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Market Characteristics and Awareness of Managed Care Options Among Elderly Beneficiaries Enrolled in Traditional Medicare

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Background: Medicare beneficiaries' awareness of Medicare managed care plans is critical for realizing the potential benefits of coverage choices.
Objectives: To assess the relationships of the number of Medicare risk plans, managed care penetration, and stability of plans in an area with traditional Medicare beneficiaries' awareness of the program.
Research Design: Cross-sectional analysis of Medicare Current Beneficiary Survey data about beneficiaries' awareness and knowledge of Medicare managed care plan availability. Logistic regression models used to assess the relationships between awareness and market characteristics.
Subjects: Traditional Medicare beneficiaries (n = 3,597) who had never been enrolled in Medicare managed care, but had at least one plan available in their area in 2002, and excluding beneficiaries under 65, receiving Medicaid, or with end stage renal disease.
Measures: Traditional Medicare beneficiaries' knowledge of Medicare managed care plans in general and in their area.
Results: Having more Medicare risk plans available was significantly associated with greater awareness, and having an intermediate number of plans (2-4) was significantly associated with more accurate knowledge of Medicare risk plan availability than was having fewer or more plans.
Conclusions: Medicare may have more success engaging consumers in choice and capturing the benefits of plan competition by more actively selecting and managing the plan choice set.

Key words: Medicare managed care, market analysis, knowledge measurement, decision making.

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INTRODUCTION

Medicare beneficiaries could benefit from a broad selection of private health plans if having multiple options improves the likelihood of finding a plan better suited to their needs and preferences than traditional fee-for-service Medicare. Furthermore, both beneficiaries and the program might benefit from more plan choices and competition if it results in lower prices and/or improved quality. In an attempt to expand Medicare plan choices, Congress enacted reimbursement and other provisions expanding the number of available private health plan alternatives providing comprehensive medical benefits to Medicare beneficiaries in 1997 and again in 2003 (Biles, Dallek, & Nicholas, 2004). In 2002, 61 percent of beneficiaries had at least one private health plan available to them and by 2010 this figure had increased to over 90 percent (Gold, Phelps, Neuman, & Jacobson, 2009; Achman & Gold, 2002. Consequently, there has been substantial concern about the ability of beneficiaries to make "informed" choices between private plans and traditional Medicare as well as among plans (Biles, Nicholas, & Guterman, 2006; Hibbard, Slovic, Peters, Finucane, & Tusler, 2001). For beneficiaries to benefit from having multiple choices, however, they must be aware of the managed care program and know that one or more plans are available in their area.

Even though the Medicare managed care program has been in place for a long time, the Centers for Medicare & Medicaid Services' National Medicare Education Program has been operating since 1998, and the number of plan choices has expanded over time, little is known about beneficiary awareness of private plan options or the factors associated with awareness. Historically, beneficiary knowledge of Medicare managed care has been low, with less than half (46 percent) of all Medicare beneficiaries knowing that a Medicare managed care plan replaces traditional, fee-for-service (FFS)[1] Medicare (Uhrig, Bann, McCormack, & Rudolph, 2006). Moreover, roughly half of Medicare beneficiaries reported in 2000 that they had never considered joining a Medicare HMO or had only done so when they first became Medicare eligible, so the potential impact of increasing choice is not clear (Gold, Achman, & Brown, 2003).

Research has focused primarily on the relationship between individual characteristics and program knowledge or plan enrollment (Gold, Achman, & Brown, 2003; Hibbard et al., 2001; Cafferata, 1984; Shimada et al., 2009; Uhrig, Bann, McCormack, & Rudolph, 2006). Little research, however, has examined whether awareness of private health plan options are related to modifiable market characteristics such as the number of plan choices (Weinstein, 1988). Understanding the relationships between awareness and knowledge of plans and market structure is important given the continuing emphasis by policymakers on providing multiple choices for Medicare coverage and increasing enrollment in managed care. This is especially true for beneficiaries who have never enrolled in Medicare managed care. These beneficiaries typically know less about the Medicare program overall, are sicker, and incur more out-of-

pocket costs than beneficiaries who have enrolled in private plans (Uhrig et al., 2006; Mello, Stearns, Norton, & Rickets, 2003). Hence, these beneficiaries could potentially reap the greatest value from the enhanced benefits, lower cost-sharing, and care coordination offered by some private plans. Second, unlike beneficiaries who have experience with Medicare managed care, it is unclear whether these beneficiaries choose to remain in traditional Medicare because they are unaware of their options or are aware of managed care options and choose not to enroll, alternatives that suggest different policy prescriptions.

