008–2020. The table displays self-reported characteristics prior to propensity score weighting. Following propensity score weighting, all covariates had an absolute standardized difference <0.10, thus suggesting negligible imbalance between respondents with and without a history of cancer (Table S2).
[a]Individuals with unknown or missing responses were combined with the largest categories: missing cancer status ($n = 3$) were coded as not having a history of cancer; missing ethnicity ($n = 2$) were coded as non-Hispanic; missing employment status ($n = 1$) were coded as not working; missing region ($n = 10$) were coded as residing in the South; missing health status ($n = 1$) were coded as excellent, very good, good; missing comorbidities ($n = 1$) were coded as 0; missing hospitalizations ($n = 4$) were coded as not having prior hospitalizations; missing smoking status ($n = 15$) were coded as not a current smoker; missing financial literacy ($n = 2$) were coded as not having issues with managing finances.
[b]Self-reported quartiles of wealth and assets were defined using the total wealth RAND HRS variable (sum value of residences, vehicles, investments, bank accounts/savings less mortgages, loans, and debts).
[c]Self-reported disability was defined as having an impairment or health problem that limits the kind or amount of paid work and/or housework an individual is able to do.
[d]Functional limitations are the sum of self-reported instrumental activities of daily living, mobility tasks, large-muscle-group tasks, and fine and gross motor skills tasks.
[e]Self-reported hospitalizations were measured in the prior 2 years.

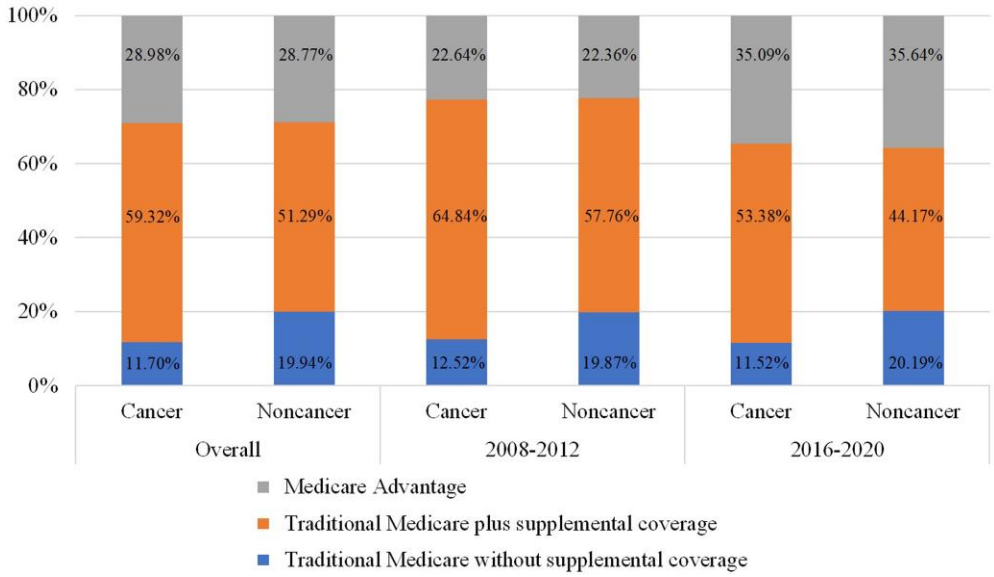

Figure 2. Initial Medicare plan selection by self-reported history of cancer. Source: Authors' analysis of Health and Retirement Study data, 2008–2020. The figure displays the propensity score–weighted proportions of respondents with and without a history of cancer who initially selected each Medicare coverage type.

Advantage.[27] As Medicare Advantage enrollment is predicted to include 62% of all beneficiaries by 2033,[12] future research is needed to understand access to, quality of, and satisfaction with care, particularly for individuals who require specialized care as they age.

Policy recommendations that support older adults with Medicare enrollment decisions

Initial Medicare enrollment is a complex decision with health and financial consequences for older adults who choose plans that do not meet their current and future health care needs. Policymakers and the Centers for Medicare and Medicaid Services (CMS) should focus their efforts on the development and implementation of strategies that support the decision making of eligible Medicare beneficiaries, including raising awareness of and enhancing existing educational resources, and addressing misinformation in plan promotion and marketing materials. Enhancing older adults' general knowledge of Medicare benefits and prompting their consideration of prior or current illness and potential health risks when selecting coverage should be central to these efforts.

