



Original Research

Impact of cost sharing on prescription drugs used by Medicare beneficiaries

Amber M. Goedken, Pharm.D., Julie M. Urmie, Ph.D.^{*},
Karen B. Farris, Ph.D., William R. Doucette, Ph.D.

*Department of Pharmacy Practice and Science, College of Pharmacy, S519 Pharmacy Building, University of Iowa,
Iowa City, IA 52242, USA*

Abstract

Background: Incentive-based prescription drug cost sharing can encourage seniors to use generic medications. Little information exists about prescription drug cost sharing and generic use in employer-sponsored plans after the implementation of Medicare Part D.

Objectives: To compare prescription drug cost sharing across prescription insurance type for Medicare beneficiaries after Medicare Part D, to assess the impact of that cost sharing on the number of medications used, and to examine how generic utilization rates differ before and after Medicare Part D and across the type of insurance.

Methods: This longitudinal study of Medicare beneficiaries aged 65 years and older used Web-based surveys administered in 2005 and 2007 by Harris Interactive[®] to collect information on prescription drug coverage and medication use. Co-payment plans were categorized as low, medium, or high co-payment plans. Multiple regression was used to assess the impact of co-payment rank on the number of prescription drugs. *t*-Tests and analysis of variance were used to compare generic use over time and between coverage types.

Results: One thousand two hundred twenty and 1024 respondents completed the baseline and follow-up surveys, respectively. Among 3-tier co-payment plans, brand drug co-payments were higher for Part D plans (\$26 for preferred brand and \$55 for nonpreferred brand) than employer-based plans (\$20 for preferred brand and \$39 for nonpreferred brand). Co-payment was not a significant predictor for the number of prescription drugs. Generic use was lowest among beneficiaries in employer plans both before and after Part D. In 2007, generic use among beneficiaries with Part D was not significantly different from the generic use for beneficiaries with no drug coverage.

Conclusions: Medicare beneficiaries in Part D had higher cost sharing amounts than those with employer coverage, but higher cost sharing was not significantly linked to lower prescription use. Generic use for

Funding source: This project was supported in part by an Agency for Healthcare Research and Quality Centers for Education and Research on Therapeutics cooperative agreement #5 U18 HSO16094. Funding for the baseline survey was provided by the University of Iowa Center for Improving Medication Use in the Community.

Previous presentation of results: Results from this study were presented at the American Pharmacists Association Annual Meeting, San Diego, CA, March 2008, and American Pharmacists Association Annual Meeting, San Antonio, TX, April 2009.

^{*} Corresponding author. Tel.: +319 335 8616; fax: +319 353 5646.

E-mail address: julie-urmie@uiowa.edu (J.M. Urmie).

Part D beneficiaries was higher than that for beneficiaries with employer coverage but the same as that for beneficiaries without drug coverage.

© 2010 Elsevier Inc. All rights reserved.

Keywords: Medicare Part D; Prescription cost sharing; Generic drugs; Prescription drug use

Introduction

Payers, including the Medicare Part D prescription drug plans (PDPs), use cost sharing to influence prescription drug use by the elderly.¹ One purpose of higher cost sharing is to reduce the use of unnecessary medications, but the evidence on the ability of cost sharing to limit drug use in the elderly is not conclusive; some studies show that increased cost sharing lowers prescription drug use in the elderly, and others report nonsignificant effects in this population.^{2–20} Although raising cost sharing may not reduce the number of prescription drugs used, the use of incentive-based cost sharing can guide seniors toward lower-cost choices. Requiring seniors to pay less out of pocket for generic medications encourages them to choose these products over brand drugs.²¹ The size of this difference matters, because increasing the differential between brands and generics encourages higher generic utilization rates.¹⁹

Generic use among Part D enrollees rose from 50% before the benefit began to 63% in 2007.²² One of the contributors to this rise may have been PDPs' increasingly aggressive use of financial incentives.²³ Although much attention has been given to seniors in Medicare Part D, nearly 31% of the elderly remained in employer-sponsored plans in 2006, and less is known about their cost sharing and generic use after the start of Medicare Part D.²⁴ Furthermore, little information exists regarding generic use among Medicare beneficiaries who lack prescription drug coverage. This article seeks to fill these gaps and provide information about the association between cost sharing and prescription drug use in the elderly.

The first objective of the study was to compare prescription cost sharing between Medicare beneficiaries with Part D and employer-based coverage after the Medicare drug benefit. The second objective was to explore how costsharing amounts affect the number of prescription drugs used by elderly Medicare beneficiaries after Part D. The third objective was to assess how generic utilization rates differed before and after Medicare Part

D and across different prescription insurance types, including no coverage.