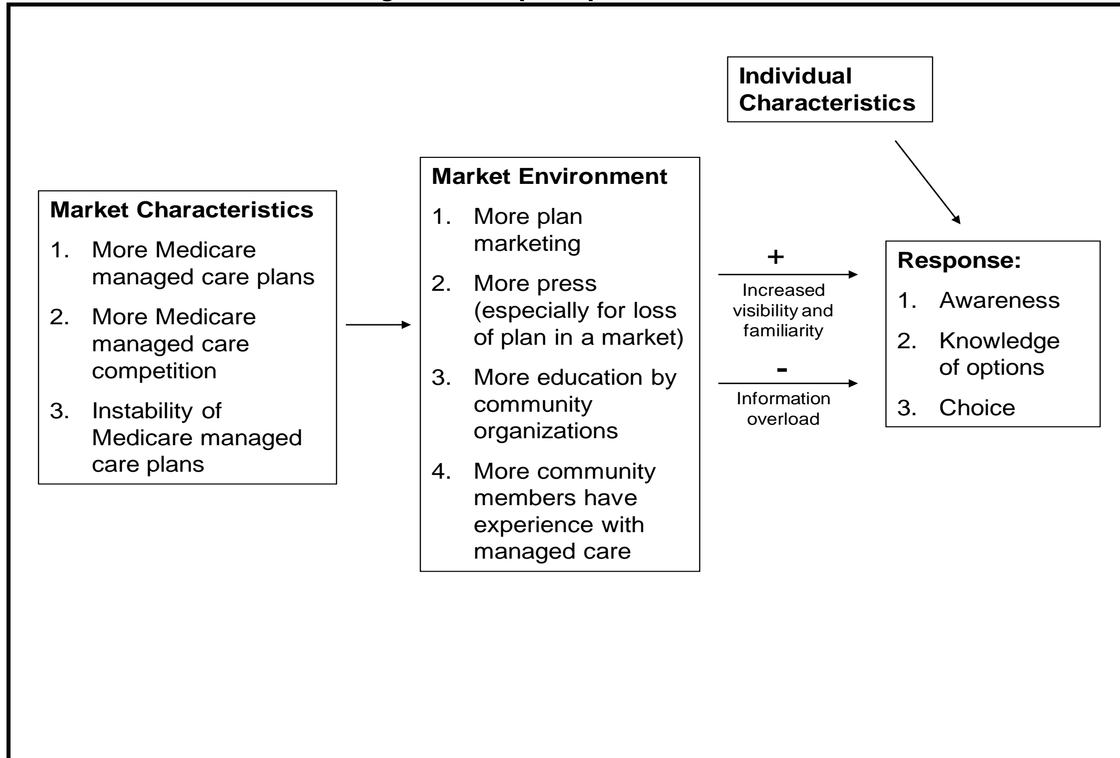
We used data from the 2001 and 2002 Medicare Current Beneficiary Surveys (MCBS) to examine whether managed care market structure and the availability and number of Medicare managed care plans are related to greater awareness of Medicare managed care and knowledge of health plan availability among traditional fee-for-service Medicare beneficiaries in managed care markets. Although our data precede the advent of Medicare prescription drug coverage (Part D) and expansion and diversification of managed care under the Medicare Modernization Act, they are still relevant for assessing whether the number of available plans is associated with beneficiary awareness and knowledge of having a managed care option in their area. There are still Medicare markets with plan choices and penetration similar to Medicare markets in 2002 (Kaiser Family Foundation [KFF], 2011).