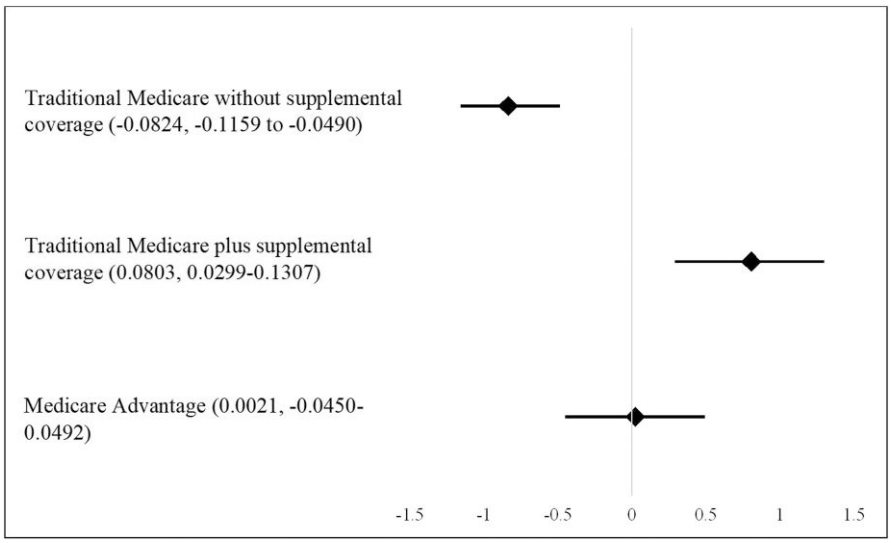

Figure 3. Average marginal effect of self-reported history of cancer on initial Medicare plan selection. Source: Authors' analysis of Health and Retirement Study data, 2008–2020. The figure displays the propensity score–weighted average marginal effects of initial Medicare plan selection (respondents without a history of cancer are the reference group).

Raising awareness of educational resources

Older adults' understanding of the Medicare program is low[29]: fewer than half of beneficiaries can accurately identify the services covered by and cost-sharing structure (eg, deductibles, out-of-pocket limits) of traditional Medicare and Medicare Advantage plans.[30] Limited knowledge of Medicare benefits may be due to a lack of awareness of existing educational resources. Federal and state policymakers should promote the use of and increase the funding for unbiased Medicare counselors and organizations, including State Health Insurance Assistance Programs and Departments of Insurance.[31] Such actions could aid the 40% of beneficiaries who currently do not consult resources when selecting their Medicare plan.[1]

Enhancing educational resources

Among the older adults who have access to and use web-based resources (eg, Medicare Plan Finder) to aid with plan selection, most report being overwhelmed by or dissatisfied with the provided information.[32] To improve users' experience and, ultimately, their understanding of Medicare benefits, CMS should streamline content and prioritize the topics most important to older adults—plan costs, access to health care providers, and adequate coverage.[33] Rather than comparing all available plan options, beneficiaries should be able to enter specific sociodemographic and health-related criteria and then only review the Medicare Advantage and Medigap plans that align with entered information (eg, providers are in-network, cost-sharing aligns with finances). Entering and receiving personalized information would ensure that older adults are considering medical conditions when initially enrolling in a plan, and choosing a plan that best meets their health and financial needs.

Addressing misinformation

Advertising has informed the plan selection of many older adults[1]; however, deceptive marketing has resulted in instability of coverage, delays in necessary care, and erosion of trust in Medicare.[31] Although CMS has taken steps to curb misleading information—prohibiting ads that misrepresent plan benefits and ensuring television ads comply with requirements prior to public release[31]—additional oversight of plan promotion is needed. Specifically, CMS should increase the review and regulation of all marketing materials, enforce monetary and enrollment penalties for marketing abuse, and incorporate all marketing complaints (those identified and resolved by CMS and the Star Rating System) into a plan's Star Rating.[31] Together, these actions would hold plans more accountable for their marketing practices and further protect older adults from the consequences of misleading or deceptive information.

Conclusion

Our findings suggest that individuals with a history of cancer choose Medicare coverage differently than their counterparts without a history of cancer. Individuals with a history of cancer likely accounted for their prior experiences with and anticipated the need for high-cost health services and, thus, preferred plans that reduced their financial risk and allowed for greater access to health care providers. Given that initial Medicare enrollment could impact access to necessary care and contribute to financial burden, it is imperative to improve educational resources to aid beneficiaries with understanding their coverage options and selecting a plan that best meets their current and future health care needs.

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Supplementary material

Supplementary material is available at *Health Affairs Scholar* online.

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Conflicts of interest

Please see ICMJE form(s) for author conflicts of interest. These have been provided as supplementary materials.

Notes

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