Methods

Study design, sample, and data collection

The study used a longitudinal retrospective design with a pre-Medicare Part D baseline survey and a post-Medicare Part D follow-up survey and was approved by the University of Iowa Institutional Review Board. Harris Interactive® maintains a panel of individuals from across the United States, who have agreed to be invited to participate in Web-based surveys. For this study, 2 convenience samples of English-speaking individuals aged 65 years and older, U.S. residents, and Medicare beneficiaries were recruited from their panel, 1 for the baseline survey and 1 for the follow-up survey. Informed consent was obtained for all individuals participating in the surveys. Those who completed the baseline survey were given the first opportunity to complete the follow-up survey. The baseline survey was conducted in October 2005, and the follow-up survey was conducted in November 2007. Both were Web-based surveys administered by Harris Interactive® on behalf of the University of Iowa.

Measurement

The baseline survey was developed by the authors using items from past surveys and was pilot tested using a convenience sample of 30 older adults at a senior citizens' center. The follow-up survey was an updated version of the baseline survey. Updates included improvements based on issues revealed during analysis of the baseline survey, question changes to reflect the availability of the Medicare drug benefit, and the addition of new questions. For example, analysis of the 2005 survey revealed additional questions needed to be asked to capture the cost sharing of those whose coverage uses both co-payments and coinsurance. Both surveys collected detailed information on

prescription drug coverage, including the source of drug coverage and the type, structure, and amount of cost sharing under that coverage. Health status and demographic information were also measured. Prescription drug use was defined as the total number of prescription drugs used by the individual in the month before survey administration as reported by the participant. Participants provided a list of prescription medications they were taking, and each drug was categorized as generic or brand according to how it was reported by the patient. The number of generic prescription medications was divided by the total number of prescription medications taken to generate a rate for each individual. Insulins and over-the-counter medications were excluded from the rate. The Appendix provides more detailed information on specific survey items.

Data analysis

All analyses were conducted by the authors. Insured individuals who reported a single co-payment for generics and brands were classified as having single-tier co-payment plans. Insured individuals who reported different generic and brand co-payment amounts were classified as having 2-tier co-payment plans. The brand differential for each individual was calculated by subtracting the generic co-payment for a 30-day supply of medication from the brand co-payment. Insured individuals who provided different generic, preferred brand, and nonpreferred brand co-payment amounts were classified as having 3-tier co-payment plans. The preferred and nonpreferred brand co-payment differentials were calculated by subtracting the generic co-payment for a 30-day supply of medication from the preferred and nonpreferred brand co-payments, respectively, for each individual. To include respondents with various types of co-payment structures in the same analyses, a single measure of cost sharing, co-payment rank, was created. A respondent's monthly out-of-pocket prescription drug expenses under 4 hypothetical market baskets were calculated using the generic and preferred brand co-payment amounts the respondent reported for his or her plan. The market baskets represented a range of medication scenarios a senior might face: (1) 3 generic and 2 preferred brand drugs, (2) 2 generic and 2 preferred brand drugs, (3) 1 generic and 1 preferred brand drug, and (4) 5 generic and 4 preferred brand drugs. For each market basket, respondents were divided

into tertiles, where the third with the lowest out-of-pocket expenses received a low co-payment ranking, the next third received a medium co-payment ranking, and the third with the highest expenses received a high co-payment ranking. A respondent's final co-payment rank of low, medium, or high used in analyses was assigned based on agreement of co-payment rankings across the 4 market baskets. The rankings were in agreement across all 4 market baskets for 94.1% of respondents. For the remaining 29 respondents, 2 of the market baskets received the same co-payment ranking, whereas the other 2 received a different co-payment ranking. A final co-payment rank for the 29 respondents was selected based on the similarity of their co-payments to those already assigned a rank and whether they had a deductible. The mean generic and preferred brand co-payments in 2007 for those receiving a low co-payment rank were \$3 and \$6, respectively. These respective co-payments were \$6 and \$17 for those receiving a medium rank and \$11 and \$33 for those receiving a high rank.

The categorization of individuals with coinsurance into single-, 2-, and 3-tiered plans was similar to that of individuals with co-payments. However, rankings for those with coinsurance were based on the average of the generic and preferred brand coinsurance rates for each individual. A low ranking was assigned if the average coinsurance was less than or equal to 22.5%; a high ranking was assigned if the average coinsurance was greater than 22.5%.