METHODS

Conceptual Model

Our conceptual model (Figure 1) posits that providing more Medicare managed care plan options might improve awareness of managed care in general through increased competition and marketing, as well as increased education by community organizations such as senior centers. Since individuals prefer a choice of health plans, a wider array of choices may encourage beneficiaries to keep abreast of program offerings (Davis, Collins, Schoen, & Morris, 1995; Gawande et al., 1998; Ullman, Hill, Scheye & Spoeri, 1997; Schone & Cooper, 2001). Conversely, accurate knowledge of managed care options may be lower in markets where there are many health plan options and/or more instability of offerings, because individuals often have difficulty making decisions when facing many choices, and elderly Medicare Beneficiaries in particular have trouble understanding and comparing plans (Iyengar & Lepper, 2000; Hibbard, Slovic, & Jewett, 1997). The likelihood of being overwhelmed and avoiding choice may grow as the choice set becomes more diverse and complex or more unstable (Iyengar & Lepper, 2000; Hibbard et al., 2001; Hanoch & Rice, 2006). Most beneficiaries do not have experience choosing among many health plans since most employers offer no or limited choice (Hibbard et al., 2001). As a result, offering too many choices paradoxically might inhibit beneficiary decision-making; thereby, resulting in potentially suboptimal selections (Iyengar & Lepper, 2000; Biles et al., 2006).

Figure 1. Conceptual model of the relationship between Medicare market characteristics and beneficiary awareness and knowledge of health plan options.



Survey

We used data from the MCBS Access to Care files from 2001 and 2002. In its rotating panel design, each nationally-representative panel of roughly 4,000 beneficiaries remains in the sample for four years. Each respondent is interviewed in-person three times a year. The files exclude beneficiaries who became eligible or lost eligibility for Medicare during the year or died prior to the completion of the fall survey (Centers for Medicare and Medicaid Service [CMS], 2002).

In 2002, the 16,315 respondents to this survey were representative of 38,031,349 Medicare beneficiaries. From this group, we excluded 4,706 respondents representing 9,530,078 beneficiaries who were under the age of 65, had end stage renal disease (ESRD) or were enrolled in Medicaid, because these beneficiaries have different managed care choices. During the period of our survey, 45 percent of all aged FFS beneficiaries with no prior experience with managed Medicare health plans had at least one health maintenance organization (HMO), preferred provider organization (PPO), or provider sponsored organization (PSO) available. We excluded an additional 4,849 respondents with no Medicare health plan available in their area and 3,163 beneficiaries who were currently or ever previously enrolled in Medicare managed care, since by definition these beneficiaries should be familiar with managed care (representing 11,861,334 and 7,361,085 beneficiaries respectively). These exclusions left a final sample of 3,597 respondents

representing 9,277,952 fee-for-service beneficiaries with no Medicare managed care experience in areas with at least one health plan option.

Awareness of managed care

We used responses to two questions on the MCBS Access to Care survey to assess beneficiary awareness of Medicare managed care options. The first asked traditional beneficiaries whether they had ever heard of a Medicare managed care plan. Beneficiaries who responded affirmatively were asked whether they knew if Medicare managed care plans were available where they live. These questions were asked during the fall round of interviews (September–December of each year). Table 1 provides question wording and screening details. We treated responses of "don't know" as equivalent to not having heard of Medicare managed care plans and as having incorrect knowledge of whether a plan is available in the area.

Table 1. MCBS survey items about perception and consideration of choice

Items	Answer options	Population asked
Intro: In some areas Medicare beneficiaries like yourself can join managed care plans such as health maintenance organizations (HMOs). The managed care plan provides all your care for a fixed fee, rather than billing Medicare for each service. In many Medicare Managed Care Plans, the primary care doctor authorizes, arranges, and coordinates all services for you. Before today, had you ever heard of managed care plans that Medicare beneficiaries can join?	No Yes Don't Know Refused	All beneficiaries never enrolled in Medicare managed care
Are there managed care plans in your area that Medicare beneficiaries can join?	No Yes Don't Know Refused	Conditional on answering previous question Yes