Means were calculated for the co-payment amounts, co-payment differentials, number of prescription drugs used, and generic utilization rates. An independent-sample *t*-test was used to compare differentials between employer and Part D groups in 2007. A *t*-test and a 1-way analysis of variance (ANOVA) were used to compare the mean number of prescription drugs between the cost sharing rankings after the Medicare drug benefit. A multivariate ordinary least-square regression model was used to assess the impact of co-payment ranking on the number of prescription drugs used after the drug benefit, controlling for sex, age, education, income, health status, and source of coverage. A multivariate regression was not used to assess the impact of average coinsurance on the number of drugs, because the subgroup was too small to analyze. A *t*-test was used to compare generic utilization rates between employer and uninsured groups in 2005. One-way ANOVA and post hoc analyses were used to compare generic utilization rates

between employer, Part D, and uninsured groups in 2007. Observations with missing data were dropped from the analyses.

Results

The number of respondents who completed the baseline and follow-up surveys was 1220 and 1024, respectively. The 1024 individuals who completed the follow-up survey included 436 individuals from the baseline survey sample. Health status, demographic information, and source of coverage for all respondents are found in Table 1. The samples for both surveys consisted of mostly non-Hispanic whites and they tended to be from higher-income and higher-education levels. The percentages of respondents lacking drug coverage were 33.6% in 2005 and 8.6% in 2007.

Cost sharing

A description of prescription drug cost sharing from the baseline survey was reported previously.²⁶ Of the 926 beneficiaries who reported having drug coverage in the follow-up survey, 921 indicated whether or not they were responsible for any of their prescription drug costs. Table 2 details the type and structure of cost sharing reported by these 921 beneficiaries. The percentage of respondents with drug coverage who did not have to pay out of pocket for prescription medications in 2007 was 5.9%. Almost 75% of the respondents with drug coverage were in co-payment plans, and 59.5% of those were classified into either 2- or 3-tiered plans. Of those with employer coverage only in 2007, 77.5% were in co-payment plans: 37.8% in 2-tier plans and 25.9% in 3-tier plans. Of those with Part D coverage only, 69.9% were in co-payment plans: 33.3% in 2-tier plans and 29.8% in 3-tier plans. Only 14.1% of those with employer coverage and 17.4% of those with Part D coverage reported having coinsurance.

The average 2-tier and 3-tier co-payment amounts among respondents with employer and Part D plans in 2007 are reported in Fig. 1. The generic co-payment amounts reported by respondents in Part D plans are lower than those in employer plans, whereas the brand co-payment amounts are the same or higher. The average brand differential reported by respondents in 2-tier employer plans was \$15, whereas the equivalent differential was \$17 in 2-tier Part D plans

($P = .15$). The preferred brand differential reported by respondents in 3-tier employer plans was \$11 compared with \$20 in Part D plans ($P < .01$). The \$30 nonpreferred brand differential in 3-tier employer plans was significantly less than the \$49 differential in 3-tier Part D plans ($P < .01$).

Number of prescription drugs

The number of prescription medications used in 2007 by insured respondents who were assigned a low co-payment rank was 4.8 (standard deviation [SD] = 3.2). Those assigned a medium co-payment rank used 4.4 (SD = 2.9) medications, and those receiving a high co-payment rank used 4.7 (SD = 2.9) medications. The number of medications was not significantly different between co-payment ranks ($P = .51$). Of the 494 beneficiaries assigned a co-payment rank, only the 435 with complete data were included in the regression analysis (Table 3). The adjusted R -squared for the analysis was 0.172. Co-payment rank was not found to have a significant influence on the number of medications after controlling for sex, age, education, income, health status, and source of coverage. Respondents in good, very good, or excellent health used fewer medications than those in fair or poor health. Income was not a significant predictor of the number of medications used. Respondents with Part D coverage used fewer prescription drugs than those with employer coverage ($P = .06$). The number of prescription drugs used by insured respondents who were assigned low and high coinsurance rankings in 2007 were 4.8 (SD = 3.2) and 3.8 (SD = 2.5), respectively. The difference between rankings was not statistically significant ($P = .20$).