Source: MCBS 2002 Access to Care Survey

Market-Level Predictor Variables

We defined the number of Medicare managed care plans as the number of HMOs, PPOs and PSOs available in each respondent's county, based on the September 2002 geographic service area file available from CMS (2002a). We excluded cost plans, health care prepayment plans, demonstration plans, and contracts with employers, because they have restricted enrollment, and we excluded the one private fee-for-service (PFFS) plan available during the time when the survey was conducted, because of its very low visibility and limited enrollment (0.37 percent of total Medicare managed care enrollment). The number of plans refers to the number of contracts CMS has with organizations to provide Medicare coverage, rather than the number of individual products available. Under a contract, plan sponsors (e.g., organizations) may offer multiple products with different benefits and/or premiums. None of the data available to us

provided the information necessary to calculate the number of products available in a market or the differences in coverage among them.

We also analyze Medicare managed care penetration, degree of competition, and instability in the total number of plans available (plan entries and exits from the market in each county each year) (Gold et al., 2003; Sing & Stevens, 2005; Stevens & Mittler, 2000; Gold, Sinclair, Cahill, Justh, & Mittler, 2000; Scanlon, Chernew, & Lave, 1997; Scanlon, Chernew, Swaminathan, & Lee, 2006). A county's Medicare managed care penetration is the total number of Medicare risk plan enrollees (HMO, PPO, POS plans) divided by the total number of Medicare beneficiaries in the county for September 2002. To measure market competition, we computed the Herfindahl-Hirshman Index (HHI), defined as the sum of the squared Medicare managed care market shares of each Medicare risk plan in each county. An HHI approaching zero indicates competition among a large number of plans with none having a large share of the market, and one signifies a perfect monopoly. We calculated these values from the CMS geographic service area file for September 2002.

Medicare plan stability was measured by the difference between the number of Medicare risk plans available to a beneficiary in September 2002 and in September 2001, calculated from the CMS geographic service area file for September 2002 and November 2001 (since there is no file for September 2001). The result was coded as a loss, gain, or no change.

Statistical Analysis

We estimated multivariate logistic regression models to examine the relationship between the number of Medicare risk plans available to a beneficiary, his/her awareness of the program, and his/her knowledge of having a managed care option in his/her area, adjusting variance estimates for geographic clustering by primary sampling units using survey procedures in SAS 9.1 (SAS Institute Inc, Cary, North Carolina).[2] As a sensitivity analysis, we repeated the analyses redefining the number of plans by all group health plans, because the availability of non-risk plans potentially could affect beneficiary awareness.

In multivariate models, we controlled for individual sociodemographic characteristics available on the MCBS Access to Care Files including age, sex, education, self-reported race, income, health status, supplemental insurance coverage, and use of a proxy to help complete the survey (McCormack & Uhrig, 2003; Gold et al., 2003; Sing & Stevens, 2005; Gold et al., 2000; Scanlon et al., 1997; Scanlon et al., 2006; Greenwald, McCormack, Uhrig, & West, 2006; Uhrig, Bann, McCormack, & Rudolph, 2006; McCormack et al., 2002; McCormack et al., 2001; Hibbard, Jewett, Englemann, & Tusler,1998; McCall, Rice, & Sangl, 1986; Cafferata, 1984; Atherly, Dowd, & Feldman, 2004; Shimada et al., 2009). We weighted responses to represent FFS beneficiaries residing in areas with at least one Medicare risk plan nationally, using the 2002 cross-sectional survey weights provided by MCBS.

RESULTS

Close to half of all beneficiaries in markets with five or more risk plan options are enrolled in Medicare managed care, compared to one-tenth of beneficiaries in markets with only one risk plan available (Table 2). Almost 70 percent of beneficiaries living in markets with one risk plan experienced a net loss of at least one plan over the prior year, compared to roughly 35 percent of beneficiaries living in markets with more plans (Table 3). Beneficiaries with five or more plan choices were more likely than those with fewer plans available to be older, female, African-American, have at least some college education, have lower incomes, be single, and have no additional private coverage (Table 4).

Table 2. Percent of Medicare Beneficiaries in Medicare traditional and managed care by number of Medicare managed care plans available in the market, 2002

Plan enrollment (percent of beneficiaries)	1 risk plan	2 to 4 risk plans	5 or more risk plans	Total Medicare population living in areas with risk plans[1]
Currently enrolled in FFS	89	72	55	74
Never in Medicare managed care	72	55	36	56
Currently enrolled in managed care	11	28	45	26
Risk plans	10	27	45	25
Total population	4,473,577	9,490,437	2,675,023	16,639,037

[1]Excludes beneficiaries under 65 years old, receiving Medicaid or having ESRD.
Source: MCBS 2002 Access to Care Survey

Beneficiaries with access to only one plan were less likely to know accurately that a plan was available to them than beneficiaries with two to four risk plan options (OR = 0.43, $p < 0.001$). Living in a market with 25 percent or more Medicare managed care penetration (OR = 1.99, $p = 0.007$) also was associated with a higher probability of accurately reporting a plan was available than in markets with 10 to 24 percent Medicare managed care penetration. Finally, beneficiaries who had at least one more plan option than in the previous year were more likely to know a plan was available (OR = 1.96, $p = 0.040$) than those in markets experiencing no change in the number of available plans. Adjusting for individual characteristics in these models did not noticeably change these relationships with the exception of the stability-of-plans measure, which was no longer significantly related to knowledge of plan availability.

Table 3. Characteristics of traditional Medicare beneficiaries in counties with at least one Medicare managed care risk plan, 2002[1]

Individual Characteristics (% of beneficiaries)	1 risk plan	2 to 4 risk plans	5 or more risk plans	Medicare FFS pop. in areas with risk plans[1]
Age[2]				
65-74	45.5	44.1	36.5	43.8
75-84	41.0	41.3	43.6	41.4
≥85	13.6	14.6	20.0	17.8
Sex[2]				
Male	43.2	43.8	41.9	43.4
Female	56.8	56.2	58.1	56.6
Race[2]				
White	91.1	88.3	84.8	88.9
Black	5.7	8.7	11.1	7.9
Other	3.1	2.7	3.8	3.0
Missing	0.2	0.3	0.2	0.2
Education[2]				
High School Grad or less	52.9	52.6	45.8	52.0
At least Some College	46.1	46.2	53.0	46.8
Missing	1.0	1.2	1.2	1.2
Income[2]				
≤ $25,000	44.9	46.0	48.2	45.8
> $25,000	53.9	52.8	51.0	53.0
Missing	1.2	1.2	0.9	0.9
Marital Status[2]				
Married	58.3	57.7	51.2	57.2
Single	41.7	42.2	48.1	42.6
Missing	0.0	0.1	0.7	0.2
General Health Status[2]				
Excellent or Very Good	47.5	47.6	41.5	46.9
Good	30.3	29.9	32.9	30.4
Fair or Poor	17.0	18.7	21.0	18.4
Missing	5.2	3.8	4.5	4.4
Other coverage[2]				
No private coverage	14.1	16.2	24.4	16.4
Employer sponsored coverage (ESI)	42.4	47.5	39.3	44.9
Self-purchased private coverage	33.0	26.6	29.0	29.0
ESI and self-purchased	7.7	7.3	5.6	7.3
Unknown	2.8	2.4	1.8	2.4
Use of Proxy[2]				
Beneficiary Respondent	85.0	85.3	89.6	85.6
Proxy Respondent	5.0	5.2	3.8	5.0
Missing	10.0	9.5	6.6	9.4
Total beneficiaries	3,184,929	5,129,128	963,895	9,277,952

[1]This population is defined as Medicare FFS beneficiaries who were over 65, had never been enrolled in a managed care plan, were not receiving Medicaid, and did not have ESRD. Estimates are weighted to represent this population nationally and variance estimates are adjusted for geographic clustering.