Generic utilization rates

The overall generic utilization rate was higher after Part D implementation (Fig. 2). The generic utilization rate for those respondents in employer plans was higher after the benefit, as was the rate among those lacking drug coverage. In 2005, the generic utilization rate among the uninsured respondents exceeded the rate among those with employer coverage by 7.4 percentage points ($P < .01$). The difference between the uninsured and those with employer coverage was even greater in 2007, with a rate 12.7 percentage points higher in those uninsured ($P = .03$). The generic utilization rate for respondents in Part D was 11.5 percentage points higher than the rate for those in employer plans in 2007 ($P < .01$). The

Table 1
Respondent demographics, health status, and source of coverage in 2005 and 2007

Characteristics	2005	2007
	N (%) ^a	N (%) ^b
Sex		
Female	661 (54.2)	592 (57.8)
Age (years)	Mean = 72.9 (SD = 5.7)	Mean = 72.4 (SD = 5.7)
Race		
White non-Hispanic	1106 (90.7)	957 (93.5)
African American/black	29 (2.4)	24 (2.3)
Hispanic	59 (4.8)	19 (1.9)
Other	14 (1.1)	9 (0.9)
Education		
High school diploma or less	218 (17.9)	196 (19.1)
Some college or associate's degree	475 (38.9)	427 (41.7)
Bachelor's degree and beyond	526 (43.1)	401 (39.2)
Household income		
Less than \$15,000	81 (6.6)	67 (6.5)
\$15,000-24,999	196 (16.1)	129 (12.6)
\$25,000-49,999	532 (43.6)	322 (31.4)
\$50,000 or more	340 (27.9)	360 (35.2)
Health status		
Poor	20 (1.6)	19 (1.9)
Fair	184 (15.1)	141 (13.8)
Good	439 (36.0)	375 (36.6)
Very good	423 (34.7)	355 (34.7)
Excellent	151 (12.4)	131 (12.8)
Coverage source ^c		
No coverage	410 (33.6)	88 (8.6)
Employer/former employer	431 (35.3)	407 (39.7)
Medicare Part D	—	373 (36.4)
Government	192 (15.7)	135 (13.2)
Other	218 (17.9)	75 (7.3)

^a N = 1220 (total may vary because of missing data).

^b N = 1024 (total may vary because of missing data).

^c Percents do not sum to 100 because of missing data and some participants reporting more than 1 type of drug coverage.

rates for the Part D and uninsured groups in 2007 did not differ significantly.

Discussion

The beneficiaries responding to the surveys were more educated and wealthier on average than the general Medicare population. There was a trade-off associated with having this type of sample. A weakness was that it limited our ability to generalize the results to all Medicare beneficiaries, but the strength was that it gave us access to data on beneficiaries with employer coverage; these data have been lacking in previous research.

The percentage of beneficiaries in our study lacking drug coverage was substantially lower after the Medicare drug benefit. Seniors with drug coverage after the benefit were enrolled in mostly employer-sponsored or Part D plans with a variety of benefit structures. The percentage of beneficiaries with drug coverage who were not responsible for any of their drug costs fell from 7.5% in 2005²⁵ to 5.9% in 2007, reflecting a continuing push to reduce the number of unnecessary prescription drugs used by beneficiaries by requiring them to pay out of pocket for their medications. The percentage in each type of cost sharing (co-payment, coinsurance, and co-payment/coinsurance combination) increased from 2005²⁵ to 2007. This is likely

Table 2
Type and structure of cost sharing reported in 2007

Cost sharing	N (%) ^a
No cost sharing	55 (5.9)
Co-payment	677 (73.1)
Single tier	80 (11.8) ^b
Two tier	244 (36.0) ^b
Three tier	159 (23.5) ^b
Other/unknown ^c	194 (28.7) ^b
Coinsurance	128 (13.8)
Generic-only coverage	19 (2.1)
Co-payment/coinsurance combination ^d	16 (1.7)
Unknown cost sharing ^e	26 (2.8)

^a N = 926 (total does not sum to 926 because of missing data).

^b N = 677.

^c Nontraditional 2-tier plan or respondent did not provide enough information to identify co-payment structure.

^d Structure where use of either co-payment or coinsurance varies with tier.

^e Unable to distinguish if respondent has co-payment, coinsurance, combination, or generic-only coverage.

attributable to a loss of enrollment in plans without cost sharing and a loss of enrollment in plans with generic-only coverage. The fall in generic-only coverage is likely because of a shift of beneficiaries with this type of coverage to more comprehensive Part D plans, either owing to their decision to switch or the discontinuation of generic-only plans. The percentage of beneficiaries in single-tier and 2-tier plans fell after the drug benefit, whereas the percentage in 3-tier plans increased.²⁵ This finding is indicative of increasing financial incentives for beneficiaries to choose generic medications over brand medications and preferred brand medications over nonpreferred medications.