[2]$p<0.001$

Source: MCBS 2002 Access to Care Survey

Table 4. Characteristics of counties with at least one Medicare managed care risk plan, 2002[1]

County Characteristics (% of beneficiaries)	1 risk plan	2 to 4 risk plans	5 or more risk plans	Medicare FFS pop. in areas with risk plans[1]
Medicare managed care penetration[2]				
1-9%	67.7	26.1	0.0	37.7
10- 24%	28.9	52.3	43.9	43.4
25% or more	3.4	21.6	56.1	19.0
Medicare managed care Herfindahl-Hirshman Index (HHI) [2]				
.15-.51	0.0	41.2	86.6	31.8
.52-.95	0.0	54.4	13.4	31.3
.96-1.00	100.0	4.7	0.0	36.9
Medicare managed care plan stability (2002-2001) [2]				
Gain of at least one risk plan	0.1	13.0	22.0	9.5
No change	31.6	51.6	39.5	43.5
Loss of at least one risk plan	68.3	35.4	38.5	47.0

[1]This population is defined as Medicare FFS beneficiaries who were over 65, had never been enrolled in a managed care plan, were not receiving Medicaid, and did not have ESRD. Estimates are weighted to represent this population nationally and variance estimates are adjusted for geographic clustering.
[2]$p < 0.001$
Source: MCBS 2002 Access to Care Survey

In markets with at least one risk plan available, 72 percent of FFS beneficiaries reported having heard of Medicare managed care plans, and 72 percent of these respondents correctly reported that a Medicare managed care plan was available in their area. In contrast, in markets with no Medicare risk plans, 54 percent of FFS beneficiaries reported they had heard of Medicare managed care plans, and 49 percent of these respondents correctly reported that there was no Medicare managed care plan available in their area.

In bivariate models, greater numbers of Medicare risk plans and higher Medicare managed care penetration both were associated with a greater likelihood that FFS beneficiaries reported being aware of these plans, and a higher number of risk plans and the addition of a plan over the previous year were associated with greater knowledge of plan availability (Table 5). Compared to FFS beneficiaries in markets with two to four plans available, those in markets with one Medicare risk plan had 0.69 ($p <0.001$) times the odds of ever having heard of Medicare managed care plans. Those in markets with five or more Medicare risk plans had 2.29 ($p <0.001$) times the odds of having heard of Medicare managed care plans (Table 5). Living in a market with very low Medicare managed care penetration (1 to 9 percent) was associated with lower odds of having heard of a Medicare managed care plan (OR = 0.62, $p =0.015$) compared to beneficiaries in markets with intermediate levels of penetration.

Table 5. Predictors of awareness and knowledge of plan (odds ratios) among traditional Medicare beneficiaries (logistic)[1]

	Ever heard of a Medicare managed care plan			Knowledge of plan availability[2]		
Market characteristics	(A) Bivariate Associations	(B)[3] Associations Adjusted for beneficiary characteristics	(C)[4] Associations adjusted for beneficiary and market characteristics	(D) Bivariate Associations	(E)[3] Associations Adjusted for beneficiary characteristics	(F)[4] Associations adjusted for beneficiary and market characteristics
# of risk plans available 2002						
One risk plan	0.69 (p=0.003)	0.72 (p=0.009)	0.40 (p<0.001)	0.41 (p<0.001)	0.40 (p<0.001)	0.43 (p<0.001)
Two to four risk plans	--	--	--	--	--	--
Five or more risk plans	2.29 (p<0.001)	2.69 (p<0.001)	2.37 (p<0.001)	0.73 (p<0.439)	0.72 (p=0.411)	0.59 (p=0.138)
MMC penetration 2002						
1 to 9%	0.62 (p=0.004)	0.64 (p=0.017)	0.76 (p=0.142)	0.85 (p=0.496)	0.86 (p=0.517)	1.09 (p=0.677)
10 to 24%	--	--	--	--	--	--
25% or more	1.39 (p=0.149)	1.43 (p=0.134)	1.22 (p=0.389)	1.99 (p=0.007)	2.00 (p=0.007)	1.95 (p=0.038)
Stability of plans vs. 2001						
Gain at least one risk plan	--	--	--	1.96 (p=0.040)	1.81 (p=0.073)	--
No change	--	--	--	--	--	--
Loss of at least one risk plan	--	--	--	1.21 (p=0.380)	1.21 (p=0.412)	--