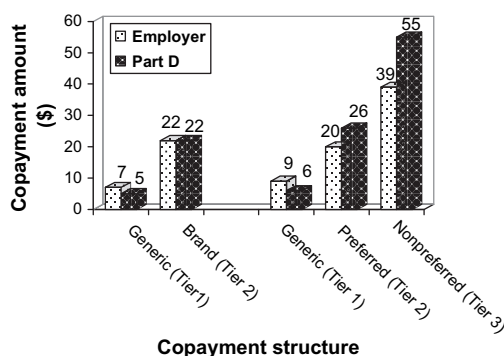


Fig. 1. Two-tier and 3-tier co-payment amounts among employer and Part D plans in 2007.

Table 3
Predictors of prescription drug use in the month before survey for individuals assigned a co-payment ranking in 2007^a

Variable	β^b	SE (β)	P value
Female	-0.177	0.271	.51
Age (years)	0.004	0.024	.85
Good health ^c	-2.437	0.400	<.01
Very good health ^c	-3.672	0.412	<.01
Excellent health ^c	-3.908	0.502	<.01
Medium co-payment rank ^d	-0.160	0.322	.62
High co-payment rank ^d	0.321	0.341	.35
Beyond high school ^e	0.575	0.359	.11
Income			
\$15,000-24,999 ^f	0.094	0.694	.89
\$25,000-34,999 ^f	0.441	0.693	.53
\$35,000-49,999 ^f	0.466	0.681	.49
\$50,000-74,999 ^f	0.503	0.684	.46
\geq \$75,000 ^f	0.389	0.698	.58
Part D drug coverage ^g	-0.575	0.306	.06
Other drug coverage ^g	0.205	0.366	.58

SE, standard error.

^a Adjusted $R^2 = 0.172$, N = 435.

^b Coefficients from an ordinary least-square regression predicting self-reported number of prescription drugs used in the month before survey.

^c Reference category: fair or poor health.

^d Reference category: low co-payment rank.

^e Highest level of education: high school or below = 0, beyond high school = 1.

^f Reference category: income < \$15,000.

^g Reference category: employer drug coverage.

The average co-payments in 3-tier national PDPs in 2007 were \$4.77 for generics, \$29.36 for preferred brands, and \$63.31 for nonpreferred brands, creating a \$25 differential between generic and preferred brand co-payments and a \$59 differential between generic and nonpreferred brand co-payments.²³ The average generic co-payment we found for Part D enrollees was slightly higher, and the average preferred and nonpreferred brand co-payments were lower,

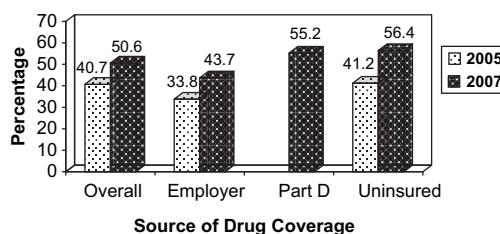


Fig. 2. Generic utilization rates in 2005 and 2007.

making the \$20 and \$49 differentials we found lower than the national estimates. Both are still higher than the \$11 and \$30 differentials we found in employee retiree plans. The larger differentials in the Part D plans appear to be a function of lower generic co-payments and higher brand co-payments compared with employer plans. Larger differentials suggest that Part D plans are using financial incentives more extensively than retiree plans, which echoes the relationship between differentials in Part D plans and employer plans for younger workers.²³ This is not to say employer plans are less concerned about controlling drug costs. Instead, employer plans may be under more pressure from employees and retirees to not increase cost sharing; hence, they may be using other techniques to encourage generic use, such as educational campaigns.

Cost sharing amounts did not affect the number of prescription drugs used by Medicare beneficiaries, at least not in our sample of wealthier, more-educated beneficiaries. This finding is consistent with our earlier finding from the baseline survey that higher cost sharing was not associated with lower prescription drug use.²⁵ Another study assessing the impact of Medicare Part D on seniors with Medicaid found that cost-sharing amounts for these individuals changed significantly with no concomitant change in the use of the medications studied, and these were low-income seniors for whom cost sharing is of greater concern.²⁶ Our findings do not imply that cost sharing does not affect adherence or drug selection but only imply that it does not affect the number of medications. Differences in cost sharing amounts between ranks may have been muted, because a given rank included respondents with a range of amounts. However, we did group respondents with similar cost sharing amounts together by using multiple market basket scenarios to determine group assignment.

Assessing the differences in the number of medications by source of coverage in 2007 and controlling for important factors, such as health status, income, education, and co-payment amounts, we found a trend toward those in Part D plans using fewer drugs than those in employer plans. This may be a function of greater use of other strategies to control prescription drug use in Part D plans, such as deductibles, more limited formularies, and other utilization management techniques. It also could result from unmeasured differences in health statuses between the 2 groups or from the “doughnut hole” in Medicare Part D,

the coverage gap where individuals in Part D pay the full portion of their drug costs once they exceed the initial coverage level but have not yet reached the catastrophic coverage level.

Generic use rose among those lacking prescription coverage and those with employer coverage, resulting in an overall increase in generic use from 2005 to 2007. Generic use was highest among those lacking drug coverage and lowest among those with employer coverage in 2005 and 2007. Those with drug coverage face smaller differences in price between generics and brands than those without drug coverage, giving them less incentive to choose generics over brands. Generic use among those with Part D coverage exceeded generic use among those with employer coverage. This is likely because of the greater emphasis on financial incentives used by Part D plans or because of the Medicare Part D coverage gap.

Rising generic use from 2005 to 2007 among those with employer coverage seems, at least in part, to be the result of movement toward 3-tier cost sharing. The percentage of respondents in 3-tier plans in 2007 was 25.9%, compared with 20.7% in 2005. Other factors driving generic utilization rates, such as step therapy, patent expirations for current blockbuster drugs, and lack of new blockbuster drugs, were not accounted for²⁷; however, the uninsured served as a control group, because they were not exposed to drug utilization management tools but were exposed to patent expirations and new drug releases. It is notable that the 2007 generic utilization rate was not significantly different between the uninsured individuals and individuals with Part D coverage. This suggests that the Part D plans' financial incentives to use generic drugs have been successful or that the coverage gap causes people with Part D coverage to act like the uninsured in their use of generic drugs.

Limitations

Generalization of the study results is limited to Medicare beneficiaries with higher-than-average incomes and education, because they formed a major part of our sample. The respondents were also mostly white, and all used computers.

Beneficiaries choose their type of coverage. Thus, beneficiaries who anticipate high prescription drug use may select plans with lower cost sharing, whereas beneficiaries with low expected use of medications may select plans with higher cost sharing. The researchers were unable to

decipher whether cost sharing drove the number of prescription drugs used or whether the number of prescription drugs used drove the selection of coverage and lower or higher cost sharing. Although propensity scores and instrumental variable techniques are at times useful in handling selection problems, small sample size and lack of information on key predictors of insurance choice preclude their use in this study.

Small subgroups may not have provided enough power to detect a difference in the number of prescription drugs used by beneficiaries with different cost sharing rankings. Furthermore, the cost sharing rankings did not capture nonpreferred brand co-payments or coinsurance or deductibles.

Medication lists were self-reported, and how the participant reported a drug determined if it was categorized as brand or generic. Thus, generic utilization rates may not accurately represent actual generic dispensing rates but do allow for comparison between coverage groups. Additionally, recent evidence suggests generic use fluctuates depending on the level of beneficiary coverage.^{22,28} A report by the Kaiser Family Foundation revealed that half of those who reached the Part D coverage gap in 2007 did so before September, and those who reached the gap remained there for 4 months on average.²⁹ Our follow-up survey captured prescription use from October to November 2007 but did not assess whether beneficiaries reached the coverage gap. Generic use during this time for beneficiaries who had reached the coverage gap may have been higher than earlier in the year, but we were unable to assess this phenomenon. Similarly, those in the coverage gap may have been using fewer prescription drugs than they had been using before the gap.

Although multiple questions were asked to clarify prescription drug coverage, it was not always possible to classify the cost sharing structure, because individuals failed to provide complete information. Thus, the estimates of beneficiaries in tiered plans may be artificially low.

Conclusion

Medicare beneficiaries in this sample were enrolled predominantly in Part D and employer plans in 2007. The second- and third-tier cost sharing amounts were significantly greater for individuals with Part D coverage than individuals with employer coverage. The number of medications used was not associated with the cost sharing level, but individuals with Part D coverage used fewer

prescriptions than individuals with employer coverage. Overall generic use increased from 2005 to 2007 by about 10 percentage points. In 2007, generic utilization rates were significantly higher for individuals in Part D plans than for individuals in employer plans, likely because of the stronger Part D incentives to use generics. Of note, generic rates were not significantly different between individuals without prescription drug coverage and those with Part D coverage.

Acknowledgments

The authors would like to thank Harris Interactive® for its assistance with the project.