[1]Weighted to represent the national over 65 Medicare FFS population who have never been enrolled in a managed care plan, were not receiving Medicaid, and did not have ESRD. Variance estimates are adjusted for geographic clustering.
[2] Being asked this question is conditional on having ever heard of a Medicare managed care plan.
[3]Adjusted for individual age, sex, race, education, income, health status, other coverage, and use of proxy.
[4]The multivariate model included the market characteristics listed and adjusted for individual age, sex, race, education, income, health status, other coverage, and use of proxy.
Source: MCBS 2002 Access to Care Survey

Because the number of available risk plans was highly correlated with Medicare managed care penetration ($R = 0.58$, p <0.001) and HHI ($R = -0.79$, p <0.001), and the HHI was highly correlated with Medicare managed care penetration ($R = -0.56$, p <0.001), we estimated models with different combinations of these market structure variables to assess the consistency of the relationships. The final models we present for both outcomes exclude the HHI and stability-of-plans measures, because these variables had no significant explanatory power beyond number of plans and Medicare managed care penetration.

In the final multivariate models, living in an area with more risk plans remained significantly associated with beneficiaries' awareness of a Medicare managed care option, whereas Medicare managed care penetration did not. Compared to those living in markets with two to four Medicare risk plans, FFS beneficiaries located in areas with one Medicare risk plan were less likely (OR = 0.40, p <0.001)—and those in areas with five or more plans were more likely (OR = 2.37, p<0.001)—to have heard of a Medicare managed care plan. Knowing that a Medicare risk plan was available to them also was associated with having more than one plan and high Medicare managed care penetration. FFS beneficiaries in markets with only one risk plan were less likely to know a Medicare risk plan was available than their counterparts in markets with 2 to 4 plans (OR = 0.43, p <0.001). Additionally, FFS beneficiaries in markets with 25 percent or more Medicare managed care penetration were more likely to know a Medicare risk plan was available in their area than those in markets with less penetration (OR = 1.95, p = 0.038) (Table 5).

DISCUSSION

A premise of recent policy initiatives in the Medicare managed care program, Medicare Advantage, is that beneficiaries will actively consider the advantages of enrollment in Medicare private plans and awareness will be stimulated by the availability of additional options. Our findings only partially support this premise. Medicare beneficiaries with no Medicare managed care experience have not all made an active choice to remain in traditional Medicare, since many report being unaware of Medicare managed care in general or its local availability. Furthermore, beneficiaries in markets with 5 or more Medicare plans were less knowledgeable about plan availability than those with 2 to 4 plans available, suggesting that a surfeit of plan choice might actually undermine beneficiaries' ability and motivation to stay current with, or to evaluate carefully their plan options.

Having more Medicare managed care risk plans available was significantly associated with greater awareness of the Medicare managed care program among traditional Medicare beneficiaries with no Medicare managed care experience, whereas, in adjusted models, managed care penetration, degree of market competition, and plan stability were not. A possible explanation for these findings is that having more plans available in a market is related to greater plan visibility among beneficiaries and members of their support systems due to marketing or if

having more plans provides broader provider participation in Medicare managed care. Beneficiaries rely on plan materials, friends and family, and their physician as important sources of information and advice (Gold et al., 2000; Hibbard et al.,1998), and their physician's participation in a plan network is a critical part of considering managed care options (Gold et al., 2000; Scanlon et al., 2006).

A greater number of Medicare risk plans in an area was also positively related to knowledge of local Medicare plan availability up to a point. Beneficiaries in markets with two to four plans reported greater knowledge of local plan availability than beneficiaries in markets with one plan possibly due to the greater visibility and marketing in those markets. However, we also found that beneficiaries in markets with five or more plans are no more likely than those in markets with two to four plans to have correct knowledge of local plan availability, suggesting that markets with two to four plans are different in ways not captured by our market variables. For example, in contrast to the other markets, those with two to four plans in 2002 may have managed care plans with more positive reputations, or have more aggressive or effective marketing of options in current or prior years that facilitate and support up-to-date knowledge of local plan availability.