References

1. Hoadley J. *Cost Containment Strategies for Prescription Drugs: Assessing the Evidence in the Literature*. Menlo Park, CA: Kaiser Family Foundation; 2005.
2. Goldman DP, Joyce GF, Zheng Y. Prescription drug cost sharing: associations with medication and medical utilization and spending and health. *JAMA* 2007;298(1):61–69.
3. Anis AH, Guh DP, Lacaille D, et al. When patients have to pay a share of drug costs: effect on frequency of physician visits, hospital admissions and filling of prescriptions. *CMAJ* 2005;173(11):1335–1340.
4. Li X, Guh D, Lacaille D, Esdaile J, Anis AH. The impact of cost sharing of prescription drug expenditures on health care utilization by the elderly: own- and cross-price elasticities. *Health Policy* 2007;82(3):340–347.
5. Dormuth CR, Glynn RJ, Neumann P, Maclure M, Brookhart AM, Schneeweiss S. Impact of two sequential drug cost-sharing policies on the use of inhaled medications in older patients with chronic obstructive pulmonary disease or asthma. *Clin Ther* 2006;28(6):964–978.
6. Schneeweiss S, Patrick AR, Maclure M, Dormuth CR, Glynn RJ. Adherence to statin therapy under drug cost sharing in patients with and without acute myocardial infarction: a population-based natural experiment. *Circulation* 2007;115(16):2128–2135.
7. Tamblyn R, Laprise R, Hanley JA, et al. Adverse events associated with prescription drug cost-sharing among poor and elderly persons. *JAMA* 2001;285(4):421–429.
8. Contoyannis P, Hurley J, Grootendorst P, Jeon SH, Tamblyn R. Estimating the price elasticity of expenditure for prescription drugs in the presence of non-linear price schedules: an illustration from Quebec, Canada. *Health Econ* 2005;14(9):909–923.
9. Blais L, Boucher JM, Couture J, Rahme E, LeLorier J. Impact of a cost-sharing drug insurance

- plan on drug utilization among older people. *J Am Geriatr Soc* 2001;49(4):410–414.
10. Pilote L, Beck C, Richard H, Eisenberg MJ. The effects of cost-sharing on essential drug prescriptions, utilization of medical care and outcomes after acute myocardial infarction in elderly patients. *CMAJ* 2002;167(3):246–252.
 11. Artz MB, Hadsall RS, Schondelmeyer SW. Impact of generosity level of outpatient prescription drug coverage on prescription drug events and expenditure among older persons. *Am J Public Health* 2002;92(8):1257–1263.
 12. Shea DG, Terza JV, Stuart BC, Briesacher B. Estimating the effects of prescription drug coverage for Medicare beneficiaries. *Health Serv Res* 2007;42(3 Pt 1):933–949.
 13. Doshi JA, Polsky D. Drug benefit generosity and essential medication use among Medicare-eligible retirees. *Am J Manag Care* 2007;13(7):425–431.
 14. Thomas CP, Wallack SS, Lee S, Ritter GA. Impact of health plan design and management on retirees' prescription drug use and spending, 2001. *Health Aff (Millwood)* 2002;(suppl web exclusives):W408–W419.
 15. Johnson RE, Goodman MJ, Hornbrook MC, Eldredge MB. The effect of increased prescription drug cost-sharing on medical care utilization and expenses of elderly health maintenance organization members. *Med Care* 1997;35(11):1119–1131.
 16. Johnson RE, Goodman MJ, Hornbrook MC, Eldredge MB. The impact of increasing patient prescription drug cost sharing on therapeutic classes of drugs received and on the health status of elderly HMO members. *Health Serv Res* 1997;32(1):103–122.
 17. Balkrishnan R, Byerly WG, Camacho FT, Shrestha A, Anderson RT. Effect of prescription benefit changes on medical care utilization in a Medicare HMO population. *Am J Manag Care* 2001;7(11):1093–1100.
 18. Coulson NE, Stuart BC. Insurance choice and the demand for prescription drugs. *South Econ J* 1995;61(4):1146–1157.
 19. Gilman BH, Kautter J. Consumer response to dual incentives under multitiered prescription drug formularies. *Am J Manag Care* 2007;13(part 2):353–359.
 20. Safran DG, Neuman P, Schoen C, et al. Prescription drug coverage and seniors: findings from a 2003 national survey. *Health Aff (Millwood)* 2005;(suppl web exclusives). W5-152–W5-166.
 21. Gilman BH, Kautter J. Impact of multitiered copayments on the use and cost of prescription drugs among Medicare beneficiaries. *Health Serv Res* 2008;43(2):478–495.
 22. New study says generic drugs now own 63% of Medicare Part D market—up from 50% less than three years ago, Wolters Kluwer Health. Available at: http://www2.prnewswire.com/cgi-bin/stories.pl?ACCT=ind_focus.story&STORY=/www/story/06-23-2008/0004836991&EDATE=; 2008. Accessed 19.11.09.
 23. Hoadley J, Hargrave E, Merrell K, Cubanski J, Neuman T. *Medicare Part D 2008 Data Spotlight: Benefit Design*. Menlo Park, CA: Kaiser Family Foundation; 2007.
 24. Neuman P, Strollo MK, Guterman S, et al. Medicare prescription drug benefit progress report: findings from a 2006 national survey of seniors. *Health Aff (Millwood)* 2007;26(5):w630–w643.
 25. Goedken AM, Urmie JM, Farris KB, Doucette WR. Effect of cost-sharing on prescription drug use by Medicare beneficiaries prior to the Medicare drug benefit and potential adverse selection in the benefit. *J Am Pharm Assoc (2003)* 2009;49:18–25.
 26. Shrank WH, Patrick AR, Pedan A, et al. The effect of transitioning to Medicare Part D drug coverage in seniors dually eligible for Medicare and Medicaid. *J Am Geriatr Soc* 2008;56:2304–2310.
 27. Catlin A, Cowan C, Hartman M, Heffler S. National health spending in 2006: a year of change for prescription drugs. *Health Aff (Millwood)* 2008;27(1):14–29.
 28. Medco Study: Medicare coverage gap leads to drop off in drug therapy for high cholesterol patients; brand medication users at greatest risk, Medco Health Solutions. Available at: <http://medco.mediaroom.com/index.php?s=43&item=343>; 2008. Accessed 19.11.09.
 29. Hoadley J, Hargrave E, Cubanski J, Neuman T. *The Medicare Part D Coverage Gap: Costs and Consequences in 2007*. Menlo Park, CA: Kaiser Family Foundation; 2008.

Appendix

Selected survey items and response options

Source of coverage

“Do you currently have an insurance plan or any other program that pays for all or part of your prescription drug costs?”^{a,b}: *Yes, No, Not sure*

Note: respondents were instructed to answer “no” if they had a prescription drug discount card, but no other assistance.

“What is the source of your prescription drug coverage?”^c:

Employer^{a,b}, *Government*^a, *Individual*^a, *Medicare HMO*^a, *Other*^{a,b}, *Medicare Part D*^b, *VA*^b

Cost sharing

“Do you have to pay part of your prescription drug costs?”^{a,b,c}: *Yes, No*

“Which of the following best describes the type of cost-sharing that your prescription drug plan may use?”^{:c,d}

Copayment^d: *Yes, No*

Coinsurance^a: *Yes, No*

Type of cost-sharing^b: *Copayment, Coinsurance, Combination of copayment & coinsurance*

Deductible^{a,b}: *Yes, No*

Amount of cost-sharing:^{c,d}

Generic, Preferred brand, Non-preferred brand^{a,b}: *Numeric response*

Deductible^{a,b}: *Numeric response*

Mandatory text box where respondents were asked to describe any other type of cost-sharing or clarify anything about their cost-sharing^{a,b,c}

“Some prescription drug plans restrict the number, type, or dollar amount of prescriptions they will pay for.

Please select any of the following types of restrictions that your plan has.”^{:c,d}

Only pays for generic drugs.^{a,b}: *Yes, No*

Only pays for a limited number of prescriptions per month^{a,b}: *Yes, No*

Only pays for a limited dollar amount of prescriptions per month or per year^{a,b}: *Yes, No*

Has a coverage gap or “donut” hole^b: *Yes, No*. If “yes”, asked to describe their coverage gap.

Other restrictions^{a,b}: *Yes, No*

Medication use

“How many different prescription medicines have you used in the past month?”^{a,b}: *Numeric response*

List of medications used, including name, strength, directions, quantity used in last 30 days, and reason for taking^{a,b}

Demographics

“How would you rate your health compared to others who are your age?”^{a,b}: *Poor, Fair, Good, Very good, Excellent*

Year born^{a,b}: *Numeric response*

Sex^{a,b}: *Male, Female*

Highest level of education^{a,b}: *Less than high school, Some high school, High school or equivalent, Some college but no degree or associate’s degree, Bachelor’s degree, Some grad coursework but no degree, Graduate degree*

Household income^{a,b}: *<\$15,000, \$15,000 to \$24,999, \$25,000 to \$34,999, \$35,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$124,999, \$125,000 to \$149,999, \$150,000 to \$199,999, \$200,000 to \$249,999, \$250,000 or more, Decline to answer, Unknown*

a 2005 survey.

b 2007 survey.

c Only asked of respondents who indicated they had prescription drug coverage.

d Definitions of terms were provided and/or examples were provided.