Another possibility is that in areas with five or more plans, beneficiaries are overwhelmed by the information they receive about Medicare managed care plans in their area. Thus, they may ignore many of these materials, resulting in general awareness of the managed care program but limited knowledge of local availability. This speculation is consistent with Elbel's (2008) finding that Medicare beneficiaries are more likely to enroll or switch plans in markets with 3-4 plans compared to markets with fewer or more plans; he posits that this phenomenon is related to larger numbers of plans overwhelming beneficiaries' cognitive processing abilities. Information overload may result in a beneficiary abandoning an active role in choosing coverage entirely. Knowledge of local plan availability was also associated with high Medicare managed care penetration (25 percent or more). High Medicare managed care penetration may lead to more familiarity with managed care among beneficiaries and their support networks, which may increase a beneficiary's knowledge about their basic coverage options and local knowledge of plan availability. Finally, the local infrastructure to assist and support beneficiaries with Medicare choices might be more developed and organized in high penetration markets, or beneficiaries in these markets might be more familiar with these resources, which could facilitate correct knowledge.

Our study has several limitations. First, as already noted, there could be market-specific factors affecting FFS beneficiaries' awareness and knowledge of Medicare risk plans that are related to penetration and number of plans, but were not accounted for in this analysis, such as the local history of commercial and Medicare managed care (e.g., duration in the market, long-term stability of plans, and provider participation) or the number of individual products each plan offers. Furthermore, other factors might affect interest in and awareness of managed care, which might have influences where plans are located. Consequently, we cannot infer a causal

relationship between market structure and beneficiary awareness. Second, the number of health plans in a market, managed care penetration, and market-level competitiveness are highly correlated, so it is difficult to ascribe our findings to any one of these measures. Third, our data do not show to what extent beneficiaries never enrolled in managed care ever considered this option and actively rejected it, or simply remained in traditional Medicare.

Finally, our data are from 2002 and our results might differ if conducted with more recent data because of changes in the Medicare program. For example, there have been changes in the types of plans in the Medicare managed care program (e.g., local and regional preferred provider organizations) and prescription drug coverage (Part D) is now available. Nevertheless, there are still markets that have plan choices or managed care penetration similar to the situation in 2002 (KFF, 2011). Also, we think that the general finding of a relationship between the market choices, market penetration, and beneficiary awareness and knowledge are important, even if the number and complexity of choices changes. For example, the observations that a large number of plan options could result in less optimal decision making has important implications for how we think about current Part D options and the best ways to structure Health Insurance Exchanges. This study adds to the growing body of research (Abaluck & Gruber, 2009; Elbel 2008; Fox, Snyder, & Rice, 2003; McCormack, Fox, Rice, & Graham, 1996) suggesting that increasing the number of plan offerings might not be the best approach to increasing awareness and effective beneficiary choice of coverage. Instead, new approaches might be required to promote informed choice that meets beneficiaries' needs and preferences and helps accomplish program objectives. Although one should be cautious generalizing to other situations or times, these provocative findings suggest that beneficiaries will not become active "shoppers" simply because more plan choices become available. To develop policies that help beneficiaries select health plans that best meet their needs, research should continue to assess, first, the number and structure of plan offerings that can be comprehended best by beneficiaries, and second, methods of presenting information about these choices that facilitate informed decision-making (Elbel 2008; McCormack et al., 2002).

Endnotes

[1] In this paper we use the terms traditional Medicare and FFS Medicare interchangeably.

[2] Specifically, we used the proc surveylogistic command, specifying the weight as the cross-sectional individual weight provided in the MCBS dataset, and setting the cluster equal to the primary sampling unit. The surveylogistic procedure uses Taylor linearization to estimate sampling errors (Bell-Ellison & Kromrey, 2007).

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